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

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

USS CLAIRTON WORKS
A DIVISION OF USX CORPORATION
CLAIRTON, PA

Report on
COMPLIANCE DEMONSTRATION
7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL

FEBRUARY 1993

Prepared By: CHESTER ENVIRONMENTAL
Project No.: 300197-01

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ABSTRACT

A demonstration of the pushing emissions control system for Batteries 7, 8, and 9 operated at USS Clairton Works was conducted on December 8, 9, and 10, 1992. The purpose of the test program was to determine (1) the particulate matter emissions rate in the exhaust of the baghouse, (2) the opacity of the plumes of the baghouse exhaust, (3) the opacity of the plume which resulted from the pushing of the coke into the hot car, and (4) the opacity of the plume which resulted from the travelling of the hot car to the quenching station. Emissions testing was conducted only when coke was pushed from an oven in Battery 7, 8, or 9.

The results of the testing showed an average particulate matter emissions rate of 1.87 lbs per hour, while the allowable emissions rate is 4.47 lbs per hour. No visible emissions were observed from any of the baghouse stacks during the test program. Over the three day test program, a maximum plume opacity during the pushing operation greater than or equal to 20 percent was observed five times, with all cases occurring on the first day of the test program, while a maximum plume opacity during the travelling operation greater than 10 percent was observed on 16 of the 60 cases on the first day of the test program, six of the 60 cases on the second day of the test program, and one of the 60 cases on the third day of the test program. During the pushing operation, the plume opacity was greater than or equal to 20 percent for an average of 0.1 seconds. During the travelling operation, the plume opacity was greater than 10 percent for an average of 0.6 seconds.

1.0 INTRODUCTION

As required by Paragraph V.A. (5)(f) of the amended Mon Valley Consent Decree, a demonstration of the pushing emissions control system for Batteries 7, 8, and 9 operated at USS Clairton Works was conducted on December 8, 9, and 10, 1992. A baghouse controls the emissions which result from the pushing operations from the ovens of Batteries 7, 8, and 9. The purpose of the test program was to determine (1) the particulate matter emissions rate in the exhaust of the baghouse, (2) the opacity of the plumes of the baghouse exhaust, (3) the opacity of the plume which resulted from the pushing of the coke into the hot car, and (4) the opacity of the plume which resulted from the travelling of the hot car to the quenching station. Emissions testing was conducted only when coke was pushed from an oven in Battery 7, 8, or 9.

The field work activities were completed by Chester Environmental. The test crew included Richard Casselberry, Bernie May, Darren McKoy, James McKoy, Thomas Morgan, Paul Pastorik, John Shimshock, and John Smelko. All test procedures were witnessed by the Allegheny County Health Department Bureau of Air Pollution Control (BAPC).

2.0 METHODOLOGIES

A test protocol was prepared by Chester Environmental and submitted to BAPC prior to the execution of the test program. A copy of the test protocol can be found in Appendix A. Specific methodologies employed in the test program are outlined below.

The baghouse exhausts through four stacks; the emissions from each of these 36 inch diameter stacks were sampled simultaneously. A total of three test runs were completed on each of the four baghouse stacks with one series of tests completed on each of the three days of testing. Testing was performed only during periods of normal plant operation.

Each traverse for each stack included 12 traverse points as calculated from EPA Method 1 (40 CFR 60 Appendix A). For each stack, sampling was conducted along a total of five traverses, or 60 traverse points, with each push sampled for the required one minute at one traverse point. Sampling was conducted on each stack through two sampling ports which were separated by 90 degrees in the same horizontal plane. Three traverses were travelled through one port, while the remaining two traverses were travelled through the other port.

In accordance with EPA Method 2, exhaust gas velocities and volumetric flow rates were determined using a calibrated S type Pitot tube. Positive and negative Pitot lines were leak-checked at the beginning and end of each test run. Gas velocity differential pressures along with stack gas temperatures were recorded at each sampling point.

Gas concentrations of carbon dioxide (CO_2), oxygen (O_2), and nitrogen (N_2, by difference) were determined with the use of a Bacharach "Fyrite" apparatus as specified by EPA Method 3. Gas concentrations were used to obtain molecular weight of the process gas on a dry basis.

Percent moisture content, by volume, of the exhaust gas was determined by measuring the weight gain of the four sample train impingers in accordance with EPA Method 4.

Particulate matter sampling was performed in accordance with EPA Method 5 and Sections 139.11 and 139.12 of the Pennsylvania Department of Environmental Resources (PA DER) Source Testing Manual (Revision Number 1, January 1983) with the exception that the DER requirement of sampling 50 cubic feet of exhaust gas was replaced with the requirement of sampling the emissions from 60 pushes. The emissions from each push were sampled for one minute. Thus, a total of 60 minutes of sampling was completed.

Clean up of the sampling train included a water and acetone rinse of both the front-half and back-half components. The water soluble and water insoluble portions of the front-half of the sampling train were determined as a total, while the water soluble and water insoluble portions of the back-half were determined separately. The back-half water and the water soluble rinses of the back-half components of the sampling train were treated in accordance with Section 139.12 of the DER Source Testing Manual.

All plume opacity determinations were performed in accordance with EPA Method 9 and Section F of Chapter 18 of the BAPC Source Testing Manual. During the pushing operation, the maximum plume opacity and length of time (in seconds) when the plume opacity was greater than or equal to 20 percent were recorded. During the travelling operation, the maximum plume opacity and length of time (in seconds) when the plume opacity was greater than 10 percent were recorded. Visible emissions from the baghouse stacks were recorded for one minute for each push in which emissions testing was conducted.

3.0 RESULTS

All testing was performed during periods of normal plant operation. Copies of the plant operational data for each day of the test program for Batteries 7, 8, and 9 can be found in Appendix B.

All sampling equipment was calibrated and operated in accordance with EPA Methods 1 through 5. Copies of the pre-test calibration results, post-test calibration results, and results of an audit of the control boxes conducted with a critical orifice provided by BAPC can be found in Appendix C.

Copies of the field data sheets can be found in Appendix A. The analytical results and emissions calculations for each test can be found in Appendix D. The results have been summarized in Tables 3-1, 3-2, 3-3, and 3-4. The total particulate matter emissions rates for each day of testing was obtained by summing the emissions rates from each stack. The three day average particulate matter emissions rate is 11.34 pounds per hour of pushing (lb/hr pushing). Since emissions do not occur continuously, the mass emission rate has to be adjusted for the number of pushes which occurred during the testing periods. Since there were, on average, 9.88 pushes of coke per hour, and each push was sampled for one minute, the actual emission rate (based on a continuous operation) is equal to the following:

$$\frac{11.34\ \text{lb}}{\text{hr pushing}} \times \frac{1\ \text{hr pushing}}{60\ \text{min pushing}} \times \frac{1\ \text{min pushing}}{1\ \text{push}} \times \frac{9.88\ \text{pushes}}{\text{hr}} = 1.87\ \text{lbs/hr}$$

The allowable particulate matter emissions rate is equal to 0.04 lbs per ton of coke pushed. Since there were on average 11.3 tons of coke per oven, and on average 9.88 ovens were pushed per hour, the particulate matter emissions rate is equal to (0.04 lbs / ton coke pushed) x (11.3 tons coke pushed / oven) x (9.88 ovens pushed / hour), or 4.47 lbs per hour. Thus, the average particulate matter emissions rate determined in the test program is less than the allowable emissions rate.

TABLE 3-1

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 7, 8, AND 9
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 1
TEST DATE: 12-8-92
TEST TIME: 8:53 TO 14:59

Stack Number Test Number		2-1 CLR-2-1-1	2-2 CLR-2-2-1	2-3 CLR-2-3-1	2-4 CLR-2-4-1	Total
Mass Emission Rate and Concentration						
Particulate Matter	(lb/hr pushing)	14.32	1.23	0.86	0.53	16.95
	(gr/dscf)	0.0740	0.0058	0.0037	0.0022	
Stack Conditions						
Flow Rate	(acfm)	24408	26311	29128	30479	
	(scfm)	22842	25104	27208	28909	
	(dscfm)	22598	24813	26854	28631	
Temperature	(°F)	99	89	101	92	
Moisture Content	(%)	1.1	1.2	1.3	1.0	
Sampling Conditions						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	38.653	51.747	35.819	55.725	
Isokinetics	(%)	114.0	98.4	62.9	129.8	

TABLE 3-2

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 7, 8, AND 9
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 2
TEST DATE: 12-9-92
TEST TIME: 8:33 TO 14:44

Stack Number		2-1	2-2	2-3	2-4	Total
Test Number		CLR-2-1-1	CLR-2-2-1	CLR-2-3-1	CLR-2-4-1	
Mass Emission Rate and Concentration						
Particulate Matter	(lb/hr pushing)	7.09	0.56	0.34	0.69	8.68
	(gr/dscf)	0.0364	0.0024	0.0015	0.0028	
Stack Conditions						
Flow Rate	(acfm)	24656	28634	29332	30453	
	(scfm)	22991	27060	27471	29178	
	(dscfm)	22729	26749	27125	28699	
Temperature	(°F)	101	95	100	87	
Moisture Content	(%)	1.1	1.2	1.3	1.6	
Sampling Conditions						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	37.683	31.751	33.264	45.418	
Isokinetics	(%)	110.5	102.7	106.1	105.5	

TABLE 3-3

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 7, 8, AND 9
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 3
TEST DATE: 12-10-92
TEST TIME: 8:47 TO 14:46

Stack Number		2-1	2-2	2-3	2-4	Total
Test Number		CLR-2-1-1	CLR-2-2-1	CLR-2-3-1	CLR-2-4-1	
Mass Emission Rate and Concentration						
Particulate Matter	(lb/hr pushing)	5.94	0.62	1.19	0.65	8.39
	(gr/dscf)	0.0310	0.0028	0.0051	0.0027	
Stack Conditions						
Flow Rate	(acfm)	24490	27714	29952	29532	
	(scfm)	22725	26035	27869	28040	
	(dscfm)	22377	25553	27337	27774	
Temperature	(°F)	94	89	94	83	
Moisture Content	(%)	1.5	1.9	1.9	1.0	
Sampling Conditions						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	37.121	30.037	32.455	43.535	
Isokinetics	(%)	110.6	101.7	102.7	104.5	

TABLE 3-4

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 7, 8, AND 9
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

SUMMARY OF DAYS 1, 2, AND 3

Day	Test Date	Particulate Matter Emissions (lb/hr pushing)
1	12-8-92	16.95
2	12-9-92	8.68
3	12-10-92	8.39
Average		11.34

Tables 3-1, 3-2, and 3-3 also list other pertinent stack and sampling parameters including the exhaust gas flow rate in units of actual cubic feet per minute (acfm), standard cubic feet per minute (scfm), and dry standard cubic feet per minute (dscfm), moisture content of the exhaust gas, exhaust gas temperature, gas volume sampled for each test (dscf), and the isokinetics value for each test. The isokinetics value is equal to the ratio of the average linear gas velocity sampled through the probe nozzle to the average exhaust gas velocity. An isokinetics value between 90% and 110% is considered acceptable. All sample volumes were greater than 30 dscf per test. Five of the twelve isokinetics values were outside the acceptable range of values. However, the emissions rates determined in this test program were low in comparison with the standard.

The plume opacity data has been summarized in Table 3-5. No visible emissions were observed from any of the baghouse stacks during the test program. Over the three day test program, a maximum plume opacity during the pushing operation greater than or equal to 20 percent was observed five times, with all cases occurring on the first day of the test program. For these particular cases, a maximum plume opacity during the travelling operation greater than 10 percent was observed four times.

Over the three day test program, a maximum plume opacity during the travelling operation greater than 10 percent was observed on 16 of the 60 cases on the first day of the test program, six of the 60 cases on the second day of the test program, and one of the 60 cases on the third day of the test program.

A pushing performance or travel performance of 100 percent was registered if the maximum plume opacity observed during the pushing or travelling operation was less than 20 percent or less than or equal to 10 percent, respectively. A pushing performance or travel performance of 0 percent was registered if the maximum plume opacity was greater than or equal to 20 percent or greater than 10 percent, respectively. The average pushing performance for test program was 97.2 percent, while the average travel performance was 87.2 percent. During the pushing operation, the plume opacity was greater than or equal to 20 percent for an average of 0.1 seconds. During the

TABLE 3-5

USS CLAIRTON WORKS
CLAIRTON, PA

7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL
VISIBLE EMISSIONS DATA SUMMARY

Baghouse Stacks

Observation Date	Number of Observations	Greatest Opacity (%)
12-8-92	240	0
12-9-92	240	0
12-10-92	240	0

Pushing Operation

Observation Date	Number of Observations	Number of Observations with Opacity >=20%	Pushing Performance (%)	Average Time with Opacity > 20% (sec)
12-8-92	60	5	91.7	0.3
12-9-92	60	0	100	0
12-10-92	60	0	100	0
		5		
Average			97.2	0.1

Travelling Operation

Observation Date	Number of Observations	Number of Observations with Opacity >10%	Travelling Performance (%)	Average Time with Opacity >=10% (sec)
12-8-92	60	16	73.3	1.0
12-9-92	60	6	90.0	0.7
12-10-92	60	1	98.3	0.2
		23		
Average			87.2	0.6

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travelling operation, the plume opacity was greater than 10 percent for an average of 0.6 seconds.

COMPLIANCE DEMONSTRATION
7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL

USS CLAIRTON WORKS
CLAIRTON, PA

APPENDIX A

TEST PROTOCOL, FIELD DATA SHEETS

COMPLIANCE TEST PROTOCOL
BATTERIES 7, 8, & 9
PUSHING EMISSIONS CONTROL SYSTEM

Prepared for:

USS CLAIRTON WORKS
CLAIRTON, PA

Prepared by:

KEYSTONE ENVIRONMENTAL RESOURCES
3000 TECH CENTER DRIVE
MONROEVILLE, PA 15146

PROJECT NUMBER: 300197-01

OCTOBER 1992

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

As required by the amended Mon Valley Consent Decree (Paragraph V.A. (5)(f)), a compliance demonstration will be conducted on the baghouse which controls the pushing emissions from Batteries 7, 8, and 9 operated at the USS Clairton Works. The purpose of this testing is to (1) determine the particulate matter emissions rates and concentrations from the exhaust stacks of the baghouse, (2) compare the measured particulate matter emissions rate with the allowable particulate matter emissions rate, (3) determine the presence of visible emissions from the baghouse stacks, and (4) measure the opacity of the plumes which result from the pushing of the coke into the hot car and during the travelling of the hot car to the quenching station. The three day test program will be performed during periods of normal plant production and operation.

Particulate matter sampling will be performed in accordance with EPA Stationary Source Sampling Methods 1 through 5, requirements set forth in Chapter 18, Section F of the Allegheny County Health Department Bureau of Air Pollution Control (BAPC) Source Testing Manual, and Sections 139.11 and 139.12 of the Pennsylvania Department of Environmental Resources (PA DER) Source Testing Manual (Revision Number 1, January 1983) with the exception that the PA DER requirement of 50 dry standard cubic feet sample volume of exhaust gas will be replaced with the requirement of sampling the emissions from 60 pushes. The emissions from each push will be sampled for 1 minute. Thus, a total of 60 minutes of sampling will be completed. A total of three test runs (one test run per day) will be performed for each of the 4 stacks of the baghouse with all stacks being tested simultaneously.

The baghouse exhausts through four individual stacks. All of the stacks measure 36 inches in inside diameter. Each diametral traverse for the stack will include 12 traverse points as calculated by EPA Stationary Source Sampling Method 1. Sampling will conducted along a total of 5 traverses, or 60 traverse points, with each push sampled for the required 1 minute at one traverse point. Sampling will be conducted through 2 sampling ports which are separated by 90° in the same horizontal plane. Three traverses will be performed through one port, while the remaining 2 traverses will be performed through the other port. A schematic diagram of the stack and traverse points is presented in Figure 1.

In accordance with EPA Method 2, velocities and volumetric flow rates of the exhaust gas will be determined using a calibrated S type Pitot tube. Positive and negative Pitot lines will be leak-checked at the beginning and end of each test run. Gas velocity differential pressures

along with stack gas temperatures will be recorded at each sampling point. Static pressure of the exhaust gas stream will be measured with the same Pitot tube.

During each test, gas concentrations of carbon dioxide (CO_2), oxygen (O_2), and nitrogen (N_2, by difference), will be determined with the use of a Bacharach "Fyrite" apparatus as specified by EPA Method 3. Gas concentrations will be used to obtain molecular weight of the exhaust gas on a dry basis.

Percent moisture content, by volume, of the exhaust gas will determined by measuring the weight gain of the four sample train impingers in accordance with EPA Method 4.

As specified by EPA Method 5, each sample train will be assembled as required by the method, leak-checked on site at the beginning and end of each test run, and operated so that isokinetic conditions are maintained. Clean up of the sampling train will include a water rinse followed by an acetone rinse of both the front-half and back-half components of the sample train, as per PA DER particulate matter test method requirements. The water soluble and water insoluble portions of the front-half of the sampling train will be determined as a total; that is, the water rinse will not be filtered to determine soluble and insoluble portions. However, the water soluble and water insoluble portions of the back-half will be determined separately in accordance with Section 139.12 of the PA DER Source Testing Manual. The back-half water rinses and first three impinger solutions will be filtered under suction through a preweighed 0.22 micrometer filter. The filter used to capture the insoluble material will be dried, desiccated, and weighed to a constant weight. Front-half acetone and water rinses and back-half acetone rinses will be evaporated to dryness, desiccated, and weighed to a constant weight. Sample train filters will be desiccated for 24 hours, and particulate matter weight will be determined gravimetrically. Rinse residue weights and filter weights will be measured to the nearest 0.1 mg. One acetone blank and one deionized distilled water blank will be prepared in the same manner as the test sample rinses. The blank weights will be subtracted from the test sample weights. After blank correction, front-half residue weights, sample filter weights, and back-half water insoluble filter weights and acetone residue weights will added together to determine total particulate matter catch.

All visible emissions determinations from the baghouse exhausts stacks will be performed in accordance with EPA Stationary Source Sampling Method 9 and BAPC Method 18F. Visible

emissions will be recorded for the duration of each of the sixty oven pushes. All plume opacity measurements will also be performed in accordance with EPA Method 9 and BAPC Method 18F. During the pushing operation, the maximum plume opacity and length of time (in seconds) when the plume opacity is greater than or equal to 20% will be recorded. During the travelling operation, the maximum plume opacity and length of time (in seconds) when the plume opacity is greater than 10% will be recorded.

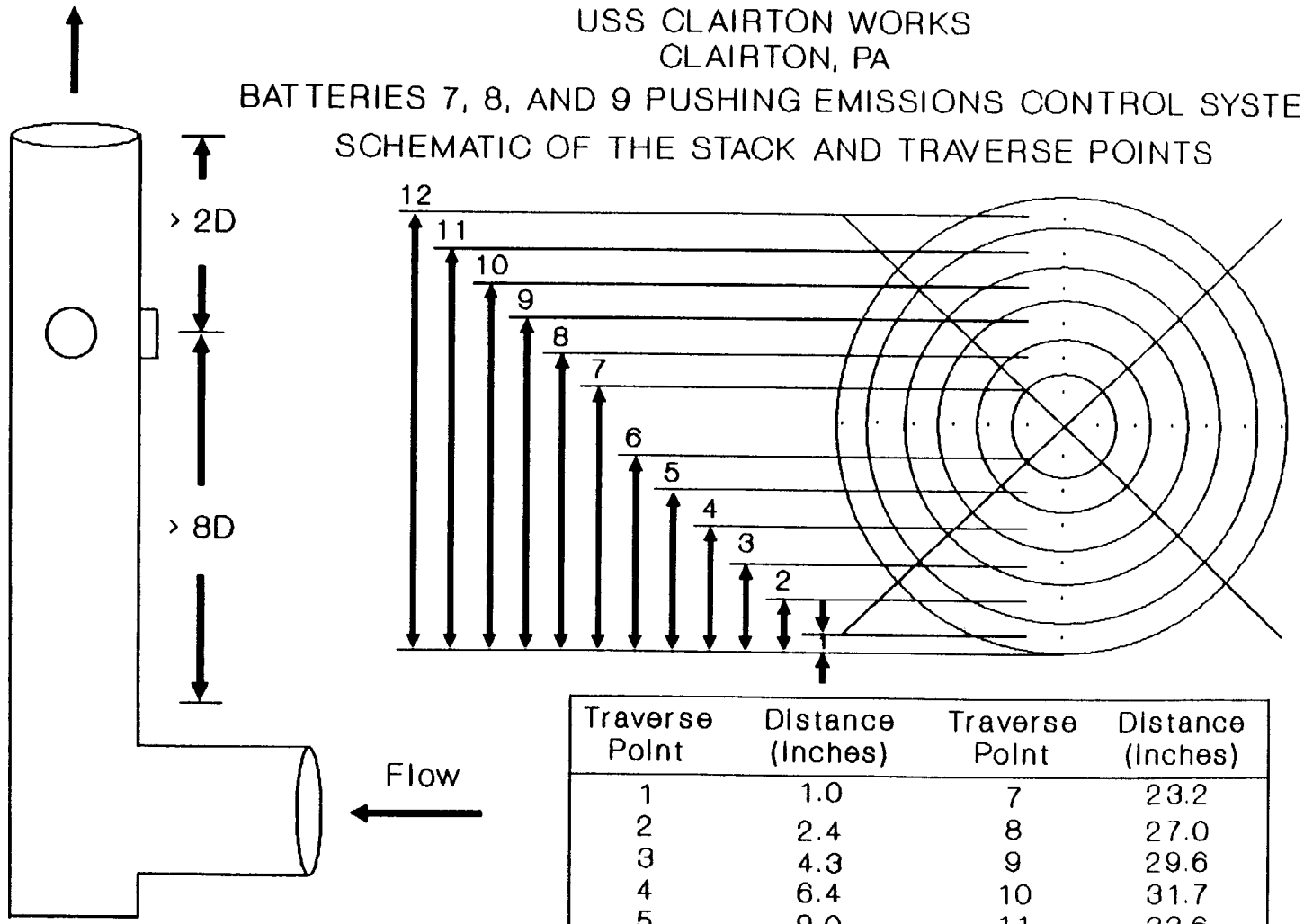
A report summarizing the compliance test program will be submitted within 60 days following completion of field work. The report will describe test methodologies utilized and present a textual and tabular summary of the emissions results and related sampling information. Copies of operational data will be included in the report to verify that all testing was performed during periods of normal plant operation. Also incorporated into the report will be copies of the pre-test calibration results, post-test calibration results, the results of an audit conducted with a critical orifice provided by the BAPC, field data sheets for the particulate matter sampling and visible emissions determinations, computer-generated emissions calculations, and analytical results for each test.

FIGURE 1

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 7, 8, AND 9 PUSHING EMISSIONS CONTROL SYSTEM

SCHEMATIC OF THE STACK AND TRAVERSE POINTS



Stack Diameter (D) = 36 inches

Traverse Point	Distance (Inches)	Traverse Point	Distance (Inches)
1	1.0	7	23.2
2	2.4	8	27.0
3	4.3	9	29.6
4	6.4	10	31.7
5	9.0	11	33.6
6	12.8	12	35.0

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JPS
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-2-1
NOZZLE (SIZE,#) 0.214 #45
STATIC PRESSURE 1.2"
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 3
PROBE NO. 5-2
FILTER NO. 161 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		414.480	1.10	2.24	2.24	51	53	8.0	90	250	<68°F	250	1 min./point
2.4		415.258	1.20	2.45	2.45	52	52	9.0	90				
4.3		416.133	1.10	2.24	2.24	53	51	8.0	93				
6.4		416.966	1.20	2.45	2.45	54	53	9.0	94				
9.0		417.815	1.20	2.45	2.45	51	55	9.0	94				
12.8		418.673	1.10	2.24	2.24	53	52	8.0	93				
23.2		419.489	1.20	2.45	2.45	52	54	9.0	92				
27.0		420.356	1.20	2.45	2.45	53	53	9.0	92				
29.6		421.234	1.20	2.45	2.45	54	53	9.0	93				
31.7		422.082	1.20	2.45	2.45	52	55	9.0	93				
33.6		422.946	1.20	2.45	2.45	55	57	9.0	92				
35.0		423.835	1.20	2.45	2.45	51	54	9.0	91				
		424.675											

Estimates:
MW=28.8
%H2O= 1 %

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-8-92	ORIFICE CORRECTION (ΔH@)		HOT/COLD BOX NO.	
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-3-1	METER CORRECTION (Y)		PROBE NO.	5-4
PROJECT NO. 300197-101	NOZZLE (SIZE,#) 214 #54	CALIBRATION DATE		FILTER NO.	Q72
TEST CREW KC	STATIC PRESSURE 1.7	PITOT CORRECTION	0.84	STACK DIA.	36"
BAROMETRIC PRESSURE 29.60	PORT DIRECTION West	CONTROL BOX NO.		PORT SIZE	4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		289.165	1.2	.80	.80	54	45	4.0	99	250	<68°F	250	1 min./point
33.6		289.700	1.6	1.06	1.06	55	45	4.0	100				
31.7		290.455	1.7	1.13	1.13	53	44	4.0	98				
29.6		291.090	1.6	1.06	1.06	54	43	4.0	98				
27.0		291.676	1.5	1.00	1.00	54	43	3.5	99				
23.2		292.240	1.4	.93	.93	55	43	3.5	100				
12.8		292.763	1.4	.93	.93	53	43	3.5	100				
9.0		293.425	1.5	1.00	1.00	55	43	3.5	101				
6.4		293.970	1.4	.93	.93	54	43	3.0	100				
4.3		294.487	1.3	.86	.86	55	44	3.0	101				
2.4		295.000	1.2	.80	.80	54	43	3.0	95				
1.0		295.478	1.3	.86	.86	54	43	3.5	92				
		296.045											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	<0.01 cfm
After	5.0	<0.01 cfm

PITOT LEAK CHECK

	Positive	Negative
Before	0.5"/9sec	0.5"/15sec
After	0.5"/15sec	0.5"/15sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	548.1	547.1	1.0
2.	100 mL H_2O	511.4	509.3	2.1
3.	Empty	464.4	464.0	0.4
4.	Silica Gel	678.5	672.0	6.5
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-01
TEST CREW
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-3-1
NOZZLE (SIZE,#) .214 #54
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE 02-31-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 6
PROBE NO. 5-4
FILTER NO. 160 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		296.045	1.3	.86	.86	56	43	3.0	93	250	<68°F	250	1 min./point
2.4		296.571	1.4	.93	.93	55	44	3.5	99				
4.3		297.129	1.5	1.00	1.00	55	44	3.5	105				
6.4		297.721	1.5	1.00	1.00	56	44	3.5	101				
9.0		298.300	1.4	.93	.93	56	44	3.5	101				
12.8		298.842	1.6	1.06	1.06	56	44	4.0	102				
23.2		299.411	1.3	.86	.86	57	44	3.0	100				
27.0		299.934	1.4	.93	.93	57	44	3.5	98				
29.6		300.492	1.3	.86	.86	58	45	3.0	100				
31.7		301.085	1.5	1.00	1.00	58	46	4.0	102				
33.6		301.554	1.2	.80	.80	58	46	3.0	101				
35.0		302.028	1.3	.86	.86	58	46	3.0	102				
		302.561											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery Rec
PROJECT NO. 300197-01
TEST CREW RPO
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-3 -1
NOZZLE (SIZE,#) .214 # 54
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE 07-31-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 6
PROBE NO. 5-4
FILTER NO. 160 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		302.561	1.2	.80	.80	57	46	3.0	102	250	48°F	250	1 min./point
33.6		303.054	1.4	.93	.93	57	46	3.5	103				
31.7		303.578	1.6	1.06	1.06	57	46	4.0	101				
29.6		304.328	1.5	1.00	1.00	56	45	4.0	101				
27.0		304.825	1.5	1.00	1.00	57	45	4.0	102				
23.2		305.385	1.6	1.06	1.06	59	46	4.0	103				
12.8		305.971	1.5	1.00	1.00	56	46	3.5	103				
9.0		306.512	1.3	.86	.86	57	46	3.0	105				
6.4		307.051	1.4	.93	.93	57	45	3.5	102				
4.3		307.575	1.6	1.06	1.06	57	46	4.0	100				
2.4		308.163	1.5	1.00	1.00	57	45	4.0	101				
1.0		308.744	1.6	1.06	1.06	57	45	4.0	100				
		309.335											

Estimates:
MW=28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-8-92	ORIFICE CORRECTION (ΔH@) 1.641	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-3-1	METER CORRECTION (Y) 1.050	PROBE NO. 5-4
PROJECT NO. 300197-01	NOZZLE (SIZE,#) .214 #54	CALIBRATION DATE 07-31-92	FILTER NO. 160 QTZ
TEST CREW RAC	STATIC PRESSURE 1.2	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.60	PORT DIRECTION ~~WEST~~ SOUTH	CONTROL BOX NO. 2	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		309.335	1.5	1.00	1.00	57	46	4.0	102	250	<68°F	250	1 min./point
33.6		309.918	1.7	1.13	1.13	58	46	4.0	102				
31.7		310.487	1.6	1.06	1.06	58	46	4.0	103				
29.6		311.073	1.7	1.13	1.13	59	46	4.0	100				
27.0		311.646	1.4	.93	.93	58	46	3.5	103				
23.2		312.251	1.6	1.06	1.06	59	47	4.0	103				
12.8		312.720	1.2	.80	.80	59	47	3.0	102				
9.0		313.236	1.3	.86	.86	57	46	3.0	98				
6.4		313.765	1.1	.73	.73	57	46	3.0	84				
4.3		314.321	1.3	.86	.86	57	46	3.0	103				
2.4		314.859	1.1	.73	.73	57	45	3.0	100				
1.0		315.489	1.1	.73	.73	56	45	3.0	100				
		315.901											
													Estimates:
													MW=28.8
													%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PCC
PROJECT NO. 300197L01
TEST CREW RPC
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-3-1
NOZZLE (SIZE,#) .214 #54
STATIC PRESSURE 1.2
PORT DIRECTION SOUTH

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.026
CALIBRATION DATE 07-31-92
PITOT CORRECTION 0.84
CONTROL BOX NO. TWO

HOT/COLD BOX NO. 6
PROBE NO. 5-4
FILTER NO. 160 072
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		315.901	1.1	.73	.73	57	45	3.0	100	250	268°F	250	1 min./point
2.4		316.424	1.1	.73	.73	57	46	3.0	102				
4.3		316.951	1.1	.73	.73	57	46	3.0	102				
6.4		317.475	1.2	.80	.80	56	46	3.0	105				
9.0		318.003	1.2	.80	.80	57	46	3.0	104				
12.8		318.520	1.3	.86	.86	56	46	3.0	103				
23.2		319.056	1.3	.86	.86	58	46	3.0	103				
27.0		319.591	1.6	1.06	1.06	59	46	4.0	102				
29.6		320.161	1.55	1.03	1.03	61	47	4.0	105				
31.7		320.710	1.5	1.00	1.00	60	47	4.0	104				
33.6		321.279	1.5	1.00	1.00	60	46	4.0	104				
35.0		321.852	1.55	1.03	1.03	59	46	4.0	102				
		322.410											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT	USS Clairton Works	TEST DATE	12-8-92	ORIFICE CORRECTION (ΔH@)	[illegible]	HOT/COLD BOX NO.	5
TEST UNIT	7-9 Battery PEC	TEST NO.	CLR-2-4-1	METER CORRECTION (Y)	[illegible]	PROBE NO.	5-3
PROJECT NO.	300197-101	NOZZLE (SIZE,#)	0.150 #11	CALIBRATION DATE	[illegible]	FILTER NO.	159 QRZ
TEST CREW	JJS	STATIC PRESSURE	10"	PITOT CORRECTION	0.84	STACK DIA.	36"
BAROMETRIC PRESSURE	29.60	PORT DIRECTION	West	CONTROL BOX NO.	4	PORT SIZE	4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		034.695	2.1	2.97	2.97	45	43	5.0	95	250	<68°F	250	1 min./point
33.6		35.500	2.0	2.83	2.83	45	43	5.0	99				
31.7		36.836	2.2	3.11	3.11	46	43	5.0	93				
29.6		37.936	2.0	2.83	2.83	46	43	5.0	96				
27.0		38.986	1.9	2.65	2.65	47	43	5.0	93				
23.2		40.056	1.9	2.68	2.68	47	43	5.0	100				
12.8		41.038	1.4	1.98	1.98	47	43	3.0	92				
9.0		42.051	1.3	1.84	1.84	48	44	3.0	96				
6.4		42.928	1.2	1.70	1.70	48	44	3.0	99				
4.3		43.761	1.4	1.98	1.98	48	44	3.0	95				
2.4		44.538	1.2	1.70	1.70	47	44	3.0	80				
1.0		45.319	1.0	1.41	1.41	48	44	2.5	77				
		46.078											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.015
After	7.0	.005

PITOT LEAK CHECK

	Positive	Negative
Before	[illegible]/15sec	[illegible]/15 sec
After	[illegible]/15sec	[illegible]/15sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	561.1	564.8	-3.7
2.	100 mL H_2O	573.1	568.6	4.5
3.	Empty	469.9	469.3	0.6
4.	Silica Gel	596.4	586.3	10.1
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PCC
PROJECT NO. 30097701
TEST CREW JJS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-8-92
TEST NO. CR-2-4-1
NOZZLE (SIZE,#) 0.185 [illegible]
STATIC PRESSURE 1.0"
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.713
METER CORRECTION (Y) 0.[illegible]
CALIBRATION DATE [illegible]
PITOT CORRECTION 0.84
CONTROL BOX NO. 3

HOT/COLD BOX NO. [illegible]
PROBE NO. 5-[illegible]
FILTER NO. [illegible] QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		46.078	1.0	1.41	1.41	48	44	2.5	79	250	<68°F	250	1 min./point
2.4		46.802	1.2	1.70	1.70	48	44	2.5	79				
4.3		47.602	1.4	1.98	1.98	46	43	3.5	87				
6.4		48.515	1.2	1.70	1.70	47	43	3.0	96				
9.0		49.315	1.5	2.12	2.12	48	43	3.5	95				
12.8		50.216	1.4	1.98	1.98	47	43	3.5	95				
23.2		51.031	1.5	2.12	2.12	48	43	3.5	93				
27.0		51.922	1.6	2.26	2.26	49	45	4.0	89				
29.6		52.815	2.0	2.83	2.83	50	45	5.0	92				
31.7		53.530	2.4	3.39	3.39	51	46	6.0	96				
33.6		55.013	2.2	3.11	3.11	50	46	5.5	94				
35.0		56.109	2.2	3.11	3.11	51	47	5.5	97				
		57.203											
													Estimates:
													MW=28.8
													%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-01
TEST CREW [illegible]
BAROMETRIC PRESSURE 29.00

TEST DATE 12-8-92
TEST NO. CR-2-4 -1
NOZZLE (SIZE,#) 0.[illegible]
STATIC PRESSURE 1.0"
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) [illegible]
CALIBRATION DATE 12/[illegible]/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 5
PROBE NO. 5-3
FILTER NO. 15-9 GTR
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		57.203	2.4	3.39	3.39	52	47	5.5	97	250	<68°F	250	1 min./point
33.6		58.312	2.3	3.25	3.25	52	47	5.0	97				
31.7		59.398	2.2	3.11	3.11	52	47	5.0	94				
29.6		60.761	2.0	2.83	2.83	52	48	5.0	96				
27.0		61.769	2.0	2.83	2.83	52	48	4.5	97				
23.2		62.823	1.8	2.54	2.54	53	48	4.0	100				
12.8		63.825	1.3	1.84	1.84	52	48	3.0	95				
9.0		64.648	1.2	1.70	1.70	52	48	3.0	95				
6.4		65.465	1.4	1.98	1.98	51	47	3.0	95				
4.3		66.305	1.4	1.98	1.98	50	48	3.0	91				
2.4		67.148	1.2	1.70	1.70	51	47	3.0	83				
1.0		67.974	0.9	1.27	1.27	51	48	2.0	77				
		68.681											

Estimates:
MW=28.8
%H2O= 10

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PCC
PROJECT NO. 300197.01
TEST CREW JJS
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-4 -1
NOZZLE (SIZE,#) .156 #11
STATIC PRESSURE 1.0"
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 0.99558
CALIBRATION DATE 12/3/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 8
PROBE NO. 5-3
FILTER NO. 159 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		65.681	1.40	1.98	1.98	52	48	3.0	95	250	48°F	250	1 min./point
33.6		69.499	1.80	2.54	2.54	52	48	4.5	95				
31.7		70.424	1.60	2.26	2.26	53	48	4.0	91				
29.6		71.333	1.80	2.54	2.54	53	49	4.0	89				
27.0		72.274	1.60	2.26	2.26	53	49	4.0	91				
23.2		73.222	1.40	1.98	1.98	53	49	3.0	97				
12.8		74.074	1.30	1.84	1.84	53	49	3.0	93				
9.0		74.948	1.60	2.26	2.26	52	49	3.0	96				
6.4		75.839	1.30	1.84	1.84	52	48	3.0	95				
4.3		76.742	1.20	1.70	1.70	51	47	3.0	97				
2.4		77.607	1.30	1.84	1.84	51	47	3.0	74				
1.0		78.567	1.20	1.70	1.70	51	47	3.0	79				
		79.354											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-8-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-4 -1	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-101	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12/8/92	FILTER NO. 159 QTZ
TEST CREW JJS	STATIC PRESSURE 1.0"	PITOT CORRECTION 0.84	STACK DIA. 32"
BAROMETRIC PRESSURE 29.60	PORT DIRECTION South	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		79.354	1.20	1.70	1.70	51	47	3.0	72	250	468°F	250	1 min./point
2.4		80.243	1.60	2.26	2.26	53	48	3.5	95				
4.3		81.242	1.50	2.12	2.12	52	47	3.5	95				
6.4		82.154	1.50	2.12	2.12	51	47	3.5	99				
9.0		83.075	1.50	2.12	2.12	51	47	3.5	95				
12.8		83.975	1.30	1.84	1.84	52	47	3.5	97				
23.2		84.859	1.40	1.98	1.98	52	48	3.0	93				
27.0		85.725	1.50	2.12	2.12	53	48	4.0	93				
29.6		86.616	2.0	2.83	2.83	53	48	5.0	94				
31.7		87.664	1.40	1.98	1.98	52	48	4.0	96				
33.6		88.574	1.70	2.40	2.40	52	47	4.5	93				
35.0		89.582	1.20	1.70	1.70	51	47	3.0	92				
		90.484											
													Estimates:
													MW=28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-101
TEST CREW TM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-1-2
NOZZLE (SIZE,in) 0.180 #22
STATIC PRESSURE 0.00
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.830
METER CORRECTION (Y) 0.99307
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 6

HOT/COLD BOX NO. 2
PROBE NO. 5-1
FILTER NO. 162 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		758.240	1.0	1.01	1.01	35	34	3.0	95	250	48°F	250	1 min./point
33.6		758.852	1.0	1.01	1.01	33	33	3.0	99				
31.7		759.592	1.0	1.00	1.00	34	33	3.0	95				
29.6		760.230	1.2	1.20	1.20	34	33	3.0	99				
27.0		760.910	1.2	1.20	1.20	35	33	3.5	99				
23.2		761.591	1.0	1.00	1.00	35	33	3.0	100				
12.8		762.220	0.80	0.80	0.80	39	35	2.5	101				
9.0		762.800	1.0	1.00	1.00	39	35	3.0	101				
6.4		763.471	1.0	1.01	1.01	39	35	3.0	100				
4.3		764.100	0.80	0.80	0.80	41	35	3.5	99				
2.4		764.712	1.0	1.01	1.01	40	36	3.0	94				
1.0		765.328	1.2	1.21	1.21	40	37	3.5	94				
		765.920											

Estimates:
MW=28.8
%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	6.0	0.012
After	4.0	0.007

PITOT LEAK CHECK 15 SLC

	Positive	Negative
Before	ok	ok
After	ok	ok

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100mL H_2O	551.1	551.1	0.0
2.	100mL H_2O	561.0	560.8	0.2
3.	Empty	452.5	452.4	0.1
4.	Silica Gel	636.7	628.8	8.9
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.830	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-1-2	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 11-25-92	FILTER NO. 162 QTZ
TEST CREW TM	STATIC PRESSURE 0.60	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION South	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		765.920	1.2	1.21	1.21	40	37	3.5	93	250	<68°F	250	1 min./point
2.4		766.555	0.80	0.80	0.80	40	38	2.5	104				
4.3		767.215	1.0	1.00	1.00	40	39	3.0	105				
6.4		767.810	1.2	1.20	1.20	39	37	3.5	105				
9.0		768.490	1.0	1.00	1.00	39	37	3.0	109				
12.8		769.095	0.80	0.80	0.80	41	39	3.0	105				
23.2		769.670	1.0	1.00	1.00	40	39	3.0	110				
27.0		770.230	1.2	1.20	1.20	40	39	3.5	105				
29.6		770.850	1.0	1.00	1.00	41	39	3.2	104				
31.7		771.540	1.0	1.00	1.00	41	39	3.0	109				
33.6		772.190	1.0	1.00	1.00	40	39	3.0	109				
35.0		772.659	1.0	1.00	1.00	41	39	3.0	107				
		773.240											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW MM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-1-2
NOZZLE (SIZE,#) #2 0.180
STATIC PRESSURE 0.60
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.830
METER CORRECTION (Y) 0.9807
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 6

HOT/COLD BOX NO. 2
PROBE NO. 5-1
FILTER NO. 162 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		773.240	1.0	1.00	1.00	41	39	3.0	109	250	<68°F	250	1 min./point
33.6		773.835	0.80	0.80	0.80	40	39	3.0	109				
31.7		774.380	1.2	1.20	1.20	40	39	3.5	107				
29.6		775.182	1.0	1.00	1.00	39	39	3.0	109				
27.0		775.671	1.2	1.20	1.20	39	37	3.5	110				
23.2		776.271	1.0	1.00	1.00	39	37	3.0	105				
12.8		776.843	0.80	0.80	0.80	40	37	3.0	107				
9.0		777.465	0.80	0.80	0.80	40	37	3.0	109				
6.4		778.108	1.2	1.20	1.20	41	39	3.5	102				
4.3		778.720	1.0	1.00	1.00	40	39	3.0	90				
2.4		779.327	1.2	1.20	1.20	40	37	3.5	89				
1.0		779.951	1.0	1.00	1.00	40	37	3.0	89				
		780.530											

Estimates:
MW= 28.8
%H2O= 19.0

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW TM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLE-2-1-2
NOZZLE (SIZE,#) 0.180 #22
STATIC PRESSURE 0.60
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.830
METER CORRECTION (Y) 0.9807
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 6

HOT/COLD BOX NO. 2
PROBE NO. 5-1
FILTER NO. 162 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		780.530	1.2	1.20	1.20	40	39	3.5	100	250	<68°F	250	1 min./point
33.6		781.140	1.2	1.20	1.20	40	39	3.5	103				
31.7		781.812	1.0	1.00	1.00	40	39	3.5	100				
29.6		782.450	1.4	1.40	1.40	41	39	3.8	100				
27.0		783.132	1.2	1.20	1.20	41	39	3.5	102				
23.2		783.741	1.00	1.00	1.00	40	39	3.0	105				
12.8		784.339	0.80	0.80	0.80	40	39	3.0	105				
9.0		784.918	0.80	0.80	0.80	41	39	3.0	103				
6.4		785.470	0.80	0.80	0.80	41	39	3.0	104				
4.3		786.055	0.80	0.80	0.80	42	39	3.0	98				
2.4		786.610	0.80	0.80	0.80	42	39	3.0	89				
1.0		787.152	0.80	0.80	0.80	42	40	2.5	87				
		787.690											

Estimates:
MW= 28.8
%H2O= 19.0

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30197-A
TEST CREW TM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-1-2
NOZZLE (SIZE,#) 0.180 * 20
STATIC PRESSURE 8.60
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.230
METER CORRECTION (Y) 0.9927
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 6

HOT/COLD BOX NO. 2
PROBE NO. 5-1
FILTER NO. 162 UTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		787.690	0.80	0.80	0.80	43	40	2.5	85	250	68°F	250	1 min./point
2.4		788.280	0.80	0.80	0.80	42	40	2.5	103				
4.3		788.839	0.80	0.80	0.80	41	40	2.5	100				
6.4		789.350	0.80	0.80	0.80	42	40	2.5	102				
9.0		789.910	0.80	0.80	0.80	42	40	2.5	104				
12.8		790.450	0.80	0.80	0.80	42	40	2.5	105				
23.2		790.980	1.00	1.00	1.00	43	40	3.0	104				
27.0		791.613	1.20	1.20	1.20	43	40	3.0	103				
29.6		792.238	1.20	1.20	1.20	43	40	3.0	104				
31.7		792.820	1.40	1.40	1.40	45	41	3.8	105				
33.6		793.359	1.20	1.20	1.20	44	41	3.5	104				
35.0		794.173	1.20	1.20	1.20	44	40	3.5	97				
		794.810											

Estimates:
MW=28.8
%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-61
TEST CREW JTS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-2-2
NOZZLE (SIZE,#) 0.158 #16
STATIC PRESSURE 1.3"
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 165 WT2
STACK DIA. 32"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		424.860	1.10	0.65	0.65	47	51	4.0	89	250	68°F	250	1 min./point
33.6		425.352	1.80	1.09	1.09	47	50	6.0	90				
31.7		425.948	1.50	0.91	0.91	47	50	5.0	91				
29.6		426.485	1.60	0.97	0.97	46	48	5.5	92				
27.0		427.065	1.50	0.91	0.91	49	48	5.0	96				
23.2		427.617	1.30	0.79	0.79	48	48	5.0	93				
12.8		428.134	1.10	0.67	0.67	50	50	4.0	92				
9.0		428.616	1.20	0.73	0.73	50	49	4.5	94				
6.4		429.112	1.30	0.79	0.79	50	51	5.0	94				
4.3		429.622	1.30	0.79	0.79	51	51	5.0	92				
2.4		430.148	1.40	0.85	0.85	51	51	5.0	91				
1.0		430.693	1.10	0.67	0.67	51	51	4.0	92				
		431.154											

Estimates:
MW= 28.8
%H2O= 1.0

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.002
After	6.0	0.004

PITOT LEAK CHECK

	Positive	Negative
Before	OK 15sec	OK 15sec
After	OK 15sec	OK 15sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	550.3	550.3	0.0
2.	100 mL H_2O	508.4	508.6	-0.2
3.	Empty	464.1	464.5	-0.4
4.	Silica Gel	686.6	678.2	8.4
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JB
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-2-2
NOZZLE (SIZE,#) 0.158 #16
STATIC PRESSURE 1.3"
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 165 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		431.154	1.10	0.67	0.67	51	52	4.0	93	250	<68°F	250	1 min./point
2.4		431.637	1.30	0.79	0.79	52	52	5.0	95				
4.3		432.167	1.40	0.85	0.85	53	52	5.0	97				
6.4		432.719	1.40	0.85	0.85	52	54	5.0	96				
9.0		433.242	1.30	0.79	0.79	53	52	5.0	96				
12.8		433.765	1.20	0.73	0.73	54	52	4.5	95				
23.2		434.280	1.30	0.79	0.79	54	53	5.0	93				
27.0		434.807	1.40	0.85	0.85	52	54	5.0	96				
29.6		435.352	1.70	1.03	1.03	53	53	5.5	95				
31.7		435.944	1.70	1.03	1.03	54	55	5.5	98				
33.6		436.504	1.70	1.03	1.03	54	53	5.5	96				
35.0		437.118	1.40	0.85	0.85	55	54	5.0	97				
		437.640											

Estimates:
MW= 28.6
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-01
TEST CREW JBS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CR2-2-2-2
NOZZLE (SIZE,#) 0.158 #16
STATIC PRESSURE 1.3"
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 16.5 CTR
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		437.640	1.40	0.85	0.85	53	55	5.0	98	250	<68°F	250	1 min./point
33.6		438.182	1.70	1.03	1.03	54	55	5.5	98				
31.7		438.773	1.70	1.03	1.03	54	54	5.5	97				
29.6		439.370	1.60	0.97	0.97	54	55	5.0	98				
27.0		439.969	1.40	0.85	0.85	52	55	5.0	97				
23.2		440.510	1.30	0.79	0.79	52	53	5.0	95				
12.8		441.042	1.30	0.79	0.79	52	55	5.0	94				
9.0		441.575	1.20	0.73	0.73	54	54	4.5	98				
6.4		442.084	1.40	0.85	0.85	52	54	5.0	93				
4.3		442.610	1.40	0.85	0.85	52	55	5.0	95				
2.4		443.153	1.30	0.79	0.79	53	55	4.5	94				
1.0		443.688	1.40	0.85	0.85	55	54	5.0	94				
		444.230											

Estimates:
MW= 28.8
%H2O= 19

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.779	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PEC	TEST NO. CLE-2-2-2	METER CORRECTION (Y) 0.9739	PROBE NO. 5-2
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.158 #16	CALIBRATION DATE 11-25-92	FILTER NO. 165 QTZ
TEST CREW JBS	STATIC PRESSURE 1.3"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION West	CONTROL BOX NO. 4	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		444.230	1.20	0.73	0.73	53	54	4.0	94	250	<68°F	250	1 min./point
33.6		444.738	1.50	0.91	0.91	54	55	5.0	94				
31.7		445.282	1.50	0.91	0.91	53	53	5.0	96				
29.6		445.820	1.40	0.85	0.85	54	55	5.0	96				
27.0		446.357	1.40	0.85	0.85	54	56	5.0	98				
23.2		446.885	1.40	0.85	0.85	55	54	5.0	96				
12.8		447.438	1.20	0.73	0.73	55	55	4.0	95				
9.0		447.921	1.30	0.79	0.79	54	56	4.5	96				
6.4		448.455	1.30	0.79	0.79	54	56	4.5	95				
4.3		448.975	1.40	0.85	0.85	54	53	5.0	93				
2.4		449.506	1.30	0.79	0.79	54	56	4.5	93				
1.0		450.030	1.10	0.67	0.67	55	55	4.0	92				
		450.511											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.779	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PEC	TEST NO. CL12-2-2-2	METER CORRECTION (Y) 0.9739	PROBE NO. 5-2
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.158 #16	CALIBRATION DATE 11-25-92	FILTER NO. 165 GFF
TEST CREW JB	STATIC PRESSURE 1.3"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION West	CONTROL BOX NO. 4	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		450.511	1.00	0.61	0.61	56	57	4.0	92	250	<68°F	250	1 min./point
2.4		450.978	1.30	0.79	0.79	54	53	4.5	93				
4.3		451.488	1.30	0.79	0.79	54	56	4.5	93				
6.4		452.012	1.30	0.79	0.79	54	55	4.5	96				
9.0		452.544	1.30	0.79	0.79	56	56	4.5	96				
12.8		453.070	1.30	0.79	0.79	56	56	4.5	95				
23.2		453.588	1.40	0.85	0.85	56	56	5.0	96				
27.0		454.115	1.50	0.91	0.91	56	55	5.0	96				
29.6		454.657	1.60	0.97	0.97	56	56	5.2	99				
31.7		455.229	1.30	0.79	0.79	55	57	4.5	97				
33.6		455.740	1.10	0.67	0.67	56	57	4.0	96				
35.0		456.230	1.70	1.03	1.03	57	57	5.0	98				
		456.787											
													Estimates:
													MW= 28.8
													%H2O= 19

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-01
TEST CREW RAC
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-3-2
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 63
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE 7-31-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 163 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		323.712	1.2	.67	.67	58	49	3.0	92	250	<68°F	250	1 min./point
33.6		324.285	1.4	.78	.78	57	48	3.0	94				
31.7		324.670	1.6	.89	.89	60	48	4.0	94				
29.6		325.237	1.7	.94	.94	59	47	4.0	96				
27.0		325.777	1.9	1.05	1.05	60	47	4.0	97				
23.2		326.350	1.7	.94	.94	60	47	4.0	98				
12.8		326.942	1.3	.72	.72	61	48	3.0	100				
9.0		327.472	1.2	.67	.67	63	48	3.0	100				
6.4		327.965	1.3	.72	.72	63	50	3.0	107				
4.3		328.500	1.1	.61	.61	63	50	2.5	96				
2.4		328.964	1.1	.61	.61	64	51	2.5	94				
1.0		329.415	1.1	.61	.61	64	51	2.5	94				
		329.861											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	.015
After	6.0	0.005

PITOT LEAK CHECK

	Positive	Negative
Before	OK/15sec	OK/15sec
After	OK 15sec	OK 15sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100mL H_2O	570.4	569.6	0.8
2.	100mL H_2O	507.4	507.8	-0.4
3.	Empty	472.4	472.4	0.0
4.	Silica Gel	664.3	655.7	8.6
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.641	HOT/COLD BOX NO. 3
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-3-2	METER CORRECTION (Y) 1.050	PROBE NO. 5-4
PROJECT NO. 300197-9	NOZZLE (SIZE,#) .158 #18	CALIBRATION DATE 7-31-92	FILTER NO. 163 QTZ
TEST CREW RPC	STATIC PRESSURE 1.2	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION South	CONTROL BOX NO. 2	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		329.861	1.2	.67	.67	65	51	2.5	94	250	<68F	250	1 min./point
2.4		330.354	1.2	.67	.67	65	52	2.5	98				
4.3		330.846	1.2	.67	.67	65	52	2.5	95				
6.4		331.345	1.1	.62	.62	66	52	2.5	101				
9.0		331.824	1.25	.70	.70	66	53	2.5	102				
12.8		332.315	1.15	.64	.64	66	54	2.5	101				
23.2		332.750	1.7	.95	.95	69	54	4.0	100				
27.0		333.325	1.7	.95	.95	68	53	4.0	99				
29.6		333.849	1.8	1.01	1.01	67	53	4.0	100				
31.7		334.412	1.55	.87	.87	66	53	4.0	106				
33.6		334.945	1.6	.90	.90	65	52	3.5	100				
35.0		335.500	1.6	.90	.90	66	53	3.5	102				
		336.040											
													Estimates:
													MW= 28.8
													%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30197-011
TEST CREW RPC
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-3-2
NOZZLE (SIZE,#) .158 #18
STATIC PRESSURE 1.2
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE 7-31-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. S-4
FILTER NO. 163 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		336.040	1.5	.84	.84	66	53	3.5	101	250	<68°F	250	1 min./point
33.6		336.590	1.7	.95	.95	66	53	3.5	101				
31.7		337.125	1.6	.90	.90	65	53	3.5	102				
29.6		337.689	1.65	.92	.92	68	53	3.5	101				
27.0		338.228	1.75	.98	.98	68	53	4.0	100				
23.2		338.738	1.6	.90	.90	67	53	4.0	105				
12.8		339.370	1.3	.73	.73	66	53	3.0	101				
9.0		339.862	1.3	.73	.73	67	53	3.0	100				
6.4		340.310	1.3	.73	.73	66	53	3.0	102				
4.3		340.820	1.3	.73	.73	66	54	3.0	102				
2.4		341.300	1.2	.67	.67	67	54	3.0	101				
1.0		341.850	1.2	.67	.67	66	54	3.0	100				
		342.389											

Estimates:
MW=28.8
%H2O= 19

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT	USS Clairton Works	TEST DATE	12-9-92	ORIFICE CORRECTION (ΔH@)	1.641
TEST UNIT	7-9 Battery PEC	TEST NO.	CU12-2-3-2	METER CORRECTION (Y)	1.050
PROJECT NO.	30197-01	NOZZLE (SIZE,#)	.158 #18	CALIBRATION DATE	7-31-92
TEST CREW	RPC	STATIC PRESSURE	1.2	PITOT CORRECTION	0.84
BAROMETRIC PRESSURE	29.62	PORT DIRECTION	West	CONTROL BOX NO.	2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 163 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		342.389	1.4	.78	.78	65	54	3.0	102	250	<60°F	250	1 min./point
33.6		342.888	1.55	.87	.87	67	54	3.0	101				
31.7		343.438	1.7	.95	.95	67	54	3.5	101				
29.6		344.000	1.65	.92	.92	68	54	3.5	101				
27.0		344.546	1.70	.95	.95	68	54	4.0	101				
23.2		345.140	1.4	.78	.78	69	54	3.0	102				
12.8		345.655	1.4	.78	.78	68	55	3.0	102				
9.0		346.185	1.5	.84	.84	69	55	3.0	103				
6.4		346.723	1.55	.87	.87	69	55	3.5	103				
4.3		347.277	1.2	.67	.67	69	55	3.0	102				
2.4		347.785	1.4	.78	.78	69	55	3.0	93				
1.0		348.478	1.1	.65	.65	69	56	2.5	90				
		348.870											

Estimates:
MW=28.8
%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.641	HOT/COLD BOX NO. 3
TEST UNIT 7-9 Battery PCC	TEST NO. CLR2-2-3-2	METER CORRECTION (Y) 1.050	PROBE NO. 5-4
PROJECT NO. 300197-01	NOZZLE (SIZE,#) .158 #18	CALIBRATION DATE 7-31-92	FILTER NO. 163 QTZ
TEST CREW RPC	STATIC PRESSURE 1.2	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION West	CONTROL BOX NO. 4	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		348.870	1.0	.56	.56	68	57	2.0	91	250	<68°F	250	1 min./point
2.4		349.272	1.1	.62	.62	69	56	2.5	91				
4.3		349.755	1.3	.73	.73	66	56	2.5	101				
6.4		350.225	1.4	.78	.78	68	56	3.0	101				
9.0		350.731	1.5	.84	.84	68	56	3.5	101				
12.8		351.210	1.4	.78	.78	70	56	3.0	105				
23.2		351.748	1.6	.90	.90	70	56	4.0	102				
27.0		352.303	1.5	.84	.84	69	56	3.5	102				
29.6		352.825	1.7	.95	.95	69	57	4.0	101				
31.7		353.412	1.6	.90	.90	70	57	3.5	104				
33.6		353.952	1.5	.84	.84	71	57	3.5	102				
35.0		354.510	1.5	.84	.84	69	56	3.5	109				
		355.100											

Estimates:
MW=28.0
%H2O=19.0

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JJS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CW-2-4-2
NOZZLE (SIZE,#) 0.190 # 11
STATIC PRESSURE 1.4
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.713
METER CORRECTION (Y) 0.9658
CALIBRATION DATE 12-8-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 8
PROBE NO. 5-3
FILTER NO. 164 WTR
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		092.555	1.40	1.39	1.39	51	49	2.5	84	250	68F	250	1 min./point
33.6		93.106	1.90	1.88	1.88	50	48	5.0	81				
31.7		93.924	1.80	1.79	1.79	50	48	4.5	85				
29.6		94.738	2.0	1.98	1.98	50	48	5.0	82				
27.0		95.580	1.70	1.69	1.69	51	48	4.0	85				
23.2		96.345	1.40	1.39	1.39	51	48	3.5	85				
12.8		97.058	1.50	1.49	1.49	52	49	3.5	85				
9.0		97.807	1.60	1.59	1.59	54	49	4.0	87				
6.4		98.646	1.50	1.49	1.49	54	50	3.5	86				
4.3		99.409	1.60	1.59	1.59	54	50	3.5	86				
2.4		100.164	1.30	1.29	1.29	55	51	3.0	76				
1.0		100.869	1.10	1.09	1.09	56	52	2.5	76				
		101.540											

Estimates:
MW=28.8
%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.011
After	6.0	0.01

PITOT LEAK CHECK

	Positive	Negative
Before	OK/15 sec	OK/15 sec
After	OK/15 sec	OK/15 sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	566.1	562.9	3.2
2.	100 mL H_2O	571.3	570.5	0.8
3.	Empty	469.8	469.8	0.0
4.	Silica Gel	600.3	588.2	12.1
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 3a197-01
TEST CREW JJS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-4-2
NOZZLE (SIZE,#) 0.180 #11
STATIC PRESSURE 1.4
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 0.9658
CALIBRATION DATE 12-8-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 3
PROBE NO. 5-3
FILTER NO. 164 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		101.540	1.10	1.09	1.09	56	52	2.5	76	250	<68 F	250	1 min./point
2.4		102.178	1.30	1.29	1.29	57	53	3.0	85				
4.3		102.908	1.50	1.49	1.49	57	53	3.5	87				
6.4		103.643	1.50	1.49	1.49	57	53	3.0	86				
9.0		104.407	1.50	1.49	1.49	58	54	3.5	88				
12.8		105.208	1.40	1.39	1.39	58	54	3.5	87				
23.2		105.953	1.60	1.59	1.59	58	55	3.5	88				
27.0		106.724	1.60	1.59	1.59	58	54	3.5	86				
29.6		107.481	1.90	1.88	1.88	59	55	4.0	88				
31.7		108.353	1.40	1.39	1.39	59	55	3.0	88				
33.6		109.106	1.90	1.88	1.88	59	55	4.0	89				
35.0		109.920	1.40	1.39	1.39	59	55	3.0	89				
		110.685											

Estimates:
MW=28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (▲H@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery PLC	TEST NO. CLR-2-4-2	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-[illegible]-92	FILTER NO. 164 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION South	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ▲P (in. H2O)	Orifice ▲H Required (in. H2O)	Orifice ▲H Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		110.685	1.40	1.39	1.39	59	55	3.0	89	250	<68°F	250	1 min./point
33.6		111.409	1.30	1.29	1.29	59	55	3.0	89				
31.7		112.114	1.80	1.79	1.79	60	56	4.0	90				
29.6		112.919	1.80	1.79	1.79	59	55	4.0	88				
27.0		113.733	1.70	1.69	1.69	59	56	3.5	87				
23.2		114.525	1.40	1.39	1.39	59	56	3.0	88				
12.8		115.260	1.40	1.39	1.39	59	56	2.5	90				
9.0		115.988	1.50	1.49	1.49	60	56	3.0	91				
6.4		116.726	1.40	1.39	1.39	60	56	3.0	89				
4.3		117.465	1.40	1.39	1.39	60	56	2.5	90				
2.4		118.296	1.30	1.29	1.29	60	57	2.5	88				
1.0		118.900	1.1	1.09	1.09	60	57	2.5	75				
		119.567											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-4-2	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 30019770	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 164 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION West	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		119.567	2.50	2.48	2.48	60	57	5.0	91	250	68°F	250	1 min./point
33.6		120.468	2.40	2.38	2.38	61	57	5.0	90				
31.7		121.386	2.20	2.25	2.25	61	58	5.0	92				
29.6		122.274	2.20	2.25	2.25	62	58	5.0	90				
27.0		123.197	2.10	2.15	2.15	62	58	4.5	90				
23.2		124.104	1.70	1.74	1.74	62	59	4.0	90				
12.8		124.915	1.40	1.43	1.43	63	59	3.5	93				
9.0		125.679	1.40	1.43	1.43	63	59	3.0	92				
6.4		126.429	1.50	1.53	1.53	63	60	3.0	91				
4.3		127.179	1.30	1.33	1.33	64	60	3.0	93				
2.4		127.923	1.30	1.33	1.33	63	60	2.5	84				
1.0		128.678	0.90	0.92	0.92	63	59	2.5	82				
		129.325											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-9-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery REC	TEST NO. CLR-2-4-2	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 164 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.62	PORT DIRECTION West	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		129.325	1.0	1.02	1.02	63	60	2.0	78	250	68°F	250	1 min./point
2.4		129.957	1.10	1.12	1.12	63	59	2.5	84				
4.3		130.636	1.10	1.12	1.12	60	59	2.5	88				
6.4		131.245	1.30	1.33	1.33	62	59	2.5	90				
9.0		131.962	1.50	1.53	1.53	62	59	3.0	92				
12.8		132.716	1.40	1.43	1.43	62	59	3.0	91				
23.2		133.462	1.50	1.53	1.53	62	59	3.0	94				
27.0		134.208	1.80	1.84	1.84	63	59	4.0	91				
29.6		135.043	2.20	2.25	2.25	63	59	5.0	94				
31.7		135.962	2.10	2.15	2.15	63	59	4.5	92				
33.6		136.880	2.30	2.35	2.35	63	59	5.0	93				
35.0		137.900	2.40	2.45	2.45	64	59	5.0	92				
		138.565											
													Estimates:
													MW=28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.830	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-1 -3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 300197-61	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 11-25-92	FILTER NO. 166 QTZ
TEST CREW TM	STATIC PRESSURE 0.6"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		795.220	1.4	1.40	1.40	32	32	3.5	88	250	<68°F	250	1 min./point
33.6		795.840	1.4	1.40	1.40	32	32	3.5	89				
31.7		796.425	1.4	1.40	1.40	33	32	3.5	90				
29.6		797.190	1.2	1.20	1.20	33	32	3.5	91				
27.0		797.781	1.2	1.20	1.20	33	31	3.5	94				
23.2		798.430	0.8	0.80	0.80	33	31	3.0	92				
12.8		798.940	0.8	0.80	0.80	34	31	3.0	92				
9.0		799.700	0.8	0.80	0.80	34	31	3.0	91				
6.4		800.480	0.8	0.80	0.80	34	31	3.0	91				
4.5		801.081	0.8	0.80	0.80	33	32	3.0	74				
2.4		801.710	0.8	0.80	0.80	33	31	3.0	73				
1.0		802.290	0.8	0.80	0.80	34	31	3.0	73				
		802.850											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	6.0	0.015
After	5.0	0.009

PITOT LEAK CHECK 1351

	Positive	Negative
Before	OK	OK
After	OK	OK

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	554.9	551.5	3.4
2.	100 mL H_2O	559.7	559.6	0.1
3.	Empty	452.5	452.5	0.0
4.	Silica Gel	645.5	636.8	8.7
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.830	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery Pit	TEST NO. CLR-2-1 -3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 300197-101	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 11-25-92	FILTER NO. 166 GTE
TEST CREW TM	STATIC PRESSURE 0.6	PITOT CORRECTION 0.84	STACK DIA. 30"
BAROMETRIC PRESSURE 27.10	PORT DIRECTION West	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		802.850	0.8	0.80	0.80	34	31	3.0	75	250	<68°F	250	1 min./point
2.4		803.465	0.8	0.80	0.80	34	31	3.0	74				
4.3		804.049	0.8	0.80	0.80	33	31	3.0	85				
6.4		804.600	0.8	0.80	0.80	34	31	3.0	90				
9.0		805.209	0.8	0.80	0.80	34	31	3.0	93				
12.8		805.790	0.8	0.80	0.80	33	31	3.0	94				
23.2		806.345	1.2	1.21	1.21	33	31	3.5	97				
27.0		806.947	1.2	1.21	1.21	33	31	3.5	92				
29.6		807.550	1.2	1.21	1.21	33	31	3.5	94				
31.7		808.208	1.2	1.21	1.21	33	31	3.5	92				
33.6		808.840	1.4	1.41	1.41	35	32	4.0	93				
35.0		809.491	1.2	1.21	1.21	35	33	3.5	95				
		810.155											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.830	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery PCC	TEST NO. CLR-2-1- 3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 302197F01	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 1-25-92	FILTER NO. 166 GFC
TEST CREW TM	STATIC PRESSURE 0.6	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		810.155	1.4	1.41	1.41	39	33	4.0	95	250	68F	250	1 min./point
33.6		810.840	1.2	1.21	1.21	39	33	3.5	99				
31.7		811.535	1.4	1.41	1.41	39	34	4.0	99				
29.6		812.120	1.2	1.21	1.21	39	35	4.0	100				
27.0		812.810	1.2	1.21	1.21	39	35	4.0	105				
23.2		813.465	1.2	1.21	1.21	40	35	3.5	102				
12.8		814.130	1.0	1.00	1.00	39	34	3.5	104				
9.0		814.753	0.8	0.80	0.80	40	35	3.0	104				
6.4		815.330	0.8	0.80	0.80	39	35	3.0	105				
4.3		815.881	0.8	0.80	0.80	39	37	3.0	97				
2.4		816.470	0.8	0.80	0.80	39	37	3.0	84				
1.0		816.970	0.8	0.80	0.80	39	37	3.0	87				
		817.550											
													Estimates:
													MW= 28.8
													%H2O= 1.0

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.830	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery PEC	TEST NO. CR-2-1-3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 300197-61	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 11-25-92	FILTER NO. 166 QTZ
TEST CREW TM	STATIC PRESSURE 2.6	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION South	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		817.550	1.0	1.00	1.00	37	35	3.0	97	250	68°F	250	1 min./point
33.6		818.128	1.2	1.21	1.21	39	37	3.0	99				
31.7		818.250	1.0	1.00	1.00	39	35	3.0	101				
29.6		819.370	1.0	1.00	1.00	39	35	3.0	100				
27.0		820.965	.8	.80	.80	39	35	3.0	99				
23.2		820.571	.8	.80	.80	39	35	3.0	99				
12.8		821.120	.8	.80	.80	39	35	3.0	101				
9.0		821.710	.8	.80	.80	39	35	3.0	101				
6.4		822.278	1.0	1.00	1.00	39	35	3.0	99				
4.3		822.851	1.0	1.00	1.00	40	35	3.0	95				
2.4		823.419	.8	.80	.80	40	35	3.0	95				
1.0		823.989	1.0	1.00	1.00	41	35	3.0	95				
		824.569											
													Estimates:
													MW=28.8
													%H2O=1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.870	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery REC	TEST NO. CLR-2-1 -3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #22	CALIBRATION DATE 11-25-92	FILTER NO. QTZ
TEST CREW TM	STATIC PRESSURE 0.6	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION South	CONTROL BOX NO. 6	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		824.569	.8	0.80	0.80	[illegible]	39	2.5	8[illegible]	250	<68°F	250	1 min./point
2.4		825.119	1.2	1.21	1.21	42	39	3.5	8[illegible]				
4.3		825.730	0.8	0.80	0.80	41	39	2.5	101				
6.4		826.315	1.0	1.00	1.00	41	39	3.0	102				
9.0		826.882	1.0	1.00	1.00	41	39	3.0	105				
12.8		827.490	0.8	0.80	0.80	41	39	2.5	105				
23.2		828.166	0.8	0.80	0.80	41	39	2.5	105				
27.0		828.660	0.8	0.80	0.80	41	39	2.5	105				
29.6		829.225	1.0	1.00	1.00	41	39	3.0	104				
31.7		829.820	1.0	1.00	1.00	41	39	3.0	105				
33.6		830.385	1.0	1.00	1.00	41	39	3.0	103				
35.0		831.003	1.0	1.00	1.00	41	39	3.0	102				
		831.650											

Estimates:
MW=28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300997-01
TEST CREW JB
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-2 -3
NOZZLE (SIZE,#) 0.158 #16
STATIC PRESSURE 1.3"
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 168 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
													1 min./point
35.0		456.981	1.50	0.90	0.90	45	46	6.5	85	250	68°F	250	
33.6		457.511	1.20	0.72	0.72	45	46	5.5	88				
31.7		458.002	1.60	0.96	0.96	44	45	7.0	86				
29.6		458.579	1.40	0.84	0.84	45	45	6.0	91				
27.0		459.152	1.30	0.78	0.78	45	46	6.0	90				
23.2		459.698	1.30	0.78	0.78	45	44	6.0	87				
12.8		460.240	1.30	0.78	0.78	45	46	6.0	87				
9.0		460.776	1.30	0.78	0.78	44	45	6.0	86				
6.4		461.333	1.30	0.78	0.78	45	47	6.0	87				
4.3		461.865	0.80	0.48	0.48	44	46	4.5	83				
2.4		462.287	0.80	0.48	0.48	47	47	4.5	86				
1.0		462.721	0.70	0.54	0.54	45	47	5.0	85				
		463.227											

Estimates:
MW= 28.8
%H2O= 10%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.010
After	7.0	0.010

PITOT LEAK CHECK

	Positive	Negative
Before	OK 15sec	OK 15sec
After	OK 15sec	OK 15sec

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 mL H_2O	553.6	548.6	5.0
2.	100 mL H_2O	510.7	510.2	0.5
3.	Empty	464.2	464.2	0.0
4.	Silica Gel	455.8	449.3	6.5
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.779	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-2 -3	METER CORRECTION (Y) 0.9739	PROBE NO. 5-2
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.158 #16	CALIBRATION DATE 11-25-92	FILTER NO. 180 QTZ
TEST CREW TPS	STATIC PRESSURE 1.3"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 4	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		463.227	1.10	0.66	0.66	44	47	5.0	87	250	<65°F	250	1 min./point
2.4		463.720	1.10	0.66	0.66	44	47	5.0	85				
4.3		464.216	1.20	0.73	0.73	44	46	5.5	84				
6.4		464.684	1.30	0.79	0.79	46	46	6.0	82				
9.0		465.202	1.30	0.79	0.79	46	46	6.0	84				
12.[illegible]		465.717	1.30	0.79	0.79	46	47	6.0	86				
23.2		466.227	1.20	0.73	0.73	46	46	5.5	87				
27.0		466.713	1.50	0.91	0.91	44	45	6.5	85				
29.6		467.233	1.50	0.91	0.91	45	47	6.5	88				
31.7		467.772	1.10	0.67	0.67	45	45	5.0	85				
33.6		468.280	1.20	0.73	0.73	45	48	5.5	90				
35.0		468.774	1.10	0.67	0.67	46	46	5.0	87				
		469.245											
													Estimates:
													MW= 28.8
													%H2O= 17%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (▲H@) 1.779	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PC	TEST NO. CLR-2-2-3	METER CORRECTION (Y) 0.9739	PROBE NO. 5-1
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.158 #16	CALIBRATION DATE 11-25-92	FILTER NO. 168, QTZ
TEST CREW JPS	STATIC PRESSURE 1.3"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 4	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ▲P (in. H2O)	Orifice ▲H Required (in. H2O)	Orifice ▲H Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		469.245	1.40	0.85	0.85	48	47	6.0	90	250	48°F	250	1 min./point
33.6		469.765	1.20	0.73	0.73	46	47	5.5	87				
31.7		470.248	1.30	0.79	0.79	48	48	6.0	91				
29.6		470.840	1.10	0.67	0.67	47	49	5.0	87				
27.0		471.303	1.50	0.91	0.91	49	50	6.5	91				
23.2		471.848	1.30	0.79	0.79	48	49	6.0	87				
12.8		472.350	1.20	0.73	0.73	50	50	5.5	90				
9.0		472.840	1.30	0.79	0.79	49	51	6.0	88				
6.4		473.332	1.30	0.79	0.79	52	48	6.0	90				
4.3		473.851	1.30	0.79	0.79	50	52	6.0	88				
2.4		474.340	1.20	0.73	0.73	51	51	5.5	88				
1.0		474.853	1.00	0.61	0.61	51	50	5.0	88				
		475.302											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JB
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-2 -3
NOZZLE (SIZE,#) 0.158, #16
STATIC PRESSURE 1.31
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 168 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		475.302	1.10	0.67	0.67	49	51	5.0	88	250	48°F	250	1 min./point
33.6		475.745	1.30	0.79	0.79	51	51	6.0	91				
31.7		476.247	1.70	1.03	1.03	51	51	7.0	88				
29.6		476.823	1.00	0.61	0.61	50	52	5.0	86				
27.0		477.274	1.40	0.85	0.85	49	50	6.0	88				
23.2		477.791	1.30	0.79	0.79	50	51	6.0	90				
12.8		478.304	1.20	0.73	0.73	51	50	5.5	89				
9.0		478.802	1.20	0.73	0.73	51	51	5.5	93				
6.4		479.302	1.40	0.85	0.85	51	51	6.0	88				
4.3		479.831	1.50	0.91	0.91	51	51	6.5	91				
2.4		480.355	1.30	0.79	0.79	50	52	6.0	90				
1.0		480.857	1.30	0.79	0.79	50	52	6.0	93				
		481.369											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 30097-01
TEST CREW JPB
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-2 -J
NOZZLE (SIZE,#) 0.158 #16
STATIC PRESSURE
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.779
METER CORRECTION (Y) 0.9739
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 4

HOT/COLD BOX NO. 6
PROBE NO. 5-2
FILTER NO. 168 GTB
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		481.369	1.30	0.79	0.79	50	52	6.0	90	250	<68°F	250	1 min./point
2.4		481.960	1.40	0.85	0.85	50	53	6.2	90				
4.3		482.388	1.30	0.79	0.79	52	51	6.0	90				
6.4		482.890	1.40	0.86	0.85	52	53	6.2	91				
9.0		483.412	1.20	0.73	0.73	51	51	5.5	96				
12.8		483.891	1.10	0.67	0.67	50	53	5.0	92				
23.2		484.365	1.20	0.73	0.73	50	52	5.5	91				
27.0		484.855	1.30	0.79	0.79	53	51	6.0	91				
29.6		485.350	1.50	0.91	0.91	53	51	6.5	92				
31.7		485.872	1.60	0.97	0.97	52	51	7.0	90				
33.6		486.435	1.50	0.91	0.91	51	53	6.5	92				
35.0		486.955	1.30	0.79	0.79	52	52	5.5	91				
		487.443											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW RC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-3 -3
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-8-92~~ 7/31/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 169 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time Δθ / Δθ	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0	1-7/93	355.268	1.7	~~[illegible]~~	.93	54	45	4.0	104	250	<68°F	250	1 min./point
33.6		356.775	1.5	.82	.82	59	45	4.0	101				355.268 Initial
31.7		356.290	1.7	.93	.93	59	45	4.0	101				
29.6		356.836	1.5	.82	.82	60	45	3.5	94				
27.0		357.357	1.9	1.04	1.04	60	45	4.0	91				
23.2		357.960	1.8	.99	.99	59	46	4.0	89				
12.8		358.492	1.6	.88	.88	57	45	3.5	89				
9.0		359.010	1.5	.82	.82	60	46	3.0	89				
6.4		359.510	1.7	.93	.93	60	46	4.0	94				
4.3		360.075	1.5	.82	.82	60	46	3.0	89				
2.4		360.592	1.4	.77	.77	60	46	3.0	88				
1.0		361.114	1.5	.82	.82	61	46	3.0	89				
		361.633											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.011
After	6.0	0.010

PITOT LEAK CHECK

	Positive	Negative
Before	OK/15cm	OK/15cm
After	OK/10cm	OK/5cm

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100mL H2O	578.7	574.9	3.8
2.	100mL H2O	508.7	508.1	0.6
3.	Empty	472.5	472.5	0.0
4.	Silica Gel	705.3	696.3	9.0
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery REC
PROJECT NO. 300197-01
TEST CREW RPC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CL2-2-3 -3
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-8-92~~ 7/8/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 169 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		361.633	1.4	.78	.78	59	46	3.0	84	250	<68°F	250	1 min./point
2.4		362.156	1.2	.66	.66	60	47	2.5	90				
4.3		362.648	1.4	.78	.78	60	46	3.0	90				
6.4		363.213	1.6	.89	.89	60	46	3.5	89				
9.0		363.740	1.3	.72	.72	59	46	3.0	92				
12.8		364.228	1.3	.72	.72	66	46	3.0	90				
23.2		364.680	1.4	.78	.78	59	46	3.5	90				
27.0		365.200	1.7	.94	.94	63	47	4.0	92				
29.6		365.845	1.6	.89	.89	63	47	4.0	94				
31.7		366.382	1.55	.86	.86	62	47	3.5	91				
33.6		366.878	1.50	.83	.83	62	48	3.5	97				
35.0		367.365	1.4	.78	.78	63	48	3.0	98				
		367.868											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-61
TEST CREW RPC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-3 -3
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-8-92~~ 7/31/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 169 QTZ
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		367.868	1.5	.85	.85	62	48	3.5	94	250	<65F	250	1 min./point
33.6		368.358	1.5	.85	.85	62	48	3.5	95				
31.7		368.815	1.5	.85	.85	62	49	3.5	95				
29.6		369.312	1.45	.81	.81	64	49	3.5	94				
27.0		369.812	1.55	.87	.87	65	50	3.5	98				
23.2		370.331	1.55	.87	.87	65	50	3.5	96				
12.8		370.828	1.5	.85	.85	62	50	3.5	94				
9.0		371.331	1.6	.88	.88	63	50	4.0	96				
6.4		371.863	1.5	.85	.85	63	50	4.0	98				
4.3		372.414	1.2	.66	.66	63	50	3.0	94				
2.4		372.950	1.6	.88	.88	62	50	4.0	93				
1.0		373.436	1.6	.88	.88	62	50	4.0	93				
		373.965											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW RPC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CR-2-3 -3
NOZZLE (SIZE, in) 0.158 #18
STATIC PRESSURE 1.2
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-8-92~~ 7/31/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 169-QT2
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		373.965	1.5	.82	.82	63	50	3.0	96	250	<68°F	250	1 min./point
33.6		374.565	1.4	.78	.78	64	50	3.5	96				
31.7		375.100	1.8	.99	.99	62	50	4.0	97				
29.6		375.718	1.5	.82	.82	64	50	3.5	92				
27.0		376.240	1.2	.66	.66	62	50	2.5	94				
23.2		376.714	1.5	.82	.82	62	49	3.5	93				
12.8		377.220	1.2	.66	.66	63	50	2.5	95				
9.0		377.744	1.2	.66	.66	63	50	2.5	97				
6.4		378.237	1.3	.72	.72	64	50	2.5	93				
4.3		378.720	1.2	.66	.66	64	50	2.5	92				
2.4		379.285	1.3	.72	.72	64	50	2.5	91				
1.0		379.600	1.2	.66	.66	62	50	2.5	88				
		380.036											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-3

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW RPC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-3 -3
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 1.2
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-8-92~~ 7/31/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 2

HOT/COLD BOX NO. 3
PROBE NO. 5-4
FILTER NO. 169 GFF2
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		380.036	1.2	.66	.66	63	50	3.0	88	250	<68F	250	1 min./point
2.4		380.505	1.2	.66	.66	62	50	3.0	89				
4.3		380.952	1.2	.66	.66	63	50	3.0	92				
6.4		381.390	1.3	.72	.72	62	50	3.5	90				
9.0		381.900	1.2	.66	.66	63	50	3.0	92				
12.8		382.379	1.3	.72	.72	63	50	3.5	94				
23.2		382.855	1.3	.72	.72	63	50	3.0	95				
27.0		383.348	1.6	.88	.88	64	50	3.5	98				
29.6		383.848	1.8	.99	.99	64	50	5.0	100				
31.7		384.560	1.7	.93	.93	63	49	4.5	101				
33.6		385.054	1.8	.99	.99	64	51	5.0	98				
35.0		385.626	1.8	.99	.99	64	51	5.0	99	99			
		~~386.165~~	—										
		386.165											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7 & 8 Battery PEC
PROJECT NO. 300197-01
TEST CREW JS
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-4 -3
NOZZLE (SIZE,#) 0.190 #11
STATIC PRESSURE 1.4
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 0.9658
CALIBRATION DATE 12-8-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. [illegible]8
PROBE NO. 5[illegible]
FILTER NO. 167[illegible]
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		139.225	1.90	1.88	1.88	46	46	14.0	85	250	<68°F	250	1 min./point
33.6		139.815	2.50	2.48	2.48	47	45	13.5	85				
31.7		140.724	2.20	2.18	2.18	47	45	16.5	85				
29.6		141.588	1.80	1.79	1.79	48	45	7.5	87				
27.0		142.377	1.70	1.69	1.69	49	46	5.5	85				
23.2		143.157	1.70	1.69	1.69	49	46	10.0	83				
12.8		143.947	1.30	1.29	1.29	49	46	6.0	84				
9.0		144.649	1.20	1.19	1.19	50	46	6.5	85				
6.4		145.326	1.30	1.29	1.29	50	47	6.0	84				
4.3		146.023	1.30	1.29	1.29	50	47	5.5	84				
2.4		146.729	1.20	1.19	1.19	50	47	5.0	79				
1.0		147.423	0.30	0.30	0.30	50	47	1.0	70				
		147.823											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	.016
After	~~15.0~~ 16.5	.020

PITOT LEAK CHECK

	Positive	Negative
Before	0/15 sec	0/15 sec
After	~~[illegible]~~	~~[illegible]~~

GAS	1	2
CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100mL H_2O	561.7	565.2	-3.5
2.	100mL H_2O	573.0	570.0	0.0
3.	Empty	470.0	470.0	0.0
4.	Silica Gel	612.5	600.1	12.4
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 3
TEST UNIT 7-9 Battery AEC	TEST NO. CLR-2-4 -3	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-101	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 167 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		147.823	1.0	0.99	0.99	51	48	4.5	71	250	<68°F	250	1 min./point
2.4		148.402	1.1	1.09	1.09	52	48	5.0	73				
4.3		149.046	1.30	1.29	1.29	52	48	6.0	84				
6.4		149.749	1.30	1.29	1.29	51	48	5.5	84				
9.0		150.458	1.20	1.19	1.19	52	48	6.0	84				
12.8		151.122	1.20	1.19	1.19	52	48	5.0	85				
23.2		151.782	1.40	1.39	1.39	52	49	7.0	85				
27.0		152.545	1.80	1.79	1.79	52	49	10.5	85				
29.6		153.388	1.90	1.88	1.88	52	49	11.0	87				
31.7		154.191	1.90	1.88	1.88	53	49	12.5	85				
33.6		155.041	2.20	2.18	2.18	52	50	13.0	86				
35.0		155.923	1.80	1.79	1.79	53	50	11.5	84				
		156.768											
													Estimates:
													MW= 28.8
													%H2O= 19%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery PEC	TEST NO. CRE-2-4 -3	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 167 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36'
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		156.708	2.10	2.08	2.08	53	50	14.0	86	250	48°F	250	1 min./point
33.6		157.554	2.30	2.28	2.28	53	50	16.0	85				
31.7		158.568	2.10	2.08	2.08	53	51	15.0	88				
29.6		159.435	1.80	1.79	1.79	54	51	10.5	84				
27.0		160.252	1.70	1.69	1.69	54	51	7.5	87				
23.2		161.028	1.50	1.49	1.49	55	51	7.5	84				
12.8		161.764	1.40	1.39	1.39	55	52	7.0	85				
9.0		162.516	1.30	1.29	1.29	55	52	6.0	83				
6.4		163.247	1.30	1.29	1.29	54	52	6.5	89				
4.3		163.970	1.30	1.29	1.29	55	51	7.0	84				
2.4		164.708	1.20	1.21	1.21	54	52	5.5	76				
1.0		165.422	0.80	0.81	0.81	54	51	4.0	74				
		165.994											
													Estimates:
													MW=28.8
													%H2O=1.8

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works
TEST UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JJS
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CLR-2-4 -3
NOZZLE (SIZE,#) 0.180 #11
STATIC PRESSURE 1.4
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 0.9650
CALIBRATION DATE 12-8-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 8
PROBE NO. 5-3
FILTER NO. 167 QTZ
STACK DIA. 76"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H20)	Orifice ΔH Actual (in. H20)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
35.0		165.994	1.40	1.41	1.41	53	52	9.5	83	250	<68°F	250	1 min./point
33.6		166.701	1.80	1.82	1.82	53	51	12.5	84				
31.7		167.517	1.50	1.51	1.51	54	52	9.0	84				
29.6		168.307	1.10	1.11	1.11	54	51	6.0	82				
27.0		168.952	1.50	1.51	1.51	54	52	8.5	82				
23.2		169.717	1.30	1.31	1.31	55	52	5.5	84				
12.3		170.447	1.40	1.41	1.41	55	52	7.5	84				
9.0		171.198	1.40	1.41	1.41	55	52	8.0	86				
.963 6.4		171.968	1.60	1.62	1.62	55	52	8.0	82				
4.3		172.753	1.40	1.41	1.41	55	52	5.0	83				
2.4		173.498	1.20	1.21	1.21	55	52	5.5	77				
1.0		174.169	1.0	1.01	1.01	55	52	5.0	67				
		174.804											

Estimates:
MW= 28.8
%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 2-4

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery PEC	TEST NO. CLR-2-4 -3	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 167 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION South	CONTROL BOX NO. 5	PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H2O)	Orifice ΔH Required (in. H2O)	Orifice ΔH Actual (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
1.0		174.804	1.0	1.01	1.01	55	52	4.5	64	250	<68F	250	1 min./point
2.4		175.432	1.20	1.21	1.21	55	52	4.5	72				
4.3		176.142	1.40	1.41	1.41	55	52	7.0	83				
6.4		176.865	1.40	1.41	1.41	55	52	6.0	84				
9.0		177.600	1.40	1.41	1.41	55	53	5.5	89				
12.8		178.352	1.30	1.31	1.31	56	52	5.0	87				
23.2		179.067	1.60	1.62	1.62	55	53	7.0	85				
27.0		179.846	1.50	1.51	1.51	56	52	7.0	86				
29.6		180.614	1.80	1.82	1.82	56	53	10.5	86				
31.7		181.487	1.60	1.62	1.62	56	53	8.0	85				
33.6		182.264	1.80	1.82	1.82	56	53	8.0	86				
35.0		183.084	1.30	1.31	1.31	56	53	6.0	87				
		183.926											
													Estimates:
													MW= 28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

GAS	1	2
CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

VISIBLE EMISSIONS OBSERVATIONS FORM BAG HOUSE READINGS
7-8-9

[redacted]

OBSERVER: BERNIE MAY

DATE: 12-8-92

FACILITY: U.S.X CLAIRTON

OBSERVATION: START TIME: 0 53
END TIME: 12:00

OBSERVATION POINT:
SOUTH OF BAG HOUSE
COKE YARD

SOURCE: 7-8-9

DISTANCE: 300 FT.
DIRECTION FROM: SOUTH
HEIGHT: 75 FT

WIND:

SPEED: 13 M.P.H.
DIRECTION: WEST
TEMPERATURE: 30°
SKY CONDITION: OVERCAST.
BACKGROUND: SKY

READING CONDITIONS: FAIR
COLOR OF EMISSION:

TOTAL No. OF READINGS: 120
No. READINGS >= 20% 0
No. READINGS >= 60% 0
GREATEST OPACITY: 0
CREW: C FOREMAN: HALL

COMMENTS:

B13-7	0	0	0	0	0	8:53	30					
A15-8	1	0	0	0	0	8:58	31					
B15-7	2	0	0	0	0	9 05	32					
A17-8	3	0	0	0	0	9:11	33					
B17-7	4	0	0	0	0	9:18	34					
A19-8	5	0	0	0	0	9:23	35					
B19-7	6	0	0	0	0	9:35	36					
A21-8	7	0	0	0	0	9:40	37					
B21-7	8	0	0	0	0	9:45	38					
A23-8	9	0	0	0	0	9 51	39					
B23-7	10	0	0	0	0	9:57	40					
A25-8	11	0	0	0	0	10 03	41					
B27-7	12	0	0	0	0	10:09	42					
A27-8	13	0	0	0	0	10:14	43					
A29-8	14	0	0	0	0	10:30	44					
A31-8	15	0	0	0	0	10:35	45					
B27-7	16	0	0	0	0	10.41	46					
B29-7	17	0	0	0	0	10:48	47					
A2-9	18	0	0	0	0	10:54	48					
A4-9	19	0	0	0	0	11:00	49					
A6-9	20	0	0	0	0	11:06	50					
B2-8	21	0	0	0	0	11:12	51					
B4-8	22	0	0	0	0	11:17	52					
B6-8	23	0	0	0	0	11:23	53					
A8-9	24	0	0	0	0	11:29	54					
A10-9	25	0	0	0	0	11:35	55					
A12-9	26	0	0	0	0	11:41	56					
B8-8	27	0	0	0	0	11:47	57					
B10-8	28	0	0	0	0	11:53	58					
B12-8	29	0	0	0	0	11 59	59					

VISIBLE EMISSIONS OBSERVATIONS FORM BAG HOUSE READINGS # 7-8-9

[redacted]

OBSERVER: BENNIE MAY

DATE: 12-8-92

FACILITY: U.S.X CLAIRTON

OBSERVATION: START TIME: 12:00

END TIME: _____

OBSERVATION POINT:

SOUTH OF BAG HOUSE COKE YARD

SOURCE: 7-8-9 BAG HOUSE

DISTANCE: 300 FT

DIRECTION FROM: SOUTH

HEIGHT: 75 FT

WIND:

SPEED: 12 MPH

DIRECTION: WEST

TEMPERATURE: 33

SKY CONDITION: OVERCAST

BACKGROUND: SKY

A 3

READING CONDITIONS: FAIR

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 120

No. READINGS >= 20% 0

No. READINGS >= 60% 0

GREATEST OPACITY: 0

CREW: C FOREMAN: HALL

COMMENTS: _____

A14-7	0	0	0	0	0	12:05	30					
A16-9	1	0	0	0	0	12:11	31					
A18-1	2	0	0	0	0	12:17	32					
B14-8	3	0	0	0	0	12:24	33					
B16-8	4	0	0	0	0	12:30	34					
B18-8	5	0	0	0	0	12:37	35					
A20-9	6	0	0	0	0	12:43	36					
B20-8	7	0	0	0	0	12:49	37					
A22-9	8	0	0	0	0	12:55	38					
B22-8	9	0	0	0	0	1:04	39					
A24-9	10	0	0	0	0	1:10	40					
B24-8	11	0	0	0	0	1:16	41					
A26-9	12	0	0	0	0	1:21	42					
B26-8	13	0	0	0	0	1:27	43					
A28-9	14	0	0	0	0	1:32	44					
B28-8	15	0	0	0	0	1:37	45					
A30-9	16	0	0	0	0	1:43	46					
B30-8	17	0	0	0	0	1:49	47					
C1-8	18	0	0	0	0	1:57	48					
B1-9	19	0	0	0	0	2:03	49					
A1-7	20	0	0	0	0	2:08	50					
B3-9	21	0	0	0	0	2:14	51					
7	22	0	0	0	0	2:19	52					
B5-9	23	0	0	0	0	2:25	53					
A5-7	24	0	0	0	0	2:30	54					
B7-9	25	0	0	0	0	2:36	55					
A7-7	26	0	0	0	0	2:42	56					
B9-9	27	0	0	0	0	2:47	57					
A9-7	28	0	0	0	0	2:52	58					
B11-9	29	0	0	0	0	2:58	59					

Testing P.E.C. pushing System

Name James Eric Kay
Date 08 December 1992
Foreman R. Hall Crew C

BATTERY 7, 8, 9

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. > 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
B-13/7	8:53	[illegible]	15%	.00	10%		
A-15/8	8:58	.00	10%	.00	10%		
B-15/7	9:05	.00	15%	.00	5%		
A-17/8	9:11	.00	0%	.03	25%		
B-17/7	9:18	.02	80%	.04	35%		
A-19/8	9:23	.00	10%	.00	5%		
B-19/7	9:35	.00	10%	.00	15%		
A-21/8	9:40	.00	15%	.00	5%		
B-21/7	9:45	.00	10%	.00	5%		
A-23/8	9:51	.00	0%	.00	5%		
B-23/7	9:57	.00	0%	.04	25%		
A-25/8	10:03	.00	10%	.00	10%		
B-25/7	10:09	.00	0%	.03	25%		
A-27/8	10:14	.00	0%	.00	5%		
A-29/8	10:30	.00		.00	0%		
A-31/8	10:35	.00	0%	.00	0%		
B-27/7	10:41	.06	65%	.07	30%		
B-29/7	10:48	.00	15%	.00	10%		
A-2/9	10:54	.00	0%	.00	10%		

Note: Column #I represents fugitive emissions from the coke collecting car, coke guide and area between the coke guide and jamb, and emissions from the by-pass duct during the push.

Column #II represents emissions from the coke collecting car and by-pass duct during travel.

Column #III represents emissions from the gas cleaning car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

Testing P.E.C. pushing System

Name Jerry E McKay
Date 8 & 9 December, 1992
Foreman R. Hall Crew C

BATTERY 7, 8, 9

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. > 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
A-7/9	11:00	:00	0%	:00	5%		
A-6/9	11:06	:00	0%	:00	0%		
B-5/8	11:12	:00	0%	:00	0%		
B-4/8	11:17	:04	35%	:03	35%		
B-6/8	11:23	:00	0%	:00	0%		
A-8/9	11:29	:00	0%	:00	0%		
A-10/9	11:35	:00	0%	:00	5%		
A-12/9	11:41	:00	0%	:00	0%		
B-8/8	11:47	:00	0%	:00	0%		
B-10/8	11:53	:00	0%	:00	0%		
B/12/8	11:59	:00	0%	:00	0%		
A14/9	12:05	:00	0%	:00	0%		
A16/9	12:11	:00	0%	:00	10%		Green Oven Face
A18/9	12:17	:00	0%	:00	0%		
B/14/8	12:24	:00	0%	:00	0%		
B/16/8	12:30	:00	0%	:00	0%		
B/18/8	12:37	:00	0%	:00	0%		
A20/9	12:43	:00	0%	:00	0%		
B-20/8	12:49	:00	0%	:03	25%		

Note: Column #I represents fugitive emissions from the coke collecting car, coke guide and area between the coke guide and jamb, and emissions from the by-pass duct during the push.

Column #II represents emissions from the coke collecting car and by-pass duct during travel.

Column #III represents emissions from the gas cleaning car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

Testing P.E.C. Pushing System

Name James E. McKay
Date 8 December 1972
Foreman [illegible] Crew [illegible]

BATTERY 7, 8, 9

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. > 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
A-22/9	1:55	[illegible]	[illegible]	[illegible]	[illegible]		
B-22/8	1:54	[illegible]	[illegible]	[illegible]	5		
A-24/9	1:10	[illegible]	0%	00	0%		
B-24/8	1:16	[illegible]	0%	[illegible]	[illegible]		
A-26/9	1:21	.00	0%	.00	15%		
B-26/8	1:27	.00	0%	.00	5%		
A-28/9	1:32	.00	0%	.00	[illegible]		
B-28/8	1:37	.00	0%	.00	0%		
A-30/9	1:43	.00	0%	.00	0%		
B-30/8	1:49	.00	10%	[illegible]	20%		
C1/8	1:57	.02	25%	.06	40%		
B1/9	2:03	.03	45%	.00	10%		
A1/7	2:08	.00	10%	.12	55%		
B3/9	2:14	.00	15%	.00	10%		
A3/7	2:19	.00	10%	.05	30%		
B-5/9	2:25	.00	0%	.00	0%		
A-5/7	2:30	.00	0%	.00	0%		
B-7/9	2:36	.00	0%	.00	5%		
A7/7	2:42	.00	0%	.00	10%		

Note: Column #I represents fugitive emissions from the coke collecting car, coke guide and area between the coke guide and jamb, and emissions from the by-pass duct during the push.

Column #II represents emissions from the coke collecting car and by-pass duct during travel.

Column #III represents emissions from the gas cleaning car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

Testing P.E.C Pushing System

Name [illegible]
Date 08 December 1982
Foreman [illegible] Crew _____

BATTERY 7, 8, 9

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. > 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
B-9/9	2:47	00 0%	00 0%		
A-9/7	2:52	00 0%	00 0%		
B-1/9	2:58	00 0%	00 0%		

Note: Column #I represents fugitive emissions from the coke collecting car, coke guide and area between the coke guide and jamb, and emissions from the by-pass duct during the push.

Column #II represents emissions from the coke collecting car and by-pass duct during travel.

Column #III represents emissions from the gas cleaning car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

VISIBLE EMISSIONS OBSERVATIONS FORM BAG HOUSE READINGS # 7-8 9

OBSERVER: BERNIE MAY

DATE: 12-9-92

FACILITY: U.S.X CLAIRTON

OBSERVATION: START TIME: 8:33

END TIME: 11:35

OBSERVATION POINT:

SOUTH OF BAGHOUSE COKE YARD

SOURCE: 7-8-9 BAGHOUSE

DISTANCE: 300 F.T.

DIRECTION FROM: SOUTH.

HEIGHT: 75 F.T.

WIND:

SPEED: 5. M.P.H

DIRECTION: S.E

TEMPERATURE: 25°

SKY CONDITION: CLEAR

BACKGROUND: SKY

READING CONDITIONS: GOOD

COLOR OF EMISSION:

TOTAL No. OF READINGS: 120

No. READINGS >= 20% 0

No. READINGS >= 60% 0

GREATEST OPACITY: 0

CREW: C FOREMAN: HALL

COMMENTS:

	STACK					PASSING TIME					
A28-9	0	0	0	0	0	8:33	30				
B28-8	1	0	0	0	0	8:44	31				
A30-9	2	0	0	0	0	8:50	32				
B30-8	3	0	0	0	0	8:57	33				
C1-8	4	0	0	0	0	9:05	34				
B1-9	5	0	0	0	0	9:11	35				
A1-7	6	0	0	0	0	9:22	36				
B3-9	7	0	0	0	0	9:27	37				
A3-7	8	0	0	0	0	9:35	38				
B5-9	9	0	0	0	0	9:41	39				
A5-7	10	0	0	0	0	9:46	40				
B7-9	11	0	0	0	0	9:52	41				
A7-7	12	0	0	0	0	9:58	42				
B9-9	13	0	0	0	0	10:04	43				
A9-7	14	0	0	0	0	10:10	44				
B11-9	15	0	0	0	0	10:15	45				
A11-7	16	0	0	0	0	10:21	46				
B13-9	17	0	0	0	0	10:26	47				
A13-7	18	0	0	0	0	10:32	48				
B15-9	19	0	0	0	0	10:37	49				
A15-7	20	0	0	0	0	10:43	50				
B17-9	21	0	0	0	0	10:49	51				
A17-7	22	0	0	0	0	10:54	52				
B19-9	23	0	0	0	0	11:00	53				
A19-7	24	0	0	0	0	11:06	54				
B21-9	25	0	0	0	0	11:11	55				
A21-7	26	0	0	0	0	11:17	56				
B23-9	27	0	0	0	0	11:22	57				
A23-7	28	0	0	0	0	11:28	58				
B25-9	29	0	0	0	0	11:34	59				

VISIBLE EMISSIONS OBSERVATIONS FORM BAG HOUSE READINGS # 7-8-9

OBSERVER: BENNIE MAY

DATE: 12-9-92

FACILITY: U.S.X CLAIRTON

OBSERVATION: START TIME: 11:40

END TIME: _____

OBSERVATION POINT:

SOUTH OF BAGHOUSE COKE YARD

SOURCE:

DISTANCE: 300 F.T.

DIRECTION FROM: SOUTH

HEIGHT: 75 F.T

WIND:

SPEED: 10 M.P.H.

DIRECTION: S.E

TEMPERATURE: 32°

SKY CONDITION: CLEAR

BACKGROUND: SKY

READING CONDITIONS: GOOD

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 120

No. READINGS >= 20% _____

No. READINGS >= 60% _____

GREATEST OPACITY: _____

CREW: C FOREMAN: HALL

COMMENTS: _____

						PUSHING TIME ↓						
A25-7	0	0	0	0	0	11:40	30					
B27-9	1	0	0	0	0	11:45	31					
A27-7	2	0	0	0	0	11:51	32					
B29-9	3	0	0	0	0	11:56	33					
A29-9	4	0	0	0	0	12:02	34					
B31-9	5	0	0	0	0	12:08	35					
C2-9	6	0	0	0	0	12:16	36					
A2-8	7	0	0	0	0	12:25	37					
B2-7	8	0	0	0	0	12:31	38					
A4-8	9	0	0	0	0	12:37	39					
B4-7	10	0	0	0	0	12:43	40					
A6-8	11	0	0	0	0	12:49	41					
B6-7	12	0	0	0	0	12:65	42					
A8-8	13	0	0	0	0	1:00	43					
B8-7	14	0	0	0	0	1:06	44					
A10-8	15	0	0	0	0	1:11	45					
B10-7	16	0	0	0	0	1:17	46					
A12-8	17	0	0	0	0	1:22	47					
B12-7	18	0	0	0	0	1:28	48					
A14-8	19	0	0	0	0	1:33	49					
A16-8	20	0	0	0	0	1:55	50					
B16-8	21	0	0	0	0	2:00	51					
A18-8	22	0	0	0	0	2:05	52					
B18-7	23	0	0	0	0	2:10	53					
A20-8	24	0	0	0	0	2:15	54					
B20-7	25	0	0	0	0	2:21	55					
A22-8	26	0	0	0	0	2:26	56					
B22-7	27	0	0	0	0	2:31	57					
A24-8	28	0	0	0	0	2:38	58					
B24-7	29	0	0	0	0	2:43	59					

SHEET #I PEC TEST

Name Paul Pastrik
Date 12/9/92
Foreman HALL Crew C

BATTERY 7-8-9

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. > 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	N.V = NO VIEW Comments:
9/A28	8:33	:0	0%	:0	0%		No VIEW
8/B28	8:44	:0	0%	:0	5%		No VIEW
9/A30	8:50	:0	0%	:0	0%		Good Face
8/B30	8:57	:0	10%	:08	30%	OUT	Green Face
8/C1	9:05	:0	15%	:10	35%	OUT	N.V
9/B1	9:11	:0	10%	:0	10%		Green Face
7/A1	9:22	:0	10%	:05	25%	OUT	Green Face
9/B3	9:27	:0	0%	:0	10%		Green Face
7/A3	9:35	:0	0%	:10	35%	OUT	N.V.
9/B5	9:41	:0	0%	:0	0%		Good Face
7/A5	9:46	:0	0%	:0	0%		NV
9/B7	9:52	:0	5%	:0	10%		NV
7/A7	9:58	:0	0%	:0	10%		Good Face
9/B9	10:04	:0	0%	:0	0%		Good Face
7/A9	10:10	:0	0%	:0	0%		SLIGHT Green
9/B11	10:15	:0	0%	:0	0%		N.V.
7/A11	10:21	:0	0%	:0	10%		SLIGHT Green
9/B13	10:26	:0	0%	:0	0%		SLIGHT Green
7/A13	10:32	:0	0%	:0	0%		Good Face

Note: Column #I represents fugitive emissions from the coke collecting car, coke guide and area between the coke guide and jamb, and emissions from the by-pass duct during the push.

Column #II represents emissions from the coke collecting car and by-pass duct during travel.

Column #III represents emissions from the gas cleaning car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

CC-10295 REV. 1161
03.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3

12 Hrs. Beginning 12:00 P M

Date 12-9-92

BATTERY NO. A-9

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	3	22	3	32	
3	3	34	3	44	
5	3	46	3	55	
7	3	57	4	06	
9	4	43	4	54	
11	4	56	5	06	
13	5	08	5	18	
15	5	20	5	30	
17	5	32	5	41	
19	5	43	5	53	
21	5	55	6	05	
23	6	07	6	16	
25	6	18	6	28	
27	6	30	6	40	
29	6	42	6	50	
31	6	52	7	02	
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2					

BATTERY NO. B-9

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9					
11					
13					
15					
17					
19					
21					
23					
25					
27					
29			12	07	
31	12	09	12	19	
2	7	18	7	27	
4	7	29	7	38	
6	7	40	7	49	
8	7	51	8	05	
10	8	02	8	12	
12	8	14	8	23	
14	8	25	8	34	
16	8	36	8	45	
18	8	47	8	56	
20	8	58	9	07	
22	9	09	9	18	
24	9	20	9	29	
26	9	31	9	41	
28	9	43	9	52	
30	9	54	10	02	
C-1	9	59	10	09	
C-2	12	21	12	25	

BATTERY NO. A-8

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	10	11	10	19	
3	10	21	10	30	
5	10	32	10	41	
7	10	43	10	51	
9	10	53	11	03	
11	11	05	11	13	
13	11	15	11	23	
15	11	25	11	33	
17	11	35	11	43	
19	11	45			
21					
23					
25					
27					
29					
31					
2	12	27	12	36	
4	12	38	12	48	
6	12	50	12	59	
8	1	01	1	10	
10	1	12	1	21	
12	1	23	1	32	
14	1	34	1	54	
16	1	56	2	04	
18	2	06	2	14	
20	2	16	2	25	
22	2	27	2	37	
24	2	39	2	47	
26	2	49	2	58	
28	3	—	3	09	
30	3	11	3	20	
1					
2					

REMARKS:

16/16 18/19 25/24

Condition of Signals

Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	6		6-7	5	5	
1-2	5	4		7-8	4	4	
2-3	5	6		8-9	6	6	
3-4	6	5		9-10	6	5	
4-5	2	2		10-11	5	6	
5-6	3	3		11-12	5	5	
	28	28			31	31	

Total Ovens Pushed 59

Total Ovens Charged 59

Pusherman

Battery Foreman

DEC 17 '92 15:41 FROM COKING OFFICE TO BOB BROWN PAGE.004

CC-10295 REV. 1181
03.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3
12 Hrs. Beginning 12:00 PM
Date 12-9-92

BATTERY NO. BS-8

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	3	26	3	34	
3	3	36	3	44	
5	3	46	4	10	
7	4	12	4	20	
9	4	[illegible]	5	03	
11	5	05	5	13	
13	5	15	5	25	
15	5	27	5	35	
17	5	37	5	43	
19	5	45	5	56	
21	5	58	6	00	
23	6	10	6	18	
25	6	20	6	28	
27	6	30	6	38	
29	6	40	6	48	
31	6	50	6	57	
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2	6	59	7	10	

BATTERY NO. AS-7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9					
11					
13					
15					
17					
19					
21					
23					
25					
27			12	04	
29	12	06	12	[illegible]	
31	12	18	12	28	
2	7	12	7	30	
4	7	32	7	43	
6	7	45	7	53	
8	7	55	8	03	
10	8	05	8	18	
12	8	20	8	28	
14	8	30	8	38	
16	8	40	8	48	
18	8	50	9	08	
20	9	10	9	18	
22	9	20	9	23	
24	9	25	9	36	
26	9	38	9	46	
28	9	48	10	03	
30	10	05	10	13	
1					
2					

BATTERY NO. BS-7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	10	15	10	23	
3	10	25	10	33	
5	10	35	10	43	
7	10	45	10	53	
9	10	55	11	08	
11	11	10	11	18	
13	11	20	11	28	
15	11	30	11	38	
17	11	40			
19					
21					
23					
25					
27					
29					
31			12	18	
2	12	30	12	40	
4	12	42	12	52	
6	12	55	1	04	
8	1	06	1	16	
10	1	18	1	28	
12	1	30	1	[illegible]	
14	1	42	1	52	
16	1	55	2	04	
18	2	06	2	16	
20	2	18	2	28	
22	2	30	2	40	
24	2	42	2	52	
26	2	55	3	04	
28	3	06	3	14	
30	3	16	3	22	
1					
2					

REMARKS:

17/17 17/18 24/24

Condition of Signals

Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	6		6-7	6	6	
1-2	5	5		7-8	4	4	
2-3	5	5		8-9	5	5	
3-4	5	5		9-10	5	5	
4-5	2	2		10-11	6	6	
5-6	6	6		11-12	4	4	
	28	29			30	30	

Total Ovens Pushed 58
Total Ovens Charged 59

Pusherman

Battery Foreman

CC-10295 REV. 1181
03.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3

12 Hrs. Beginning 12:00 A. M.

Date 12-10-92

BATTERY NO. A's-9					
OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	10	51	11	15	
3	11	06	11	27	
5	11	17	11	39	
7	11	29	11	51	
9	11	41			
11	11	53			
13					
15					
17					
19					
21					
23					
25					
27					
29					
31					
2	1	13	1	33	
4	1	24	1	42	
6	1	35	1	55	
8	1	45	2	07	
10	1	57	2	17	
12	2	09	2	27	
14	2	19	2	40	
16	2	29	2	52	
18	2	39	3	03	
20	2	50	3	14	
22	3	01	3	25	
24	3	12	3	37	
26	3	23	3	48	
28	3	35	4	—	
30	3	46	4	10	
1					
2					

BATTERY NO. B's-9					
OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	4	05	4	24	
3	4	18	4	37	
5	4	29	4	53	
7	P	A	5	5	✓
9	4	46	5	08	
11	4	58	5	23	
13	5	10	5	36	
15	5	21	5	48	
17	5	34	5	56	
19	5	46	6	06	
21	5	58	6	18	
23	6	09	6	28	
25	6	21	6	40	
27	6	33	6	51	
29	6	44	7	03	
31	6	55	7	14	P.B.
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2	7	07	7	25	

BATTERY NO. A's-8					
OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9					
11					
13					
15					
17					
19			12	15	
21	12	13	12	32	
23	12	23	12	42	
25	12	34	12	52	
27	12	43	1	02	
29	12	53	1	11	
31	1	—	1	22	
2	7	12	7	34	
4	7	23	8	23	
6	7	36	8	35	
8	8	25	8	50	
10	8	37	9	01	
12	8	52	9	16	
14	9	03	9	27	
16	9	18	9	38	
18	9	29	9	52	
20	9	40	10	03	
22	9	54	10	14	
24	10	05	10	25	
26	10	16	10	36	
28	10	27	10	49	
30	10	38	11	04	
1					
2					

REMARKS:

2/19 1/0 2/2

Condition of Signals

Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	4		6-7	5	5	
1-2	6	6		7-8	4	4	
2-3	5	5		8-9	3	3	
3-4	5	5		9-10	5	5	
4-5	5	5		10-11	5	5	
5-6	5	5		11-12	5	5	
	31	30			27	27	

Total Ovens Pushed 58

Total Ovens Charged 57

Pusherman

Battery Foreman

.C-10295 REV. 1161
13.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3

12 Hrs. Beginning 12:00 AM

Date 12-10-92 AM

BATTERY NO. B5-8

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	10	53	11	16	
3	11	06	11	28	
5	11	18	11	40	
7	11	30	11	52	
9	11	42			
11	11	55			
13					
15					
17					
19					
21					
23					
25					
27					
29					
31					
2	1	21	1	43	
4	1	33	1	55	
6	1	45	2	07	
8	1	57	2	19	
10	2	09	2	30	
12	2	20	2	42	
14	2	32	2	54	
16	2	44	3	05	
18	2	56	3	17	
20	3	07	3	29	
22	3	19	3	41	
24	3	31	3	53	
26	3	43	4	04	
28	3	55	4	09	
30	4	06	4	21	
C 1	4	11	4	33	
C 2					

BATTERY NO. A5-7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	4	23	4	45	
3	4	35	4	57	
5	4	47	5	02	
7	4	53	5	13	
9	5	04	5	25	
11	5	15	5	36	
13	5	27	5	48	
15	5	38	6	00	
17	5	50	6	12	
19	6	02	6	23	
21	6	14	6	35	
23	6	25	6	47	
25	6	37	7	01	
27	6	49	7	14	
29	7	03	7	32	
31	7	16	7	43	
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2					

BATTERY NO. B5-7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9					
11					
13					
15					
17			12	19	
19	12	10	12	30	
21	12	21	12	41	
23	12	32	12	52	
25	12	43	1	08	
27	12	54	1	14	
29	1	10	1	18	
31	PASS UP				
2	7	34	8	10	
4	7	45	8	25	
6	8	15	8	37	
8	8	27	8	50	
10	8	40	9	04	
12	8	52	9	16	
14	9	06	9	28	
16	9	18	9	40	
18	9	30	9	52	
20	9	42	10	04	
22	9	55	10	16	
24	10	06	10	28	
26	10	18	10	40	
28	10	30	10	45	
30	10	42	10	57	
1					
2					

REMARKS:

12/20 16 21/22

Condition of Signals | Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	4		6-7	5	5	
1-2	5	5		7-8	4	4	
2-3	5	5		8-9	4	4	
3-4	5	5		9-10	5	5	
4-5	6	6		10-11	5	6	
5-6	5	5		11-12	5	5	
	31	30			28	29	

Total Ovens Pushed 59

Total Ovens Charged 59

Pusherman

Battery Foreman

CC-10299 REV. 1161
03.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3
12 Hrs. Beginning 12:00 AM
Date 12-10-92

BATTERY NO. A-9

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9			12	03	
11			12	15	
13	12	05	12	27	
15	12	17	12	42	
17	12	29	12	53	
19	12	44	1	05	
21	12	55	1	16	
23	1	07	1	27	
25	1	18	1	39	
27	1	29	1	50	
29	1	41	2	08	
31	1	52	2	20	
2	8	14	8	36	
4	8	26	8	48	
6	8	38	9	00	
8	8	50	9	12	
10	9	02	9	24	
12	9	14	9	36	
14	9	26	9	48	
16	9	38	10	00	
18	9	50	10	12	
20	10	02	10	24	
22	10	14	10	36	
24	10	26	10	48	
26	10	38	11	00	
28	10	50	11	14	
30	11	02	11	30	
1					
2					

BATTERY NO. B-9

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	11	20	11	42	
3	11	32	11	54	
5	11	44			
7	11	56			
9					
11					
13					
15					
17					
19					
21					
23					
25					
27					
29					
31					
2	2	10	2	32	
4	2	22	2	45	
6	2	34	2	56	
8	2	47	3	07	
10	2	58	3	18	
12	3	09	3	29	
14	3	20	3	40	
16	3	31	3	51	
18	3	42	4	00	
20	3	53	4	12	
22	4	02	4	24	
24	4	14	4	36	
26	4	26	4	48	
28	4	38	4	58	
30	4	50	5	06	
C 1	4	56	5	18	
2					

BATTERY NO. A-8

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	5	08	5	30	
3	5	20	5	42	
5	5	32	5	54	
7	5	44	6	06	
9	5	56	6	18	
11	6	08	6	30	
13	6	20	6	42	
15	6	32	6	54	
17	6	44	7	06	
19	6	56	7	18	
21	7	08	7	30	
23	7	20	7	42	
25	7	32	7	54	
27	7	44	8	04	
29	7	56	8	12	
31	8	02	8	24	
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2					

REMARKS: 1 23/21 20/18 16

Condition of Signals

Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	5		6-7	5	5	
1-2	5	5		7-8	5	5	
2-3	5	5		8-9	5	5	
3-4	5	5		9-10	5	5	
4-5	6	6		10-11	5	5	
5-6	5	5		11-12	5	5	
	31	31			30	30	

Total Ovens Pushed 61
Total Ovens Charged 61

Pusherman

Battery Foreman

CC-10295 REV. 1181
03.001.0020

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3

12 Hrs. Beginning 12:00 M P.M

Date 12-10-92

BATTERY NO. B5 8

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1					
3					
5					
7					
9			12	04	
11			12	16	
13	12	06	12	28	
15	12	18	12	40	
17	12	30	12	52	
19	12	42	1	04	
21	12	55	1	16	
23	1	06	1	28	
25	1	18	1	40	
27	1	30	1	52	
29	1	42	2	04	
31	1	55	2	10	
2	8	25	8	43	
4	8	35	8	53	
6	8	45	9	08	
8	8	55	9	23	
10	9	10	9	33	
12	9	25	9	43	
14	9	35	9	53	
16	9	45	10	08	
18	9	55	10	18	
20	10	10	10	28	
22	10	20	10	38	
24	10	30	10	48	
26	10	40	11	03	
28	10	50	11	08	
30	11	05	11	18	
C1	11	10	11	28	
C2	2	06	2	16	

BATTERY NO. A5 7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	11	20	11	38	
3	11	30			
5	11	40			
7					
9					
11					
13					
15					
17					
19					
21					
23					
25					
27					
29					
31					
2	2	18	2	40	
4	2	30	2	52	
6	2	42	3	05	
8	2	55	3	13	
10	3	07	3	23	
12	3	15	3	33	
14	3	25	3	43	
16	3	35	3	53	
18	3	45	4	07	
20	3	55	4	27	
22	4	09	4	38	
24	4	29	4	57	
26	4	40	5	08	
28	4	59	5	28	
30	5	10	5	38	
1					
2					

BATTERY NO. B5 7

OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1	5	30	5	48	
3	5	40	6	08	
5	5	50	6	18	
7	6	10	6	28	
9	6	20	6	38	
11	6	30	6	48	
13	6	40	7	03	
15	6	50	7	13	
17	7	05	7	23	
19	7	15	7	33	
21	7	25	7	43	
23	7	35	7	53	
25	7	45	8	08	
27	7	55	8	23	
29	8	10	8	33	
31	—	—	—	—	
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					
1					
2					

REMARKS:

21/29 A/16 1/5

Condition of Signals

Condition of Pusher

HOURLY REPORT OF OPERATION

TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	5	5		6-7	5	5	
1-2	5	5		7-8	6	6	
2-3	5	5		8-9	5	5	
3-4	6	6		9-10	5	5	
4-5	4	4		10-11	5	5	
5-6	4	4		11-12	5	5	
	29	29			31	31	

Total Ovens Pushed 60/60

Total Ovens Charged

Pusherman

Battery Foreman

P U S H I N G S C H E D U L E

Tuesday, December 8. 1992 Turn 1
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B26/7	12:48	11:50pm	12:00am	[illegible]
2	B31/7	12:54	11:56pm	12:06am	[illegible]
3	B28/8	12:54	12:02am	12:12am	[illegible]
4	B28/7	12:54	12:08am	12:18am	[illegible]
5	B30/8	12:54	12:14am	12:24am	[illegible]
6	B30/7	12:54	12:20am	12:30am	[illegible]
7	A1 /9	12:54	12:26am	12:36am	[illegible]
8	B1 /8	12:54	12:32am	12:42am	[illegible]
9	B1 /7	12:54	12:38am	12:48am	[illegible]
10	B3 /8	12:54	12:44am	12:54am	[illegible]
11	B5 /8	12:54	12:50am	1:00am	[illegible]
12	B3 /7	12:54	12:56am	1:06am	[illegible]
13	B7 /8	12:54	1:02am	1:12am	[illegible]
14	B7 /7	12:54	1:08am	1:18am	[illegible]
15	B9 /8	12:54	1:14am	1:24am	[illegible]
16	B9 /7	12:54	1:20am	1:30am	[illegible]
17	A11/9	12:54	1:26am	1:36am	[illegible]
18	B11/8	12:54	1:32am	1:42am	[illegible]
19	A13/9	12:54	1:38am	1:48am	[illegible]
20	B13/8	12:54	1:44am	1:54am	[illegible]
21	A15/9	12:48	1:50am	2:00am	[illegible]
22	B15/8	12:48	1:56am	2:06am	[illegible]
23	A17/9	12:48	2:02am	2:12am	[illegible]
24	B17/8	12:48	2:08am	2:18am	[illegible]
25	A19/9	12:48	2:14am	2:24am	[illegible]
26	B19/8	12:48	2:20am	2:30am	[illegible]
27	A21/9	12:48	2:26am	2:36am	[illegible]
28	B21/8	12:48	2:32am	2:42am	[illegible]
29	A23/9	12:48	2:38am	2:48am	[illegible]
30	B23/8	12:48	2:44am	2:54am	[illegible]
31	A25/9	12:48	2:50am	3:00am	[illegible]
32	B25/8	12:48	2:56am	3:06am	[illegible]
33	A27/9	12:48	3:02am	3:12am	[illegible]
34	B27/8	12:48	3:08am	3:18am	[illegible]
35	A29/9	12:48	3:14am	3:24am	[illegible]
36	B29/8	12:48	3:20am	3:30am	[illegible]
37	A31/9	12:48	3:26am	3:36am	[illegible]
38	B31/8	12:48	3:32am	3:42am	[illegible]
39	C2 /8	12:48	3:38am	3:48am	[illegible]
40	B2 /9	******	3:44am	3:54am	4:04am
41	A2 /7	******	3:50am	4:00am	4:10am
42	B4 /9	******	3:56am	4:06am	4:16am
43	A4 /7	******	4:02am	4:12am	4:22am
44	B6 /9	******	4:08am	4:18am	4:28am
45	A6 /7	******	4:14am	4:24am	4:34am
46	B8 /9	******	4:20am	4:30am	4:40am
47	A8 /7	******	4:26am	4:36am	4:46am
48	B10/9	******	4:32am	4:42am	4:52am
49	A10/7	******	4:38am	4:48am	4:58am
50	B12/9	******	4:44am	4:54am	5:04am
51	A12/7	******	4:50am	5:00am	5:10am
52	B14/9	******	4:56am	5:06am	5:16am
53	A14/7	******	5:02am	5:12am	5:22am
54	B16/9	******	5:08am	5:18am	5:28am
55	A16/7	******	5:14am	5:24am	5:34am
56	B18/9	******	5:20am	5:30am	5:40am
57	A18/7	******	5:26am	5:36am	5:46am
58	B20/9	******	5:32am	5:42am	5:52am
59	A20/7	******	5:38am	5:48am	5:58am
60	B22/9	******	5:44am	5:54am	6:04am
61	A22/7	******	5:50am	6:00am	6:10am
62	B24/9	******	5:56am	6:06am	6:16am
63	A24/7	******	6:02am	6:12am	6:22am
64	B26/9	******	6:08am	6:18am	6:28am
65	A26/7	******	6:14am	6:24am	6:34am
66	B28/9	******	6:20am	6:30am	6:40am
67	A28/7	******	6:26am	6:36am	6:46am
68	B30/9	******	6:32am	6:42am	6:52am
69	C1 /9	******	6:38am	6:48am	6:58am
70	A30/7	******	6:44am	6:54am	7:04am
71	A1 /8	******	6:50am	7:00am	7:10am
72	B1 /7	******	6:56am	7:06am	7:16am
73	A3 /8	******	7:02am	7:12am	7:22am
74	B3 /7	******	7:08am	7:18am	7:28am
75	A5 /8	******	7:14am	7:24am	7:34am
76	B5 /7	******	7:20am	7:30am	7:40am
77	A7 /8	******	7:26am	7:36am	7:46am
78	B7 /7	******	7:32am	7:42am	7:52am
79	A9 /8	******	7:38am	7:48am	7:58am
80	B9 /7	******	7:44am	7:54am	8:04am

+B31-7 w B26-7

P U S H I N G S C H E D U L E

Tuesday, December 8, 1992 Turn 2
Batteries: 7-9 1

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	A11/9	******	7:00am	9:00am	9:05am
2	B11/7	******	7:52am	9:05am	9:11am
3	B13/7	*1****	8:02am	9:10am	9:16am
4	A14/9	******	8:08am	9:15am	9:21am
5	A16/9	******	8:14am	9:24am	9:30am
6	B15/8	******	8:20am	9:30am	9:36am
7	A15/7	******	8:26am	9:36am	9:42am
8	B17/7	******	8:32am	9:42am	9:48am
9	A18/9	******	8:38am	9:49am	9:55am
10	A20/9	******	8:45am	9:55am	10:01am
11	A19/8	19:01	8:51am	10:01am	10:07am
12	B19/8	******	8:57am	10:07am	10:13am
13	B18/7	******	9:03am	10:13am	10:19am
14	B22/9	******	9:10am	10:20am	10:26am
15	A22/9	16:14	9:16am	10:26am	10:32am
16	A23/9	16:08	9:22am	10:32am	10:38am
17	A21/9	******	9:28am	10:37am	10:43am
18	B23/8	******	9:34am	10:43am	10:49am
19	B24/8	******	9:40am	10:44am	10:50am
20	B25/7	******	9:46am	10:50am	10:56am
21	B26/9	******	9:53am	10:56am	10:62am
22	B28/9	16:27	9:59am	10:62am	10:68am
23	B25/8	16:21	10:05am	10:68am	10:74am
24	A27/8	******	10:11am	10:74am	10:80am
25	B27/7	******	10:17am	10:80am	10:86am
26	B29/7	******	10:23am	10:86am	10:92am
27	B30/9	******	10:30am	10:92am	10:98am
28	B1 /9	16:40	10:36am	10:98am	11:05am
29	A29/8	16:28	10:42am	11:05am	11:11am
30	B31/8	******	10:48am	11:11am	11:17am
31	B31/7	******	10:54am	11:17am	11:23am
32	B3 /7	10:58	11:00am	11:23am	11:29am
33	B5 /9	16:40	11:06am	11:29am	11:35am
34	B6 /9	42:28	11:12am	11:35am	11:41am
35	B4 /8	******	11:18am	11:41am	11:48am
36	B1 /8	******	11:19am	11:48am	11:54am
37	A2 /7	17:11	11:25am	11:54am	12:00pm
38	B7 /9	17:05	11:31am	12:00pm	12:06pm
39	B9 /9	16:59	11:37am	12:06pm	12:12pm
40	B4 /8	16:53	11:43am	12:12pm	12:18pm
41	B8 /8	******	11:50am	12:18pm	12:25pm
42	A5 /7	******	11:56am	12:25pm	12:31pm
43	A7 /7	17:30	12:02pm	12:31pm	12:37pm
44	B11/9	17:24	12:08pm	12:37pm	12:43pm
45	B13/9	17:12	12:14pm	12:43pm	12:49pm
46	B10/8	17:06	12:20pm	12:49pm	12:55pm
47	B12/8	******	12:26pm	12:55pm	1:01pm
48	A9 /7	******	12:33pm	1:01pm	1:08pm
49	A11/7	17:43	12:39pm	1:08pm	1:14pm
50	B15/9	17:37	12:45pm	1:14pm	1:20pm
51	B17/9	17:25	12:51pm	1:20pm	1:26pm
52	B14/8	17:19	12:57pm	1:26pm	1:32pm
53	B16/8	******	1:03pm	1:32pm	1:38pm
54	A13/7	******	1:09pm	1:38pm	1:44pm
55	A15/7	17:56	1:16pm	1:44pm	1:51pm
56	B19/9	17:50	1:22pm	1:51pm	1:57pm
57	B21/9	17:38	1:28pm	1:57pm	2:03pm
58	B18/8	17:32	1:34pm	2:03pm	2:09pm
59	B20/8	******	1:40pm	2:09pm	2:15pm
60	A17/7	20:50	1:46pm	2:15pm	2:21pm
61	A19/7	18:09	1:52pm	2:21pm	2:28pm
62	B23/7	18:03	1:58pm	2:28pm	2:34pm
63	B25/9	17:51	2:05pm	2:34pm	2:40pm
64	B22/8	17:45	2:11pm	2:40pm	2:46pm
65	B24/8	21:09	2:17pm	2:46pm	2:52pm
66	A21/7	21:03	2:23pm	2:52pm	2:58pm
67	A23/7	18:21	2:29pm	2:58pm	3:04pm
68	B27/9	18:16	2:36pm	3:04pm	3:11pm
69	B29/9	18:04	2:42pm	3:11pm	3:17pm
70	B26/8	17:58	2:48pm	3:17pm	3:23pm
71	B28/8	21:22	2:54pm	3:23pm	3:29pm
72	B25/7	21:16	3:00pm	3:29pm	3:35pm
73	A27/7	18:34	3:06pm	3:35pm	3:41pm
74	B31/9	18:29	3:13pm	3:41pm	3:48pm
75	C2 /9	18:17	3:19pm	3:48pm	3:54pm
76	B30/8	18:11	3:25pm	3:54pm	4:00pm
77	C1 /8	21:35	3:31pm	4:00pm	4:06pm
78	A29/7	21:35	3:37pm	4:06pm	4:12pm
		47:35	3:43pm	4:12pm	4:18pm

P U S H I N G S C H E D U L E

Tuesday, December 8, 1992 Turn 3
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B22/9	1:45	3:50pm	4:00pm	4:10pm
2	A22/7	1:50	3:55pm	4:06pm	4:16pm
3	B25/9	1:51	4:02pm	4:12pm	4:22pm
4	A25/7	1:53	4:08pm	4:18pm	4:28pm
5	B27/9	1:57	4:14pm	4:24pm	4:34pm
6	A27/7	1:58	4:20pm	4:30pm	4:40pm
7	B29/9	1:59	4:26pm	4:36pm	4:46pm
8	A29/7	2:00	4:32pm	4:42pm	4:52pm
9	B31/9	2:19	4:38pm	4:48pm	4:58pm
10	A31/7	2:20	4:44pm	4:54pm	5:04pm
11	B3/9	10:25	4:50pm	5:00pm	5:10pm
12	A3/7	10:26	4:56pm	5:06pm	5:16pm
13	B2/8	10:26	5:02pm	5:12pm	5:22pm
14	A2/7	10:26	5:08pm	5:18pm	5:28pm
15	B4/8	10:26	5:14pm	5:24pm	5:34pm
16	A4/7	10:26	5:20pm	5:30pm	5:40pm
17	B6/8	10:26	5:26pm	5:36pm	5:46pm
18	A6/7	10:26	5:32pm	5:42pm	5:52pm
19	B8/8	10:26	5:38pm	5:48pm	5:58pm
20	A10/8	4:55	5:44pm	5:54pm	6:04pm
21	B10/8	4:55	5:50pm	6:00pm	6:10pm
22	A12/8	4:55	5:56pm	6:06pm	6:16pm
23	B12/8	4:55	6:02pm	6:12pm	6:22pm
24	A14/8	4:55	6:08pm	6:18pm	6:28pm
25	B14/8	4:55	6:14pm	6:24pm	6:34pm
26	A16/8	4:55	6:20pm	6:30pm	6:40pm
27	B16/8	4:55	6:26pm	6:36pm	6:46pm
28	A18/8	4:55	6:32pm	6:42pm	6:52pm
29	B18/8	4:55	6:38pm	6:48pm	6:58pm
30	A20/8	19:26	6:44pm	6:54pm	7:04pm
31	B20/8	45:24	6:50pm	7:00pm	7:10pm
32	A22/8	45:24	6:56pm	7:06pm	7:16pm
33	B22/8	45:24	7:02pm	7:12pm	7:22pm
34	A24/8	45:24	7:08pm	7:18pm	7:28pm
35	B24/8	45:24	7:14pm	7:24pm	7:34pm
36	A26/8	45:24	7:20pm	7:30pm	7:40pm
37	B26/8	45:24	7:26pm	7:36pm	7:46pm
38	A28/8	19:26	7:32pm	7:42pm	7:52pm
39	B28/8	19:30	7:38pm	7:48pm	7:58pm
40	A30/8	19:30	7:44pm	7:54pm	8:04pm
41	B30/8	19:30	7:50pm	8:00pm	8:10pm
42	A1/9	19:30	7:56pm	8:06pm	8:16pm
43	B1/9	19:30	8:02pm	8:12pm	8:22pm
44	A3/9	19:30	8:08pm	8:18pm	8:28pm
45	B3/9	19:30	8:14pm	8:24pm	8:34pm
46	A5/9	19:30	8:20pm	8:30pm	8:40pm
47	B5/9	19:30	8:26pm	8:36pm	8:46pm
48	A7/9	19:30	8:32pm	8:42pm	8:52pm
49	B7/9	19:30	8:38pm	8:48pm	8:58pm
50	A9/9	19:30	8:44pm	8:54pm	9:04pm
51	B9/9	19:30	8:50pm	9:00pm	9:10pm
52	A11/9	19:30	8:56pm	9:06pm	9:16pm
53	B11/9	19:30	9:02pm	9:12pm	9:22pm
54	A13/9	19:30	9:08pm	9:18pm	9:28pm
55	B13/9	19:30	9:14pm	9:24pm	9:34pm
56	A15/9	19:30	9:20pm	9:30pm	9:40pm
57	B15/9	19:30	9:26pm	9:36pm	9:46pm
58	A17/9	19:30	9:32pm	9:42pm	9:52pm
59	B17/9	19:30	9:38pm	9:48pm	9:58pm
60	A19/9	19:30	9:44pm	9:54pm	10:04pm
61	B19/9	19:30	9:50pm	10:00pm	10:10pm
62	A21/9	19:30	9:56pm	10:06pm	10:16pm
63	B21/9	19:30	10:02pm	10:12pm	10:22pm
64	A23/9	19:30	10:08pm	10:18pm	10:28pm
65	B23/9	19:30	10:14pm	10:24pm	10:34pm
66	A25/9	19:30	10:20pm	10:30pm	10:40pm
67	B25/9	19:30	10:26pm	10:36pm	10:46pm
68	A27/9	19:30	10:32pm	10:42pm	10:52pm
69	B27/9	19:30	10:38pm	10:48pm	10:58pm
70	A29/9	19:30	10:44pm	10:54pm	11:04pm
71	B29/9	19:30	10:50pm	11:00pm	11:10pm
72	A31/9	19:30	10:56pm	11:06pm	11:16pm
73	B31/9	19:30	11:02pm	11:12pm	11:22pm
74	B2 /9	19:30	11:08pm	11:18pm	11:28pm
75	A2 /7	******	11:14pm	11:24pm	11:34pm
76	B4 /9	******	11:20pm	11:30pm	11:40pm
77	A4 /7	******	11:26pm	11:36pm	11:46pm
78	B6 /9	******	11:32pm	11:42pm	11:52pm
79	A6 /7	******	11:38pm	11:48pm	11:58pm
80		******	11:44pm	11:54pm	12:04am

PUSHING SCHEDULE

Wednesday, December 9, 1992 Turn 1
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B8 /9	******	11:50am	12:00am	12:10am
2	B9	******	11:56am	12:06am	12:16am
3	B11/9	******	12:02am	12:12am	12:22am
4	A10	******	12:08am	12:18am	12:28am
5	B12/9	******	12:14am	12:24am	12:34am
6	B14	******	12:20am	12:30am	12:40am
7	B14/9	******	12:26am	12:36am	12:46am
8	B15	******	12:32am	12:42am	12:52am
9	B15/9	******	12:38am	12:48am	12:58am
10	B16	******	12:44am	12:54am	1:04am
11	B16/9	******	12:50am	1:00am	1:10am
12	B18	******	12:56am	1:06am	1:16am
13	B18/9	******	1:02am	1:12am	1:22am
14	B20	******	1:08am	1:18am	1:28am
15	B20/9	******	1:14am	1:24am	1:34am
16	A22	******	1:20am	1:30am	1:40am
17	B22	******	1:26am	1:36am	1:46am
18	B22/9	******	1:32am	1:42am	1:52am
19	A24	******	1:38am	1:48am	1:58am
20	B24	******	1:44am	1:54am	2:04am
21	B24/9	******	1:50am	2:00am	2:10am
22	B1	******	1:56am	2:06am	2:16am
23	A10/7	******	2:02am	2:12am	2:22am
24	B1	******	2:08am	2:18am	2:28am
25	B1	******	2:14am	2:24am	2:34am
26	B2	******	2:20am	2:30am	2:40am
27	B2	******	2:26am	2:36am	2:46am
28	B3	******	2:32am	2:42am	2:52am
29	B3	******	2:38am	2:48am	2:58am
30	B4	******	2:44am	2:54am	3:04am
31	B4	******	2:50am	3:00am	3:10am
32	B5	******	2:56am	3:06am	3:16am
33	B5	******	3:02am	3:12am	3:22am
34	B6	******	3:08am	3:18am	3:28am
35	B6	******	3:14am	3:24am	3:34am
36	B7	******	3:20am	3:30am	3:40am
37	B7	******	3:26am	3:36am	3:46am
38	B8	******	3:32am	3:42am	3:52am
39	B8	******	3:38am	3:48am	3:58am
40	B9	******	3:44am	3:54am	4:04am
41	B9	******	3:50am	4:00am	4:10am
42	A11/8	******	3:56am	4:06am	4:16am
43	B11/8	******	4:02am	4:12am	4:22am
44	B11/8	******	4:08am	4:18am	4:28am
45	B12	******	4:14am	4:24am	4:34am
46	B12	******	4:20am	4:30am	4:40am
47	B13	******	4:26am	4:36am	4:46am
48	B13	******	4:32am	4:42am	4:52am
49	B15	******	4:38am	4:48am	4:58am
50	B15	******	4:44am	4:54am	5:04am
51	B17	******	4:50am	5:00am	5:10am
52	B17	******	4:56am	5:06am	5:16am
53	B19	******	5:02am	5:12am	5:22am
54	B19	******	5:08am	5:18am	5:28am
55	B21	******	5:14am	5:24am	5:34am
56	B21	******	5:20am	5:30am	5:40am
57	B23	******	5:26am	5:36am	5:46am
58	B23	******	5:32am	5:42am	5:52am
59	B25	******	5:38am	5:48am	5:58am
60	B25	******	5:44am	5:54am	6:04am
61	B27	******	5:50am	6:00am	6:10am
62	B27	******	5:56am	6:06am	6:16am
63	B29	******	6:02am	6:12am	6:22am
64	B29	******	6:08am	6:18am	6:28am
65	A31/8	******	6:14am	6:24am	6:34am
66	B31/8	18:32	6:20am	6:30am	6:40am
67	A2	******	6:26am	6:36am	6:46am
68	B2	******	6:32am	6:42am	6:52am
69	A4	******	6:38am	6:48am	6:58am
70	B4	******	6:44am	6:54am	7:04am
71	A6	******	6:50am	7:00am	7:10am
72	B6	******	6:56am	7:06am	7:16am
73	A8	******	7:02am	7:12am	7:22am
74	B8	******	7:08am	7:18am	7:28am
75	A10/9	******	7:14am	7:24am	7:34am
76	B10/9	******	7:20am	7:30am	7:40am
77	A12/9	******	7:26am	7:36am	7:46am
78	B12/9	******	7:32am	7:42am	7:52am
79	A14/9	******	7:38am	7:48am	7:58am
80	B14/9	******	7:44am	7:54am	8:04am
81	A16/9	******	7:50am	8:00am	8:10am
82	B16/9	******	7:56am	8:06am	8:16am
83	A18/9	******	8:02am	8:12am	8:22am
84	B18/9	******	8:08am	8:18am	8:28am
85	A20/9	22:29	8:14am	8:24am	8:34am
86	B20/9	17:40	8:20am	8:30am	8:40am
87	A22/9	22:16	8:26am	8:36am	8:46am
88	B22/9	17:21	8:32am	8:42am	8:52am
89	A24/9	22:22	8:38am	8:48am	8:58am
90			8:44am	8:54am	9:04am

+B-31-7 LAST ROUND LEAVE M.T.

PUSHING SCHEDULE

Wednesday, December 9, 1992 Turn 2
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B24/8	17:07	7:50am	8:00am	8:10am
2	A26/9	17:07	8:02am	8:12am	8:22am
3	B26/8	17:08	8:08am	8:18am	8:28am
4	A28/8	17:08	8:14am	8:24am	8:34am
5	B28/8	17:14	8:20am	8:30am	8:40am
6	A30/8	17:14	8:26am	8:36am	8:46am
7	B30/8	17:55	8:32am	8:42am	8:52am
8	A1 /9	18:00	8:38am	8:48am	8:58am
9	B1 /9	18:00	8:44am	8:54am	9:04am
10	A3 /9	18:00	8:50am	9:00am	9:10am
11	B3 /9	18:00	8:56am	9:06am	9:16am
12	A5 /9	18:14	9:02am	9:12am	9:22am
13	B5 /9	18:14	9:08am	9:18am	9:28am
14	A7 /9	18:47	9:14am	9:24am	9:34am
15	B7 /9	18:47	9:20am	9:30am	9:40am
16	A9 /9	18:47	9:26am	9:36am	9:46am
17	B9 /9	18:47	9:32am	9:42am	9:52am
18	A11/9	18:47	9:38am	9:48am	9:58am
19	B11/9	18:47	9:44am	9:54am	10:04am
20	A13/9	18:47	9:50am	10:00am	10:10am
21	B13/9	18:47	9:56am	10:06am	10:16am
22	A15/9	18:47	10:02am	10:12am	10:22am
23	B15/9	18:47	10:08am	10:18am	10:28am
24	A17/9	18:47	10:14am	10:24am	10:34am
25	B17/9	18:47	10:20am	10:30am	10:40am
26	A19/9	18:47	10:26am	10:36am	10:46am
27	B19/9	18:47	10:32am	10:42am	10:52am
28	A21/9	18:47	10:38am	10:48am	10:58am
29	B21/9	18:47	10:44am	10:54am	11:04am
30	A23/9	18:47	10:50am	11:00am	11:10am
31	B23/9	18:47	10:56am	11:06am	11:16am
32	A25/9	18:47	11:02am	11:12am	11:22am
33	B25/9	18:47	11:08am	11:18am	11:28am
34	A27/9	18:47	11:14am	11:24am	11:34am
35	B27/9	18:47	11:20am	11:30am	11:40am
36	A29/9	18:47	11:26am	11:36am	11:46am
37	B29/9	18:47	11:32am	11:42am	11:52am
38	A31/9	18:47	11:38am	11:48am	11:58am
39	B31/9	18:47	11:44am	11:54am	12:04pm
40	A1 /7	18:47	11:50am	12:00pm	12:10pm
41	B1 /7	18:47	11:56am	12:06pm	12:16pm
42	A3 /7	18:47	12:02pm	12:12pm	12:22pm
43	B3 /7	18:47	12:08pm	12:18pm	12:28pm
44	A5 /7	18:47	12:14pm	12:24pm	12:34pm
45	B5 /7	18:47	12:20pm	12:30pm	12:40pm
46	A7 /7	18:47	12:26pm	12:36pm	12:46pm
47	B7 /7	18:47	12:32pm	12:42pm	12:52pm
48	A9 /7	18:47	12:38pm	12:48pm	12:58pm
49	B9 /7	18:47	12:44pm	12:54pm	1:04pm
50	A10/8	18:47	12:50pm	1:00pm	1:10pm
51	B10/7	18:47	12:56pm	1:06pm	1:16pm
52	A12/8	18:47	1:02pm	1:12pm	1:22pm
53	B12/7	18:47	1:08pm	1:18pm	1:28pm
54	A14/8	18:47	1:14pm	1:24pm	1:34pm
55	B14/7	18:47	1:20pm	1:30pm	1:40pm
56	A16/8	18:47	1:26pm	1:36pm	1:46pm
57	B16/7	18:47	1:32pm	1:42pm	1:52pm
58	A18/8	18:47	1:38pm	1:48pm	1:58pm
59	B18/7	18:47	1:44pm	1:54pm	2:04pm
60	A20/8	18:47	1:50pm	2:00pm	2:10pm
61	B20/7	18:47	1:56pm	2:06pm	2:16pm
62	A22/8	18:47	2:02pm	2:12pm	2:22pm
63	B22/7	18:47	2:08pm	2:18pm	2:28pm
64	A24/8	18:47	2:14pm	2:24pm	2:34pm
65	B24/7	18:47	2:20pm	2:30pm	2:40pm
66	A26/8	18:47	2:26pm	2:36pm	2:46pm
67	B26/7	18:47	2:32pm	2:42pm	2:52pm
68	A28/8	18:47	2:38pm	2:48pm	2:58pm
69	B28/7	18:47	2:44pm	2:54pm	3:04pm
70	A30/8	18:47	2:50pm	3:00pm	3:10pm
71	B30/7	18:47	2:56pm	3:06pm	3:16pm
72	A1 /9	18:47	3:02pm	3:12pm	3:22pm
73	B1 /8	18:47	3:08pm	3:18pm	3:28pm
74	A3 /9	18:47	3:14pm	3:24pm	3:34pm
75	B3 /8	18:47	3:20pm	3:30pm	3:40pm
76	A5 /9	18:47	3:26pm	3:36pm	3:46pm
77	B5 /8	18:47	3:32pm	3:42pm	3:52pm
78	A7 /9	18:47	3:38pm	3:48pm	3:58pm

Wednesday, December 9, 1992 Turn 3
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B7 /8	10:12	4:00pm	4:00pm	4:12pm
2	B9 /8	10:14	4:06pm	4:06pm	4:18pm
3	B9 /7	10:16	4:12pm	4:12pm	4:24pm
4	B11/8	10:18	4:18pm	4:18pm	4:30pm
5	B11/7	10:20	4:24pm	4:24pm	4:36pm
6	B13/8	10:22	4:30pm	4:30pm	4:42pm
7	B13/7	10:24	4:36pm	4:36pm	4:48pm
8	B15/8	10:26	4:42pm	4:42pm	4:54pm
9	B15/7	10:28	4:48pm	4:48pm	5:00pm
10	B17/8	10:30	4:54pm	4:54pm	5:06pm
11	B17/7	10:32	5:00pm	5:00pm	5:12pm
12	B19/8	10:34	5:06pm	5:06pm	5:18pm
13	B19/7	10:36	5:12pm	5:12pm	5:24pm
14	B21/8	10:38	5:18pm	5:18pm	5:30pm
15	B21/7	10:40	5:24pm	5:24pm	5:36pm
16	B23/8	10:42	5:30pm	5:30pm	5:42pm
17	B23/7	10:44	5:36pm	5:36pm	5:48pm
18	B25/8	10:46	5:42pm	5:42pm	5:54pm
19	B25/7	10:48	5:48pm	5:48pm	6:00pm
20	B27/8	10:50	5:54pm	5:54pm	6:06pm
21	B27/7	10:52	6:00pm	6:00pm	6:12pm
22	B29/8	10:54	6:06pm	6:06pm	6:18pm
23	B29/7	10:56	6:12pm	6:12pm	6:24pm
24	B31/8	10:58	6:18pm	6:18pm	6:30pm
25	B31	11:00	6:24pm	6:24pm	6:36pm
26	B2 /8	11:02	6:30pm	6:30pm	6:42pm
27	B2 /7	11:04	6:36pm	6:36pm	6:48pm
28	A2 /8	11:06	6:42pm	6:42pm	6:54pm
29	A2 /7	11:08	6:48pm	6:48pm	7:00pm
30	B4 /8	11:10	6:54pm	6:54pm	7:06pm
31	A4 /7	11:12	7:00pm	7:00pm	7:12pm
32	B6 /8	11:14	7:06pm	7:06pm	7:18pm
33	A6 /7	11:16	7:12pm	7:12pm	7:24pm
34	B8 /8	11:18	7:18pm	7:18pm	7:30pm
35	A8 /7	11:20	7:24pm	7:24pm	7:36pm
36	B10/8	11:22	7:30pm	7:30pm	7:42pm
37	A10/7	11:24	7:36pm	7:36pm	7:48pm
38	B12/8	11:26	7:42pm	7:42pm	7:54pm
39	A12/7	11:28	7:48pm	7:48pm	8:00pm
40	B14/8	11:30	7:54pm	7:54pm	8:06pm
41	A14/7	11:32	8:00pm	8:00pm	8:12pm
42	B16/8	11:34	8:06pm	8:06pm	8:18pm
43	A16/7	11:36	8:12pm	8:12pm	8:24pm
44	B18/8	11:38	8:18pm	8:18pm	8:30pm
45	A18/7	11:40	8:24pm	8:24pm	8:36pm
46	B20/8	11:42	8:30pm	8:30pm	8:42pm
47	A20/7	11:44	8:36pm	8:36pm	8:48pm
48	B22/8	11:46	8:42pm	8:42pm	8:54pm
49	A22/7	11:48	8:48pm	8:48pm	9:00pm
50	B24/8	11:50	8:54pm	8:54pm	9:06pm
51	A24/7	11:52	9:00pm	9:00pm	9:12pm
52	B26/8	11:54	9:06pm	9:06pm	9:18pm
53	A26/7	11:56	9:12pm	9:12pm	9:24pm
54	B28/8	11:58	9:18pm	9:18pm	9:30pm
55	A28/7	12:00	9:24pm	9:24pm	9:36pm
56	B30/8	12:02	9:30pm	9:30pm	9:42pm
57	C1 /8	12:04	9:36pm	9:36pm	9:48pm
58	A30/7	12:06	9:42pm	9:42pm	9:54pm
59	A1 /8	12:08	9:48pm	9:48pm	10:00pm
60	B1 /7	12:10	9:54pm	9:54pm	10:06pm
61	A3 /8	12:12	10:00pm	10:00pm	10:12pm
62	B3 /7	12:14	10:06pm	10:06pm	10:18pm
63	A5 /8	12:16	10:12pm	10:12pm	10:24pm
64	B5 /7	12:18	10:18pm	10:18pm	10:30pm
65	A7 /8	12:20	10:24pm	10:24pm	10:36pm
66	B7 /7	12:22	10:30pm	10:30pm	10:42pm
67	A9 /8	12:24	10:36pm	10:36pm	10:48pm
68	B9 /7	12:26	10:42pm	10:42pm	10:54pm
69	A11/8	12:28	10:48pm	10:48pm	11:00pm
70	B11/7	12:30	10:54pm	10:54pm	11:06pm
71	A13/8	12:32	11:00pm	11:00pm	11:12pm
72	B13/7	12:34	11:06pm	11:06pm	11:18pm
73	A15/8	12:36	11:12pm	11:12pm	11:24pm
74	B15/7	12:38	11:18pm	11:18pm	11:30pm
75	A17/8	12:40	11:24pm	11:24pm	11:36pm
76	B17/7	12:42	11:30pm	11:30pm	11:42pm
77	A19/8	12:44	11:36pm	11:36pm	11:48pm
78	B19/7	12:46	11:42pm	11:42pm	11:54pm
79	A21/8	12:48	11:48pm	11:48pm	12:00pm
80	B21/7	12:50	11:54pm	11:54pm	12:06pm
	A23/8	******			

Thursday, December 10, 1992 Turn 1
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B19/7	******	11:[illegible]pm	12:00am	[illegible]
2	A21/8	******	11:[illegible]pm	12:06am	[illegible]
3	B21/7	******	11:[illegible]pm	12:12am	[illegible]
4	A23/8	******	11:[illegible]pm	12:18am	[illegible]
5	B23/7	******	11:[illegible]pm	12:24am	[illegible]
6	A25/8	******	11:[illegible]pm	12:30am	[illegible]
7	B25/7	******	11:[illegible]pm	12:36am	[illegible]
8	A27/8	******	11:[illegible]pm	12:42am	[illegible]
9	B27/7	******	11:[illegible]pm	12:48am	[illegible]
10	A29/8	******	11:[illegible]pm	12:54am	[illegible]
11	B29/7	******	11:[illegible]pm	1:00am	[illegible]
12	A1/9	******	11:[illegible]pm	1:06am	[illegible]
13	B1/8	******	11:[illegible]pm	1:12am	[illegible]
14	A3/9	******	11:[illegible]pm	1:18am	[illegible]
15	B3/8	******	11:[illegible]pm	1:24am	[illegible]
16	A5/9	******	11:[illegible]pm	1:30am	[illegible]
17	B5/8	******	11:[illegible]pm	1:36am	[illegible]
18	A7/9	******	11:[illegible]pm	1:42am	[illegible]
19	B7/8	******	11:[illegible]pm	1:48am	[illegible]
20	A9/9	******	11:[illegible]pm	1:54am	[illegible]
21	B9/8	******	11:[illegible]pm	2:00am	[illegible]
22	A11/9	******	11:[illegible]pm	2:06am	[illegible]
23	B11/8	******	11:[illegible]pm	2:12am	[illegible]
24	A13/9	******	11:[illegible]pm	2:18am	[illegible]
25	B13/8	******	11:[illegible]pm	2:24am	[illegible]
26	A15/9	******	11:[illegible]pm	2:30am	[illegible]
27	B15/8	******	11:[illegible]pm	2:36am	[illegible]
28	A17/9	******	11:[illegible]pm	2:42am	[illegible]
29	B17/8	******	11:[illegible]pm	2:48am	[illegible]
30	A19/9	******	11:[illegible]pm	2:54am	[illegible]
31	B19/8	******	11:[illegible]pm	3:00am	[illegible]
32	A21/9	******	11:[illegible]pm	3:06am	[illegible]
33	B21/8	******	11:[illegible]pm	3:12am	[illegible]
34	A23/9	******	11:[illegible]pm	3:18am	[illegible]
35	B23/8	******	11:[illegible]pm	3:24am	[illegible]
36	A25/9	******	11:[illegible]pm	3:30am	[illegible]
37	B25/8	******	11:[illegible]pm	3:36am	[illegible]
38	A27/9	******	11:[illegible]pm	3:42am	[illegible]
39	B27/8	******	11:[illegible]pm	3:48am	[illegible]
40	A29/9	******	11:[illegible]pm	3:54am	[illegible]
41	B29/8	******	11:[illegible]pm	4:00am	[illegible]
42	A1/10	******	11:[illegible]pm	4:06am	[illegible]
43	B1/9	******	11:[illegible]pm	4:12am	[illegible]
44	A3/10	******	11:[illegible]pm	4:18am	[illegible]
45	B3/9	******	11:[illegible]pm	4:24am	[illegible]
46	A5/10	******	11:[illegible]pm	4:30am	[illegible]
47	B5/9	******	11:[illegible]pm	4:36am	[illegible]
48	A7/10	******	11:[illegible]pm	4:42am	[illegible]
49	B7/9	******	11:[illegible]pm	4:48am	[illegible]
50	A9/10	******	11:[illegible]pm	4:54am	[illegible]
51	B9/9	******	11:[illegible]pm	5:00am	[illegible]
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53	B11/9	******	11:[illegible]pm	5:12am	[illegible]
54	A13/10	******	11:[illegible]pm	5:18am	[illegible]
55	B13/9	******	11:[illegible]pm	5:24am	[illegible]
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59	B17/9	******	11:[illegible]pm	5:48am	[illegible]
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62	A21/10	******	11:[illegible]pm	6:06am	[illegible]
63	B21/9	******	11:[illegible]pm	6:12am	[illegible]
64	A23/10	******	11:[illegible]pm	6:18am	[illegible]
65	B23/9	******	11:[illegible]pm	6:24am	[illegible]
66	A25/10	******	11:[illegible]pm	6:30am	[illegible]
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68	A27/10	******	11:[illegible]pm	6:42am	[illegible]
69	B27/9	******	11:[illegible]pm	6:48am	[illegible]
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71	B29/9	******	11:[illegible]pm	7:00am	[illegible]
72	A1/11	******	11:[illegible]pm	7:06am	[illegible]
73	B1/10	******	11:[illegible]pm	7:12am	[illegible]
74	A3/11	******	11:[illegible]pm	7:18am	[illegible]
75	B3/10	******	11:[illegible]pm	7:24am	[illegible]
76	A5/11	******	11:[illegible]pm	7:30am	[illegible]
77	B5/10	******	11:[illegible]pm	7:36am	[illegible]
78	A7/11	******	11:[illegible]pm	7:42am	[illegible]
79	B7/10	******	11:[illegible]pm	7:48am	[illegible]
80	A9/11	******	11:[illegible]pm	7:54am	[illegible]
	B9/10	******	11:[illegible]pm	8:00am	[illegible]
	A11/11	******	11:[illegible]pm	8:06am	[illegible]
	B11/10	******	11:[illegible]pm	8:12am	[illegible]
	A13/11	******	11:[illegible]pm	8:18am	[illegible]
	B13/10	******	11:[illegible]pm	8:24am	[illegible]
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	B15/10	******	11:[illegible]pm	8:36am	[illegible]
	A17/11	******	11:[illegible]pm	8:42am	[illegible]
	B17/10	******	11:[illegible]pm	8:48am	[illegible]
	A19/11	******	11:[illegible]pm	8:54am	[illegible]
	B19/10	******	11:[illegible]pm	9:00am	[illegible]
	A21/11	******	11:[illegible]pm	9:06am	[illegible]
	B21/10	******	11:[illegible]pm	9:12am	[illegible]
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	B3/11	******	11:[illegible]pm	10:24am	[illegible]
	A5/12	******	11:[illegible]pm	10:30am	[illegible]
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	A23/12	******	11:[illegible]pm	12:18pm	[illegible]
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	A25/12	******	11:[illegible]pm	12:30pm	[illegible]
	B25/11	******	11:[illegible]pm	12:36pm	[illegible]
	A27/12	******	11:[illegible]pm	12:42pm	[illegible]
	B27/11	******	11:[illegible]pm	12:48pm	[illegible]
	A29/12	******	11:[illegible]pm	12:54pm	[illegible]
	B29/11	******	11:[illegible]pm	1:00pm	[illegible]
	A1/13	******	11:[illegible]pm	1:06pm	[illegible]
	B1/12	******	11:[illegible]pm	1:12pm	[illegible]
	A3/13	******	11:[illegible]pm	1:18pm	[illegible]
	B3/12	******	11:[illegible]pm	1:24pm	[illegible]
	A5/13	******	11:[illegible]pm	1:30pm	[illegible]
	B5/12	******	11:[illegible]pm	1:36pm	[illegible]
	A7/13	******	11:[illegible]pm	1:42pm	[illegible]
	B7/12	******	11:[illegible]pm	1:48pm	[illegible]
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	A11/13	******	11:[illegible]pm	2:06pm	[illegible]
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	A13/13	******	11:[illegible]pm	2:18pm	[illegible]
	B13/12	******	11:[illegible]pm	2:24pm	[illegible]
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	B15/12	******	11:[illegible]pm	2:36pm	[illegible]
	A17/13	******	11:[illegible]pm	2:42pm	[illegible]
	B17/12	******	11:[illegible]pm	2:48pm	[illegible]
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	B19/12	******	11:[illegible]pm	3:00pm	[illegible]
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	B21/12	******	11:[illegible]pm	3:12pm	[illegible]
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	B23/12	******	11:[illegible]pm	3:24pm	[illegible]
	A25/13	******	11:[illegible]pm	3:30pm	[illegible]
	B25/12	******	11:[illegible]pm	3:36pm	[illegible]
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	B27/12	******	11:[illegible]pm	3:48pm	[illegible]
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	B1/13	******	11:[illegible]pm	4:12pm	[illegible]
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	A5/14	******	11:[illegible]pm	4:30pm	[illegible]
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	A11/14	******	11:[illegible]pm	5:06pm	[illegible]
	B11/13	******	11:[illegible]pm	5:12pm	[illegible]
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	B13/14	******	11:[illegible]pm	8:24pm	[illegible]
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	A19/15	******	11:[illegible]pm	8:54pm	[illegible]
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	A21/15	******	11:[illegible]pm	9:06pm	[illegible]
	B21/14	******	11:[illegible]pm	9:12pm	[illegible]
	A23/15	******	11:[illegible]pm	9:18pm	[illegible]
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	A29/15	******	11:[illegible]pm	9:54pm	[illegible]
	B29/14	******	11:[illegible]pm	10:00pm	[illegible]
	A1/16	******	11:[illegible]pm	10:06pm	[illegible]
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	A5/16	******	11:[illegible]pm	10:30pm	[illegible]
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	A23/16	******	11:[illegible]pm	12:18am	[illegible]
	B23/15	******	11:[illegible]pm	12:24am	[illegible]
	A25/16	******	11:[illegible]pm	12:30am	[illegible]
	B25/15	******	11:[illegible]pm	12:36am	[illegible]
	A27/16	******	11:[illegible]pm	12:42am	[illegible]
	B27/15	******	11:[illegible]pm	12:48am	[illegible]
	A29/16	******	11:[illegible]pm	12:54am	[illegible]
	B29/15	******	11:[illegible]pm	1:00am	[illegible]
	A1/17	******	11:[illegible]pm	1:06am	[illegible]
	B1/16	******	11:[illegible]pm	1:12am	[illegible]
	A3/17	******	11:[illegible]pm	1:18am	[illegible]
	B3/16	******	11:[illegible]pm	1:24am	[illegible]
	A5/17	******	11:[illegible]pm	1:30am	[illegible]
	B5/16	******	11:[illegible]pm	1:36am	[illegible]
	A7/17	******	11:[illegible]pm	1:42am	[illegible]
	B7/16	******	11:[illegible]pm	1:48am	[illegible]
	A9/17	******	11:[illegible]pm	1:54am	[illegible]
	B9/16	******	11:[illegible]pm	2:00am	[illegible]
	A11/17	******	11:[illegible]pm	2:06am	[illegible]
	B11/16	******	11:[illegible]pm	2:12am	[illegible]
	A13/17	******	11:[illegible]pm	2:18am	[illegible]
	B13/16	******	11:[illegible]pm	2:24am	[illegible]
	A15/17	******	11:[illegible]pm	2:30am	[illegible]
	B15/16	******	11:[illegible]pm	2:36am	[illegible]
	A17/17	******	11:[illegible]pm	2:42am	[illegible]
	B17/16	******	11:[illegible]pm	2:48am	[illegible]
	A19/17	******	11:[illegible]pm	2:54am	[illegible]
	B19/16	******	11:[illegible]pm	3:00am	[illegible]
	A21/17	******	11:[illegible]pm	3:06am	[illegible]
	B21/16	******	11:[illegible]pm	3:12am	[illegible]
	A23/17	******	11:[illegible]pm	3:18am	[illegible]
	B23/16	******	11:[illegible]pm	3:24am	[illegible]
	A25/17	******	11:[illegible]pm	3:30am	[illegible]
	B25/16	******	11:[illegible]pm	3:36am	[illegible]
	A27/17	******	11:[illegible]pm	3:42am	[illegible]
	B27/16	******	11:[illegible]pm	3:48am	[illegible]
	A29/17	******	11:[illegible]pm	3:54am	[illegible]
	B29/16	******	11:[illegible]pm	4:00am	[illegible]
	A1/18	******	11:[illegible]pm	4:06am	[illegible]
	B1/17	******	11:[illegible]pm	4:12am	[illegible]
	A3/18	******	11:[illegible]pm	4:18am	[illegible]
	B3/17	******	11:[illegible]pm	4:24am	[illegible]
	A5/18	******	11:[illegible]pm	4:30am	[illegible]
	B5/17	******	11:[illegible]pm	4:36am	[illegible]
	A7/18	******	11:[illegible]pm	4:42am	[illegible]
	B7/17	******	11:[illegible]pm	4:48am	[illegible]
	A9/18	******	11:[illegible]pm	4:54am	[illegible]
	B9/17	******	11:[illegible]pm	5:00am	[illegible]
	A11/18	******	11:[illegible]pm	5:06am	[illegible]
	B11/17	******	11:[illegible]pm	5:12am	[illegible]
	A13/18	******	11:[illegible]pm	5:18am	[illegible]
	B13/17	******	11:[illegible]pm	5:24am	[illegible]
	A15/18	******	11:[illegible]pm	5:30am	[illegible]
	B15/17	******	11:[illegible]pm	5:36am	[illegible]
	A17/18	******	11:[illegible]pm	5:42am	[illegible]
	B17/17	******	11:[illegible]pm	5:48am	[illegible]
	A19/18	******	11:[illegible]pm	5:54am	[illegible]
	B19/17	******	11:[illegible]pm	6:00am	[illegible]
	A21/18	******	11:[illegible]pm	6:06am	[illegible]
	B21/17	******	11:[illegible]pm	6:12am	[illegible]
	A23/18	******	11:[illegible]pm	6:18am	[illegible]
	B23/17	******	11:[illegible]pm	6:24am	[illegible]
	A25/18	******	11:[illegible]pm	6:30am	[illegible]
	B25/17	******	11:[illegible]pm	6:36am	[illegible]
	A27/18	******	11:[illegible]pm	6:42am	[illegible]
	B27/17	******	11:[illegible]pm	6:48am	[illegible]
	A29/18	******	11:[illegible]pm	6:54am	[illegible]
	B29/17	******	11:[illegible]pm	7:00am	[illegible]
	A1/19	******	11:[illegible]pm	7:06am	[illegible]
	B1/18	******	11:[illegible]pm	7:12am	[illegible]
	A3/19	******	11:[illegible]pm	7:18am	[illegible]
	B3/18	******	11:[illegible]pm	7:24am	[illegible]
	A5/19	******	11:[illegible]pm	7:30am	[illegible]
	B5/18	******	11:[illegible]pm	7:36am	[illegible]
	A7/19	******	11:[illegible]pm	7:42am	[illegible]
	B7/18	******	11:[illegible]pm	7:48am	[illegible]
	A9/19	******	11:[illegible]pm	7:54am	[illegible]
	B9/18	******	11:[illegible]pm	8:00am	[illegible]
	A11/19	******	11:[illegible]pm	8:06am	[illegible]
	B11/18	******	11:[illegible]pm	8:12am	[illegible]
	A13/19	******	11:[illegible]pm	8:18am	[illegible]
	B13/18	******	11:[illegible]pm	8:24am	[illegible]
	A15/19	******	11:[illegible]pm	8:30am	[illegible]
	B15/18	******	11:[illegible]pm	8:36am	[illegible]
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	B17/18	******	11:[illegible]pm	8:48am	[illegible]
	A19/19	******	11:[illegible]pm	8:54am	[illegible]
	B19/18	******	11:[illegible]pm	9:00am	[illegible]
	A21/19	******	11:[illegible]pm	9:06am	[illegible]
	B21/18	******	11:[illegible]pm	9:12am	[illegible]
	A23/19	******	11:[illegible]pm	9:18am	[illegible]
	B23/18	******	11:[illegible]pm	9:24am	[illegible]
	A25/19	******	11:[illegible]pm	9:30am	[illegible]
	B25/18	******	11:[illegible]pm	9:36am	[illegible]
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	B27/18	******	11:[illegible]pm	9:48am	[illegible]
	A29/19	******	11:[illegible]pm	9:54am	[illegible]
	B29/18	******	11:[illegible]pm	10:00am	[illegible]
	A1/20	******	11:[illegible]pm	10:06am	[illegible]
	B1/19	******	11:[illegible]pm	10:12am	[illegible]
	A3/20	******	11:[illegible]pm	10:18am	[illegible]
	B3/19	******	11:[illegible]pm	10:24am	[illegible]
	A5/20	******	11:[illegible]pm	10:30am	[illegible]
	B5/19	******	11:[illegible]pm	10:36am	[illegible]
	A7/20	******	11:[illegible]pm	10:42am	[illegible]
	B7/19	******	11:[illegible]pm	10:48am	[illegible]
	A9/20	******	11:[illegible]pm	10:54am	[illegible]
	B9/19	******	11:[illegible]pm	11:00am	[illegible]
	A11/20	******	11:[illegible]pm	11:06am	[illegible]
	B11/19	******	11:[illegible]pm	11:12am	[illegible]
	A13/20	******	11:[illegible]pm	11:18am	[illegible]
	B13/19	******	11:[illegible]pm	11:24am	[illegible]
	A15/20	******	11:[illegible]pm	11:30am	[illegible]
	B15/19	******	11:[illegible]pm	11:36am	[illegible]
	A17/20	******	11:[illegible]pm	11:42am	[illegible]
	B17/19	******	11:[illegible]pm	11:48am	[illegible]
	A19/20	******	11:[illegible]pm	11:54am	[illegible]
	B19/19	******	11:[illegible]pm	12:00pm	[illegible]
	A21/20	******	11:[illegible]pm	12:06pm	[illegible]
	B21/19	******	11:[illegible]pm	12:12pm	[illegible]
	A23/20	******	11:[illegible]pm	12:18pm	[illegible]
	B23/19	******	11:[illegible]pm	12:24pm	[illegible]
	A25/20	******	11:[illegible]pm	12:30pm	[illegible]
	B25/19	******	11:[illegible]pm	12:36pm	[illegible]
	A27/20	******	11:[illegible]pm	12:42pm	[illegible]
	B27/19	******	11:[illegible]pm	12:48pm	[illegible]
	A29/20	******	11:[illegible]pm	12:54pm	[illegible]
	B29/19	******	11:[illegible]pm	1:00pm	[illegible]
	A1/21	******	11:[illegible]pm	1:06pm	[illegible]
	B1/20	******	11:[illegible]pm	1:12pm	[illegible]
	A3/21	******	11:[illegible]pm	1:18pm	[illegible]
	B3/20	******	11:[illegible]pm	1:24pm	[illegible]
	A5/21	******	11:[illegible]pm	1:30pm	[illegible]
	B5/20	******	11:[illegible]pm	1:36pm	[illegible]
	A7/21	******	11:[illegible]pm	1:42pm	[illegible]
	B7/20	******	11:[illegible]pm	1:48pm	[illegible]
	A9/21	******	11:[illegible]pm	1:54pm	[illegible]
	B9/20	******	11:[illegible]pm	2:00pm	[illegible]
	A11/21	******	11:[illegible]pm	2:06pm	[illegible]
	B11/20	******	11:[illegible]pm	2:12pm	[illegible]
	A13/21	******	11:[illegible]pm	2:18pm	[illegible]
	B13/20	******	11:[illegible]pm	2:24pm	[illegible]
	A15/21	******	11:[illegible]pm	2:30pm	[illegible]
	B15/20	******	11:[illegible]pm	2:36pm	[illegible]
	A17/21	******	11:[illegible]pm	2:42pm	[illegible]
	B17/20	******	11:[illegible]pm	2:48pm	[illegible]
	A19/21	******	11:[illegible]pm	2:54pm	[illegible]
	B19/20	******	11:[illegible]pm	3:00pm	[illegible]
	A21/21	******	11:[illegible]pm	3:06pm	[illegible]
	B21/20	******	11:[illegible]pm	3:12pm	[illegible]
	A23/21	******	11:[illegible]pm	3:18pm	[illegible]
	B23/20	******	11:[illegible]pm	3:24pm	[illegible]
	A25/21	******	11:[illegible]pm	3:30pm	[illegible]
	B25/20	******	11:[illegible]pm	3:36pm	[illegible]
	A27/21	******	11:[illegible]pm	3:42pm	[illegible]
	B27/20	******	11:[illegible]pm	3:48pm	[illegible]
	A29/21	******	11:[illegible]pm	3:54pm	[illegible]
	B29/20	******	11:[illegible]pm	4:00pm	[illegible]
	A1/22	******	11:[illegible]pm	4:06pm	[illegible]
	B1/21	******	11:[illegible]pm	4:12pm	[illegible]
	A3/22	******	11:[illegible]pm	4:18pm	[illegible]
	B3/21	******	11:[illegible]pm	4:24pm	[illegible]
	A5/22	******	11:[illegible]pm	4:30pm	[illegible]
	B5/21	******	11:[illegible]pm	4:36pm	[illegible]
	A7/22	******	11:[illegible]pm	4:42pm	[illegible]
	B7/21	******	11:[illegible]pm	4:48pm	[illegible]
	A9/22	******	11:[illegible]pm	4:54pm	[illegible]
	B9/21	******	11:[illegible]pm	5:00pm	[illegible]
	A11/22	******	11:[illegible]pm	5:06pm	[illegible]
	B11/21	******	11:[illegible]pm	5:12pm	[illegible]
	A13/22	******	11:[illegible]pm	5:18pm	[illegible]
	B13/21	******	11:[illegible]pm	5:24pm	[illegible]
	A15/22	******	11:[illegible]pm	5:30pm	[illegible]
	B15/21	******	11:[illegible]pm	5:36pm	[illegible]
	A17/22	******	11:[illegible]pm	5:42pm	[illegible]
	B17/21	******	11:[illegible]pm	5:48pm	[illegible]
	A19/22	******	11:[illegible]pm	5:54pm	[illegible]
	B19/21	******	11:[illegible]pm	6:00pm	[illegible]
	A21/22	******	11:[illegible]pm	6:06pm	[illegible]
	B21/21	******	11:[illegible]pm	6:12pm	[illegible]
	A23/22	******	11:[illegible]pm	6:18pm	[illegible]
	B23/21	******	11:[illegible]pm	6:24pm	[illegible]
	A25/22	******	11:[illegible]pm	6:30pm	[illegible]
	B25/21	******	11:[illegible]pm	6:36pm	[illegible]
	A27/22	******	11:[illegible]pm	6:42pm	[illegible]
	B27/21	******	11:[illegible]pm	6:48pm	[illegible]
	A29/22	******	11:[illegible]pm	6:54pm	[illegible]

Thursday, December 10, 1992 Turn 2
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B6 /7	19:17	7:50am	8:00am	8:05am
2	B8 /8	19:17	8:00am	8:05am	8:10am
3	B8 /7	19:17	8:05am	8:10am	8:15am
4	A10/8	19:17	8:10am	8:15am	8:20am
5	B10/7	19:17	8:15am	8:20am	8:25am
6	A12/8	19:17	8:20am	8:25am	8:30am
7	B12/8	19:17	8:25am	8:30am	8:35am
8	A14/8	19:17	8:30am	8:35am	8:40am
9	B14/8	19:17	8:35am	8:40am	8:45am
10	A16/8	19:17	8:40am	8:45am	8:50am
11	B16/8	19:17	8:45am	8:50am	8:55am
12	A18/8	19:17	8:50am	8:55am	9:00am
13	B18/8	19:17	8:55am	9:00am	9:05am
14	A20/8	19:17	9:00am	9:05am	9:10am
15	B20/8	19:17	9:05am	9:10am	9:15am
16	A22/8	19:17	9:10am	9:15am	9:20am
17	B22/8	19:17	9:15am	9:20am	9:25am
18	A24/8	19:17	9:20am	9:25am	9:30am
19	B24/8	19:17	9:25am	9:30am	9:35am
20	A26/8	19:17	9:30am	9:35am	9:40am
21	B26/8	19:17	9:35am	9:40am	9:45am
22	A28/8	19:17	9:40am	9:45am	9:50am
23	B28/8	19:17	9:45am	9:50am	9:55am
24	A30/8	19:17	9:50am	9:55am	10:00am
25	B30/8	19:17	9:55am	10:00am	10:05am
26	A1 /9	19:17	10:00am	10:05am	10:10am
27	B1 /8	19:17	10:05am	10:10am	10:15am
28	A3 /9	19:17	10:10am	10:15am	10:20am
29	B3 /8	19:17	10:15am	10:20am	10:25am
30	A5 /9	19:17	10:20am	10:25am	10:30am
31	B5 /8	19:17	10:25am	10:30am	10:35am
32	A7 /9	19:17	10:30am	10:35am	10:40am
33	B7 /9	19:16	10:35am	10:40am	10:45am
34	A9 /9	19:17	10:40am	10:45am	10:50am
35	B9 /8	19:17	10:45am	10:50am	10:55am
36	A11/9	19:17	10:50am	10:55am	11:00am
37	B11/9	19:17	10:55am	11:00am	11:05am
38	A13/9	19:17	11:00am	11:05am	11:10am
39	B13/9	19:17	11:05am	11:10am	11:15am
40	A15/9	19:18	11:10am	11:15am	11:20am
41	B15/9	19:18	11:15am	11:20am	11:25am
42	A17/9	19:18	11:20am	11:25am	11:30am
43	B17/8	19:18	11:25am	11:30am	11:35am
44	A19/9	19:18	11:30am	11:35am	11:40am
45	B19/9	19:18	11:35am	11:40am	11:45am
46	A21/9	19:18	11:40am	11:45am	11:50am
47	B21/9	19:18	11:45am	11:50am	11:55am
48	A23/9	19:19	11:50am	11:55am	12:00pm
49	B23/9	19:19	11:55am	12:00pm	12:05pm
50	A25/9	19:19	12:00pm	12:05pm	12:10pm
51	B25/9	19:19	12:05pm	12:10pm	12:15pm
52	A27/9	19:19	12:10pm	12:15pm	12:20pm
53	B27/9	19:19	12:15pm	12:20pm	12:25pm
54	A29/9	19:20	12:20pm	12:25pm	12:30pm
55	B29/8	19:20	12:25pm	12:30pm	12:35pm
56	A31/9	19:20	12:30pm	12:35pm	12:40pm
57	B31/9	19:20	12:35pm	12:40pm	12:45pm
58	A2 /8	19:20	12:40pm	12:45pm	12:50pm
59	B2 /9	******	12:45pm	12:50pm	12:55pm
60	A2 /7	******	12:50pm	12:55pm	1:00pm
61	B4 /9	******	12:55pm	1:00pm	1:05pm
62	A4 /7	******	1:00pm	1:05pm	1:10pm
63	B6 /9	******	1:05pm	1:10pm	1:15pm
64	A6 /7	******	1:10pm	1:15pm	1:20pm
65	B8 /9	******	1:15pm	1:20pm	1:25pm
66	A8 /7	******	1:20pm	1:25pm	1:30pm
67	B10/9	******	1:25pm	1:30pm	1:35pm
68	A10/7	******	1:30pm	1:35pm	1:40pm
69	B12/9	******	1:35pm	1:40pm	1:45pm
70	A12/7	******	1:40pm	1:45pm	1:50pm
71	B14/9	******	1:45pm	1:50pm	1:55pm
72	A14/7	******	1:50pm	1:55pm	2:00pm
73	B16/9	******	1:55pm	2:00pm	2:05pm
74	A16/7	******	2:00pm	2:05pm	2:10pm
75	B18/9	******	2:05pm	2:10pm	2:15pm
76	A18/7	******	2:10pm	2:15pm	2:20pm
77	B20/9	******	2:15pm	2:20pm	2:25pm
78	A20/7	******	2:20pm	2:25pm	2:30pm
			2:25pm	2:30pm	2:35pm
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			4:40pm	4:45pm	4:50pm
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			4:55pm	5:00pm	5:05pm
			5:00pm	5:05pm	5:10pm
			5:05pm	5:10pm	5:15pm
			5:10pm	5:15pm	5:20pm
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			5:20pm	5:25pm	5:30pm
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			5:30pm	5:35pm	5:40pm
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			5:50pm	5:55pm	6:00pm
			5:55pm	6:00pm	6:05pm
			6:00pm	6:05pm	6:10pm
			6:05pm	6:10pm	6:15pm
			6:10pm	6:15pm	6:20pm
			6:15pm	6:20pm	6:25pm
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			3:40am	3:45am	3:50am
			3:45am	3:50am	3:55am
			3:50am	3:55am	4:00am
			3:55am	4:00am	4:05am
			4:00am	4:05am	4:10am
			4:05am	4:10am	4:15am

Thursday, December 10, 1992 Turn 3
Batteries: 7-9 2

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B22/9	***:51	3:50pm	4:00pm	4:1[illegible]
2	A22/7	***:06	3:56pm	4:06pm	4:[illegible]
3	B24/9	***:58	4:02pm	4:12pm	4:[illegible]
4	A24/7	***:14	4:08pm	4:18pm	[illegible]
5	B26/9	***:46	4:14pm	4:24pm	4:[illegible]
6	A26/7	***:03	4:20pm	4:30pm	4:[illegible]
7	B28/9	***:04	4:26pm	4:36pm	4:[illegible]
8	A28/7	***:06	4:32pm	4:42pm	[illegible]
9	B30/9	***:41	4:38pm	4:48pm	[illegible]
10	C1 /8	***:41	4:44pm	4:54pm	[illegible]
11	A30/7	***:03	4:50pm	5:00pm	[illegible]
12	C1 /8	***:10	4:56pm	5:06pm	[illegible]
13	A1 /8	***:10	5:02pm	5:12pm	[illegible]
14	A1 /8	***:57	5:08pm	5:18pm	[illegible]
15	A3 /7	***:58	5:14pm	5:24pm	[illegible]
16	A3 /8	***:45	5:20pm	5:30pm	[illegible]
17	B5 /7	***:06	5:26pm	5:36pm	[illegible]
18	A5 /8	***:[illegible]	5:32pm	5:42pm	[illegible]
19	B7 /7	***:50	5:38pm	5:48pm	[illegible]
20	A7 /8	***:40	5:44pm	5:54pm	[illegible]
21	B9 /7	***:00	5:50pm	6:00pm	[illegible]
22	A9 /8	***:47	5:56pm	6:06pm	[illegible]
23	B11/7	***:48	6:02pm	6:12pm	[illegible]
24	A11/8	***:[illegible]	6:08pm	6:18pm	[illegible]
25	B13/7	***:56	6:14pm	6:24pm	6:34pm
26	A13/8	***:4[illegible]	6:20pm	6:30pm	6:40pm
27	B15/7	***:44	6:26pm	6:36pm	6:46pm
28	A17/8	***:31	6:32pm	6:42pm	6:52pm
29	B17/7	***:51	6:38pm	6:48pm	6:58pm
30	A19/8	***:38	6:44pm	6:54pm	7:04pm
31	B19/7	***:39	6:50pm	7:00pm	7:10pm
32	A21/8	***:26	6:56pm	7:06pm	7:16pm
33	B21/7	***:46	7:02pm	7:12pm	7:22pm
34	A23/8	***:3[illegible]	7:08pm	7:18pm	7:28pm
35	B23/7	***:34	7:14pm	7:24pm	7:34pm
36	A25/8	***:21	7:20pm	7:30pm	7:40pm
37	B25/7	***:41	7:26pm	7:36pm	7:46pm
38	A27/8	***:28	7:32pm	7:42pm	7:52pm
39	B27/7	***:29	7:38pm	7:48pm	7:58pm
40	A29/8	***:16	7:44pm	7:54pm	8:04pm
41	B29/7	***:26	7:50pm	8:00pm	8:10pm
42	A31/8	***:[illegible]	7:56pm	8:06pm	8:16pm
43	A1 /9	***:06	8:02pm	8:12pm	8:22pm
44	B1 /9	***:16	8:08pm	8:18pm	8:28pm
45	A4 /9	***:44	8:14pm	8:24pm	8:34pm
46	B4 /9	***:2[illegible]	8:20pm	8:30pm	8:40pm
47	A6 /9	***:3[illegible]	8:26pm	8:36pm	8:46pm
48	B6 /9	***:11	8:32pm	8:42pm	8:52pm
49	A8 /9	***:39	8:38pm	8:48pm	8:58pm
50	B8 /9	***:18	8:44pm	8:54pm	9:04pm
51	A10/9	***:27	8:50pm	9:00pm	9:10pm
52	B10/9	***:06	8:56pm	9:06pm	9:16pm
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54	B12/9	***:14	9:08pm	9:18pm	9:28pm
55	A14/9	***:22	9:14pm	9:24pm	9:34pm
56	B14/8	***:02	9:20pm	9:30pm	9:40pm
57	A16/9	***:29	9:26pm	9:36pm	9:46pm
58	B16/8	***:09	9:32pm	9:42pm	9:52pm
59	A18/9	***:17	9:38pm	9:48pm	9:58pm
60	B18/8	***:57	9:44pm	9:54pm	10:04pm
61	A20/9	***:25	9:50pm	10:00pm	10:10pm
62	B20/8	***:04	9:56pm	10:06pm	10:16pm
63	A22/9	***:13	10:02pm	10:12pm	10:22pm
64	B22/8	***:52	10:08pm	10:18pm	10:28pm
65	A24/9	***:00	10:14pm	10:24pm	10:34pm
66	B24/8	***:59	10:20pm	10:30pm	10:40pm
67	A26/9	***:08	10:26pm	10:36pm	10:46pm
68	B26/8	***:47	10:32pm	10:42pm	10:52pm
69	A28/9	***:15	10:38pm	10:48pm	10:58pm
70	B28/8	***:54	10:44pm	10:54pm	11:04pm
71	A30/9	***:08	10:50pm	11:00pm	11:10pm
72	B30/8	***:42	10:56pm	11:06pm	11:16pm
73	C1 /8	***:44	11:02pm	11:12pm	11:22pm
74	B1 /9	***:[illegible]	11:08pm	11:18pm	11:28pm
75	A1 /7	***:12	11:14pm	11:24pm	11:34pm
76	B3 /9	***:09	11:20pm	11:30pm	11:40pm
77	A3 /7	***:20	11:26pm	11:36pm	11:46pm
78	B5 /9	***:16	11:32pm	11:42pm	11:52pm
79	A5 /7	***:08	11:38pm	11:48pm	11:58pm
80	B7 /9	***:14	11:44pm	11:54pm	12:04am

-B-31-7

6 P.M.
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BR-55003
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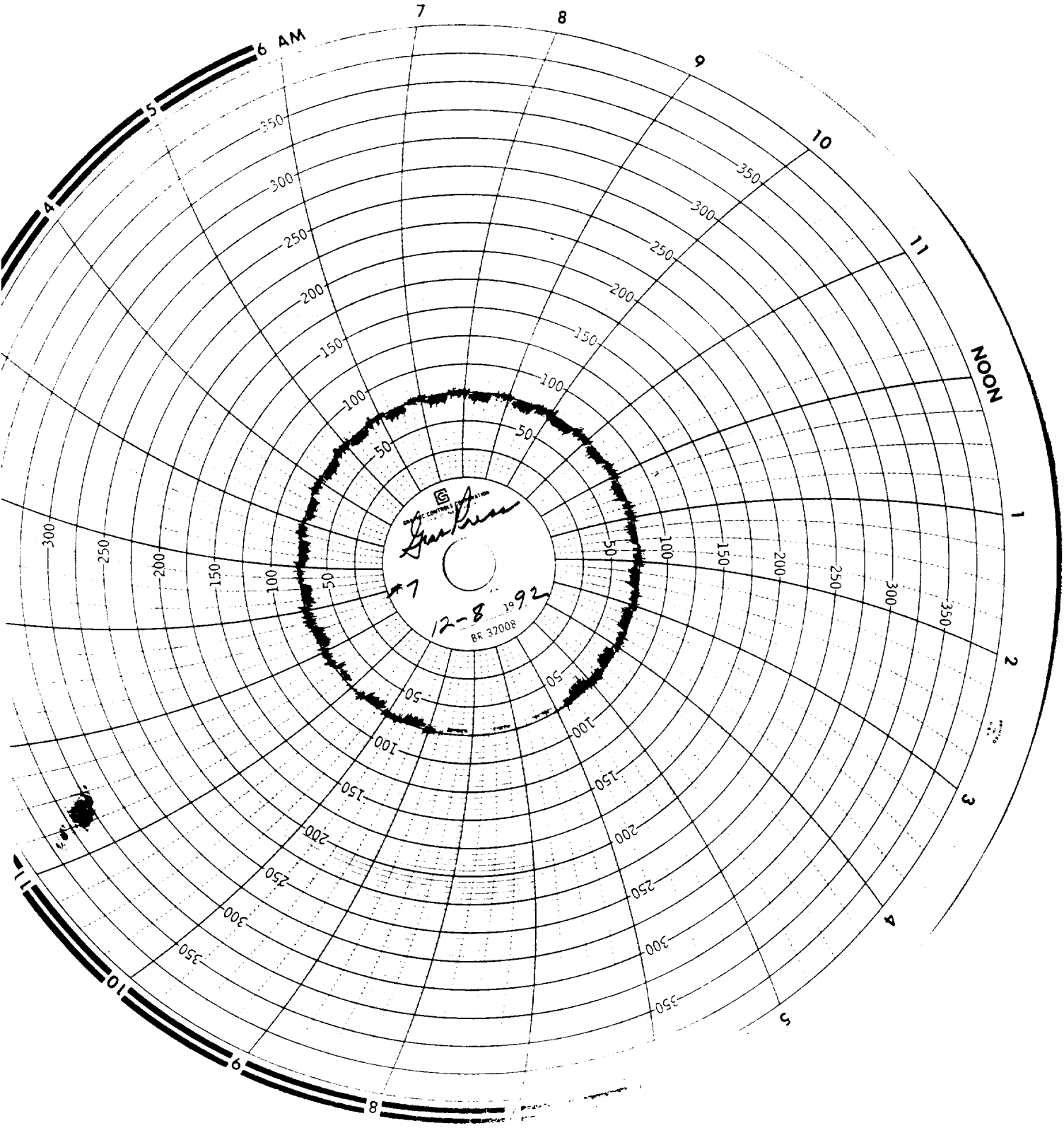
12-8-92

NOON
6 PM
MIDNIGHT
6 AM
12-8-92
BR 55265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12-8 1992
BR 32008

6 PM
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6 AM
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NOON
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7
12-8-92
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NOON
6 AM
12-8 1992
BR 55265
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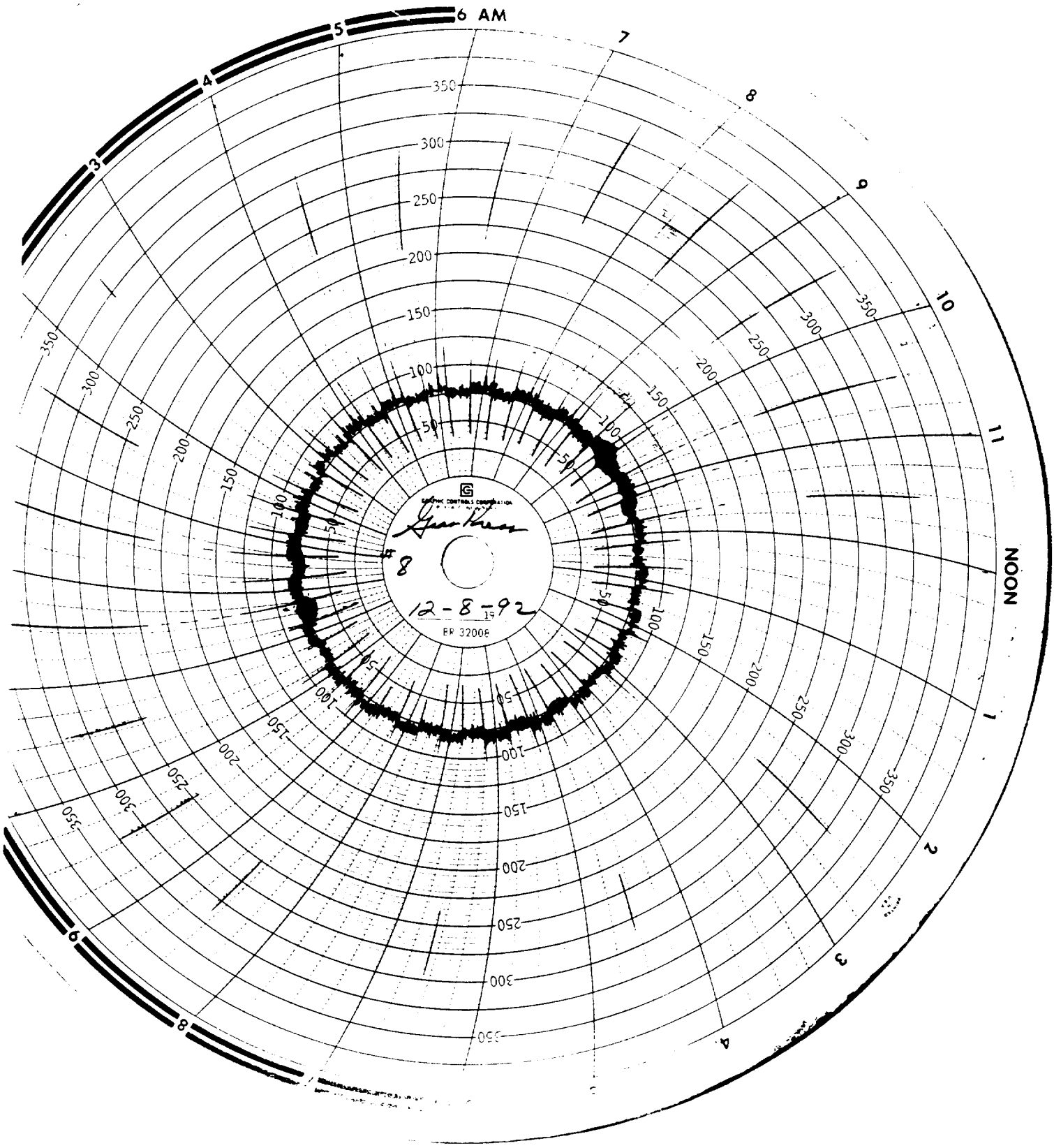
Belcher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MIDNIGHT
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MIDNIGHT
6 AM
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6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715
39/000
Vol
Gauge Line Disconnected

MIDNIGHT
6 AM
Bypass Gates

NOON
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GRAPHIC CONTROLS CORPORATION
SD
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BR 55005

6 P.M.
NOON
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12-9-92
BR-55003

6 PM
MIDNIGHT
6 AM
NOON
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12
BR 55265

MIDNIGHT
NOON
6 PM
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6 PM
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NOON
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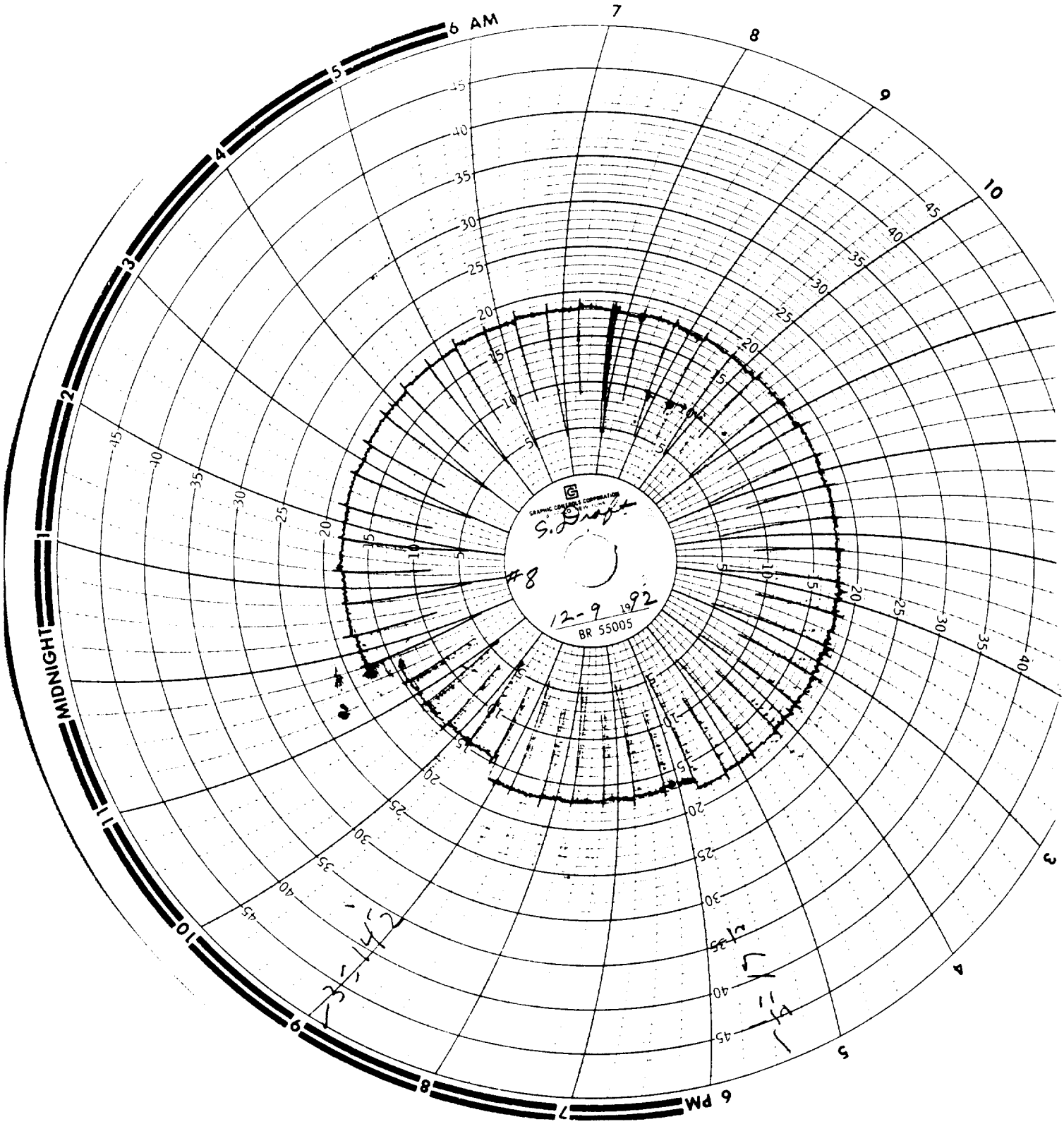
12-9
1992
BR 55005
GRAPHIC CONTROLS CORPORATION

6 AM
6 PM
MIDNIGHT
Volume
#8
12-9-92
BR 55265

MIDNIGHT
6 AM
NOON
6 PM
12-9-92
BR 32008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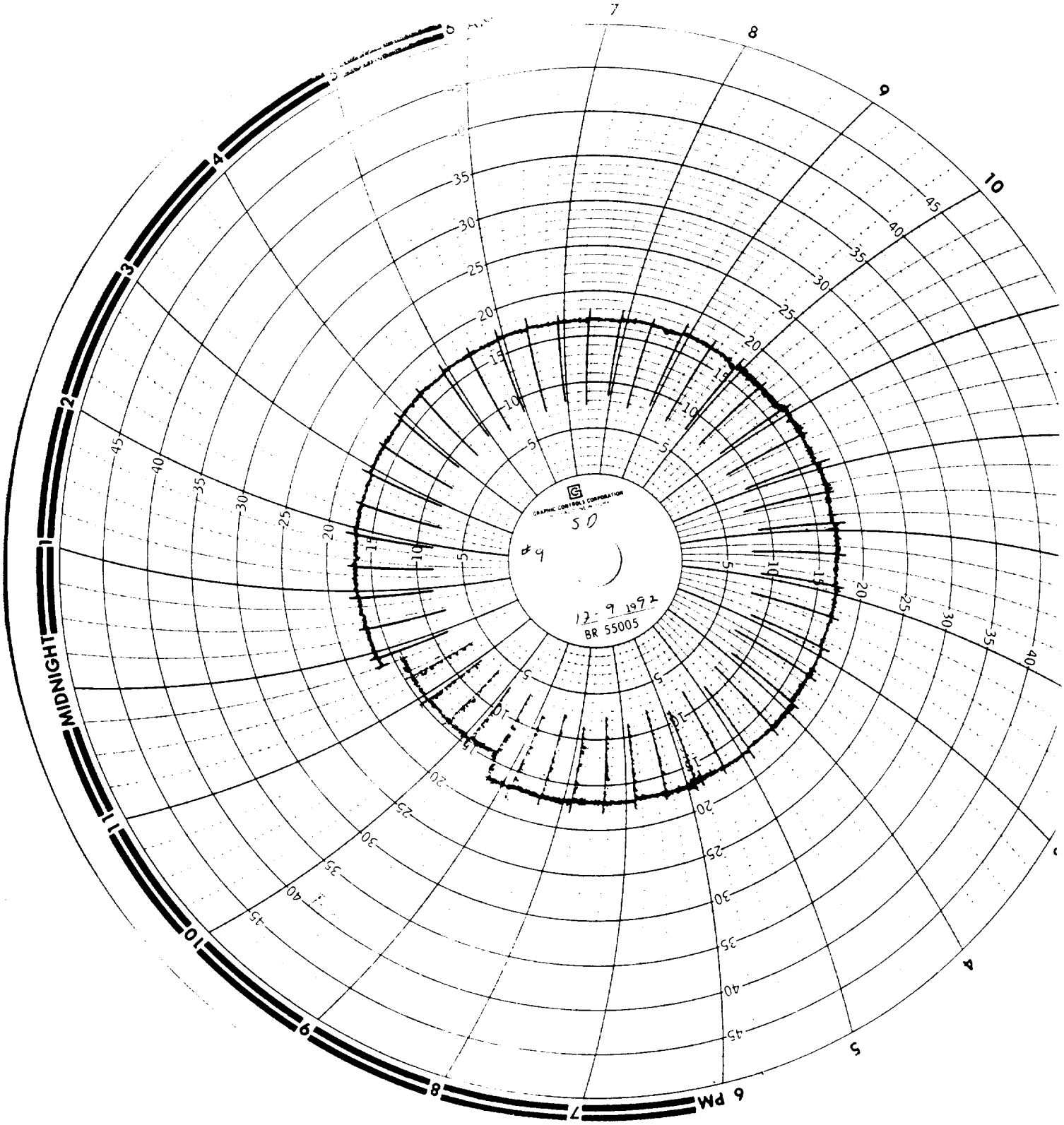
6 PM
MIDNIGHT
#8
12-9 1992
BR 55005

NOON
MIDNIGHT
6 AM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 727
#9
12-19-92

MIDNIGHT
NOON
6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715

MIDNIGHT
6 PM
GRAPHIC CONTROLS CORPORATION
12 - 9 1992
BR 32008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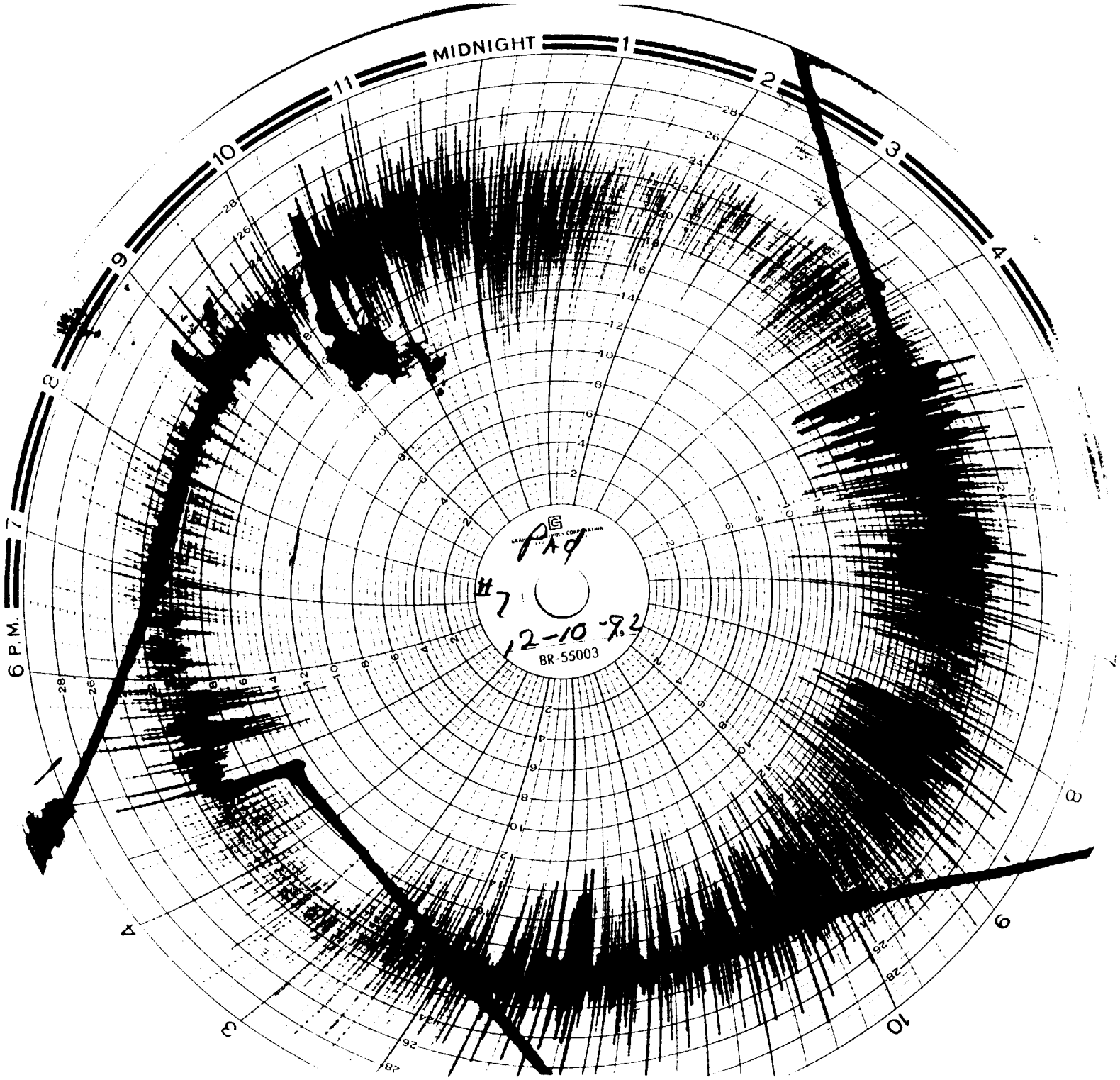
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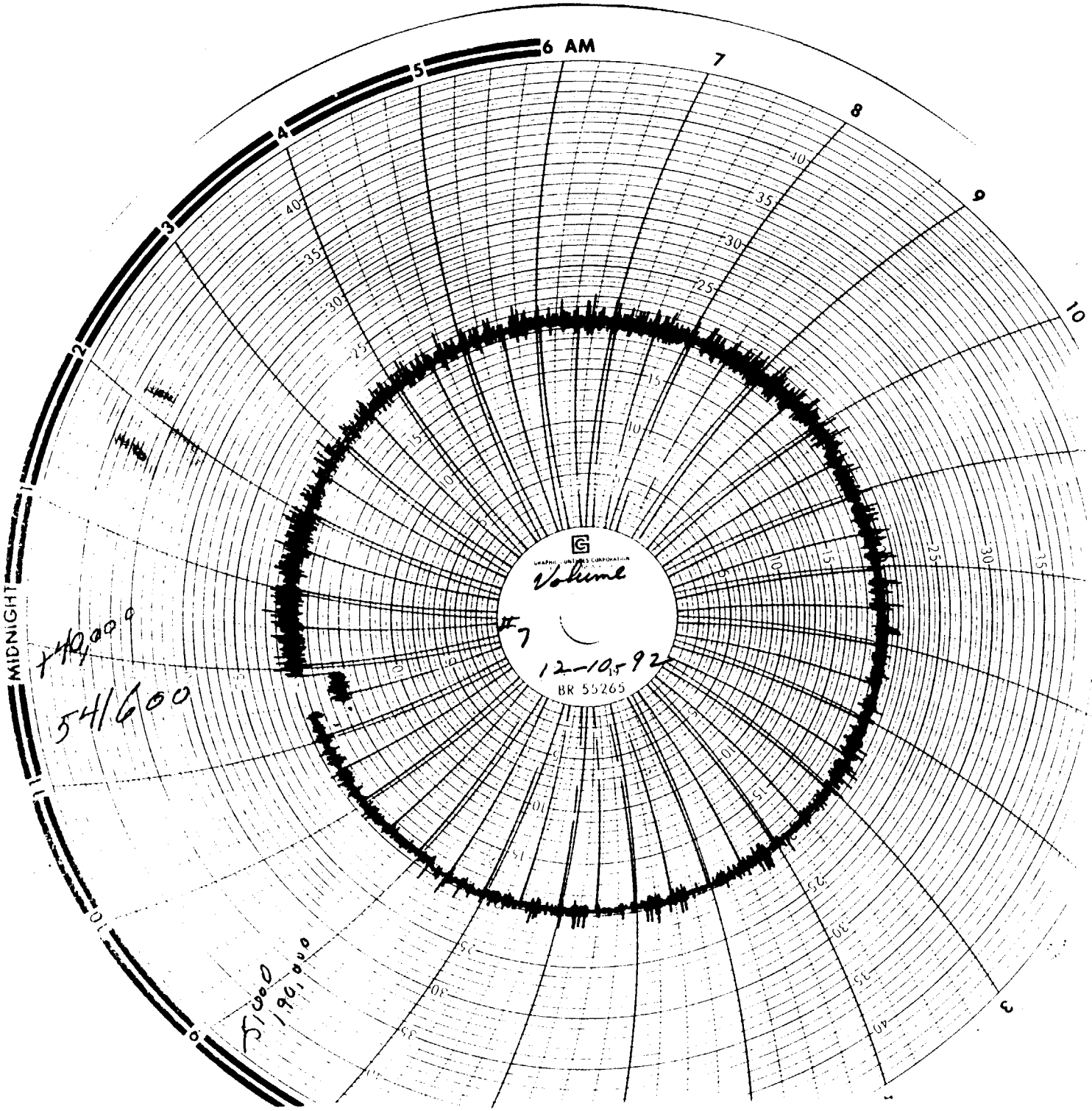
MIDNIGHT
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6 AM
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Volume
#7
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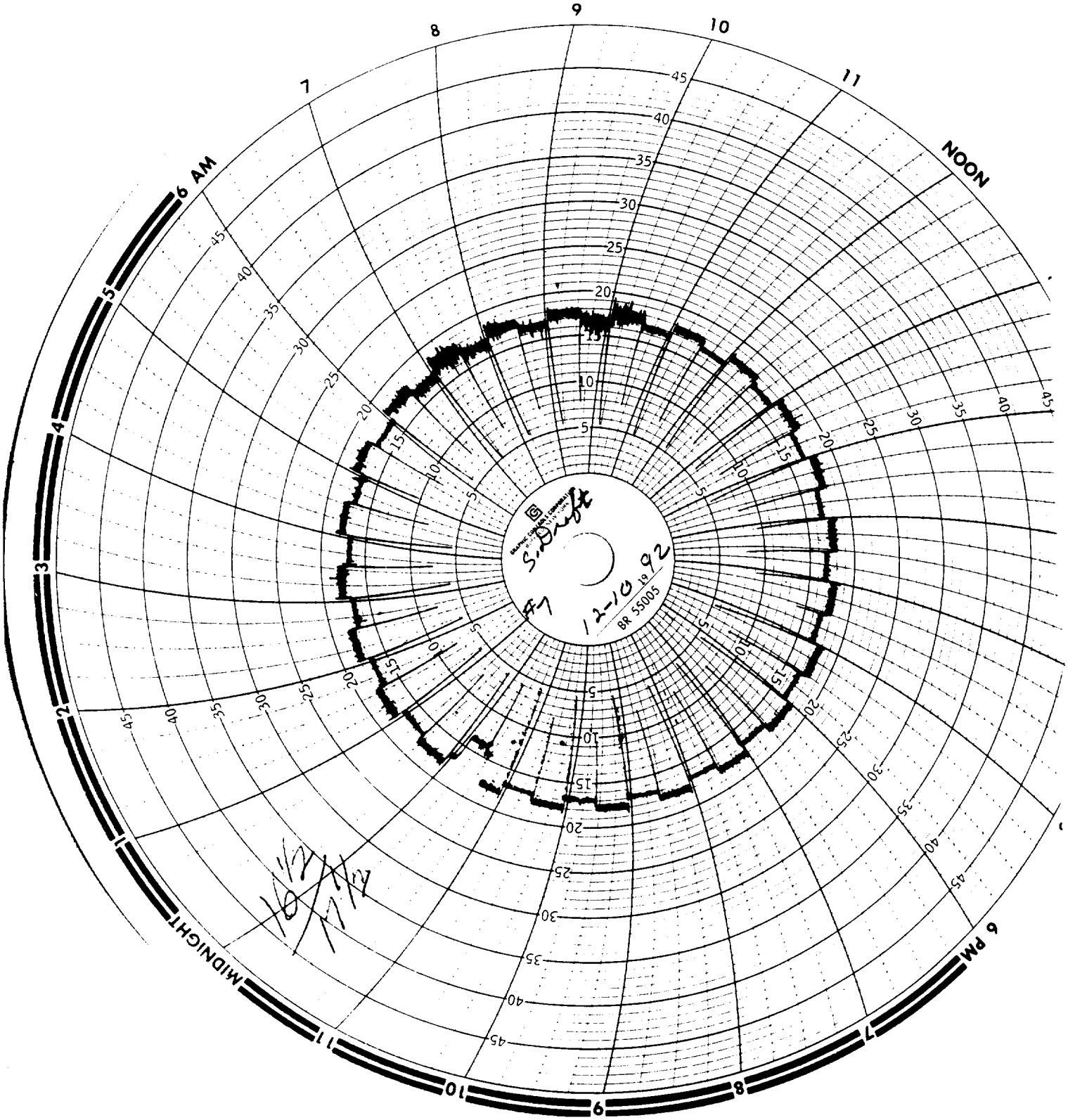
51,000
190,000

NOON
MIDNIGHT
AM
12-10-96
BR 32008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7
8
9
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6 PM
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11
MIDNIGHT
1
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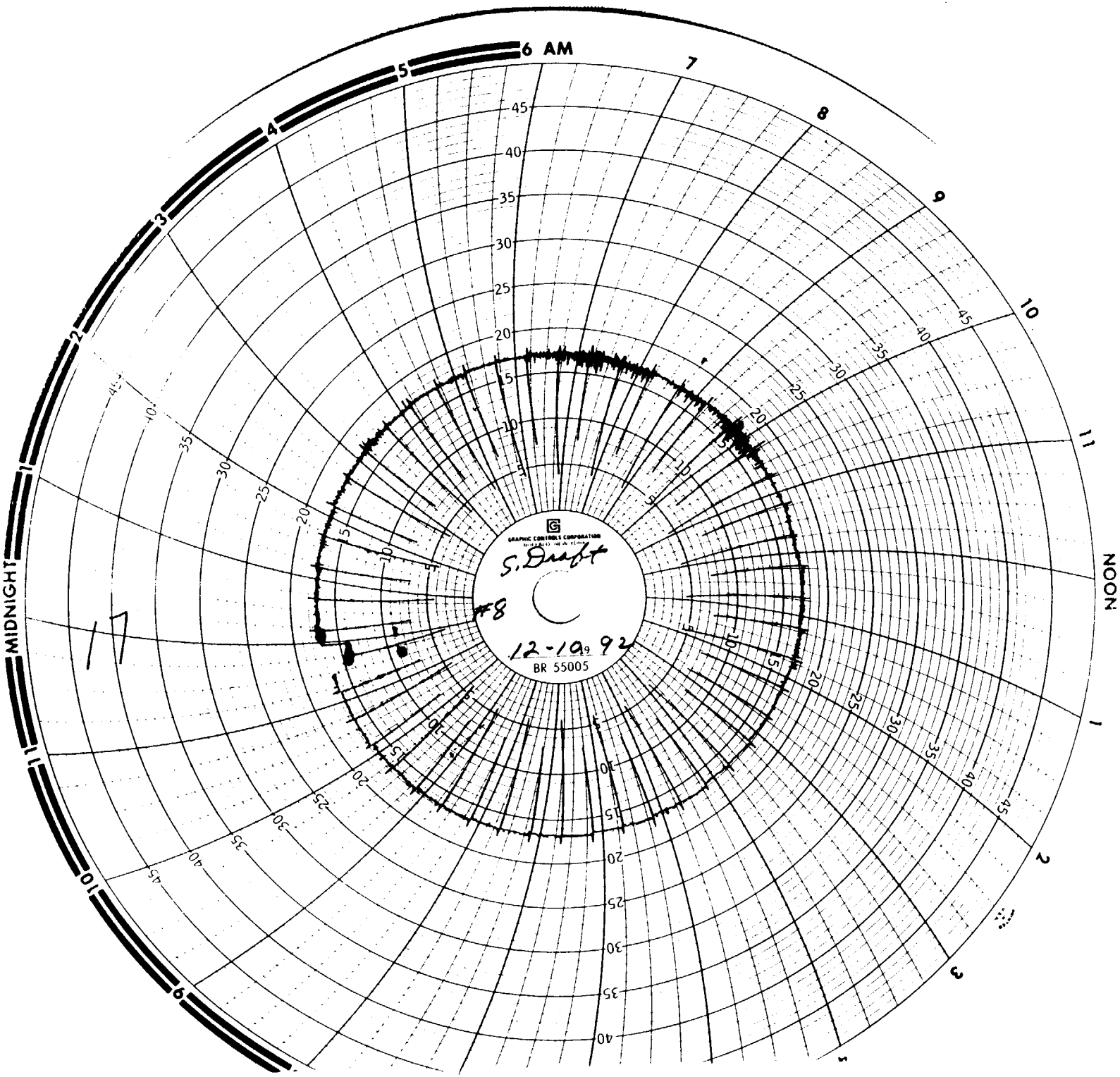
6
S. Draft
#7
12-10 92
BR 55005

NOON
6 AM
6 PM
MIDNIGHT
Volume
#8
12-10 1992
BR 55265

MIDNIGHT
6 PM
#8
12-10 19 92
BR 32008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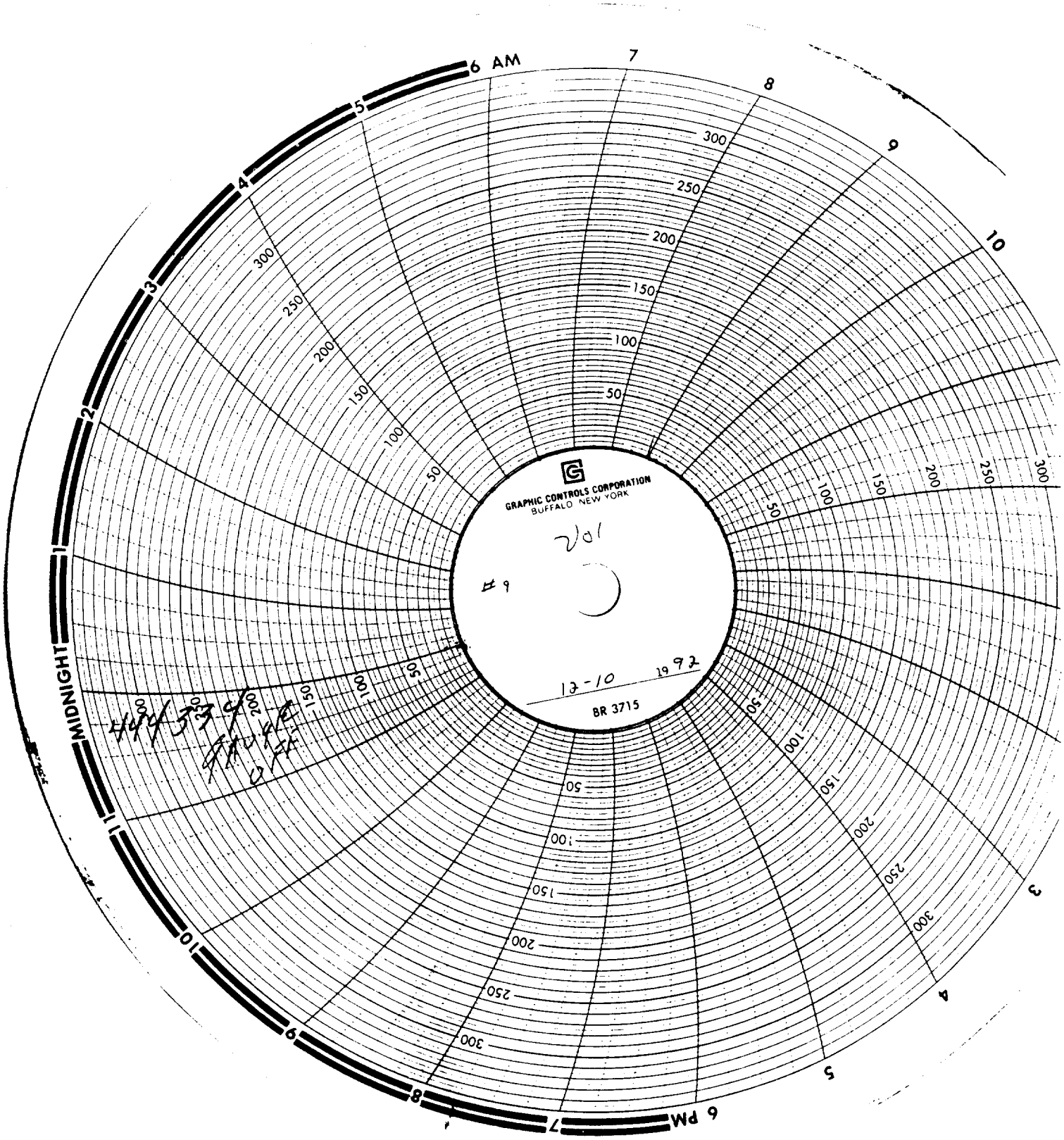
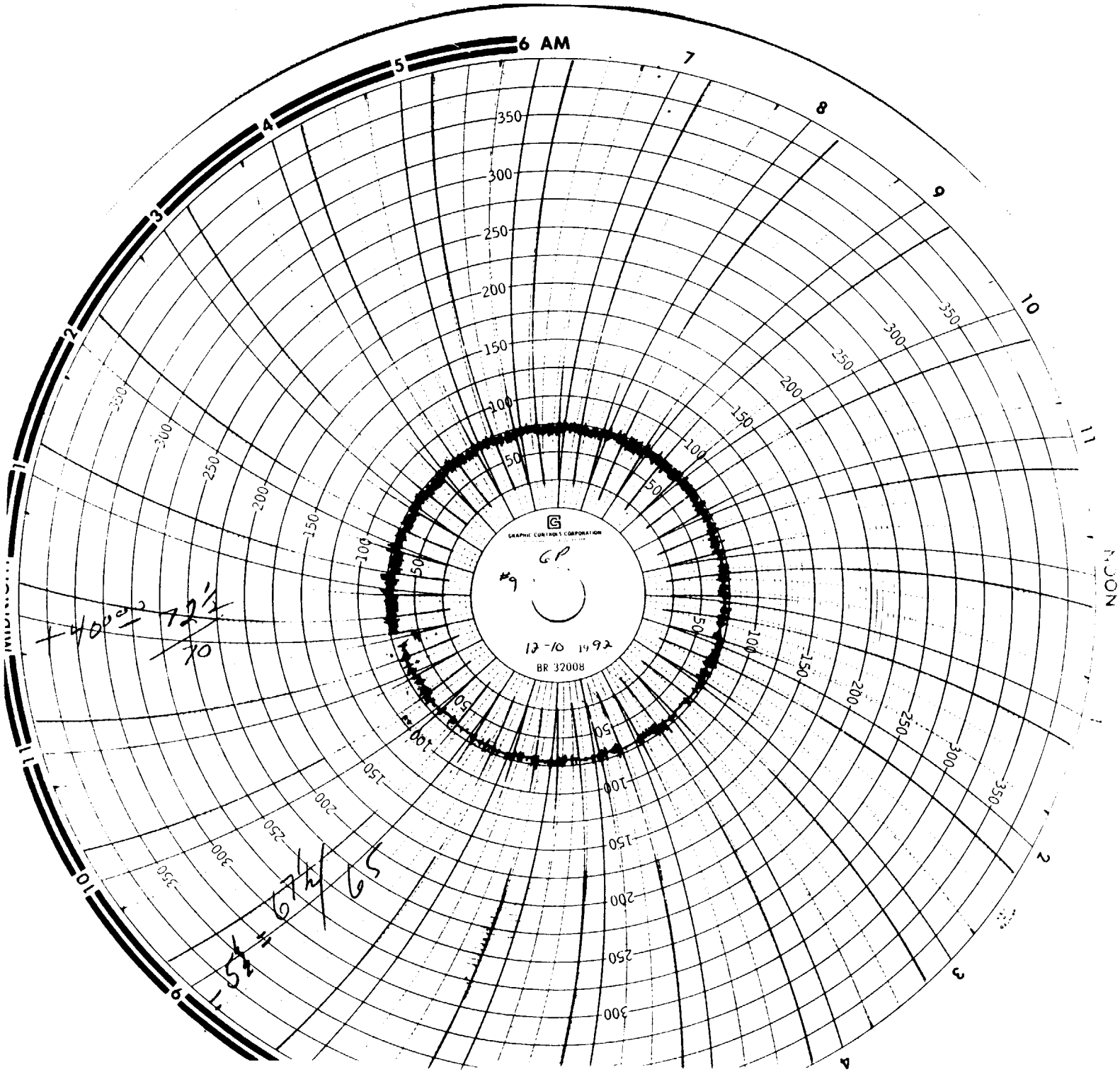
NOON
6 AM
GRAPHIC CONTROLS CORPORATION
S. Draft
#8
12-19-92
BR 55005
17

GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 721
12-10 92
MIDNIGHT
6 AM
NOON
6 PM


GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715
12-10
1992
#9
MIDNIGHT
6 AM
6 PM


6 AM
NOON
GRAPHIC CONTROLS CORPORATION
BR 32008

NOON
PM
12-10 1972
BR 55005

COMPLIANCE DEMONSTRATION
7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL

USS CLAIRTON WORKS
CLAIRTON, PA

APPENDIX C

CALIBRATION RESULTS

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 2 BP 28.8 in. Hg
DATE 07-31-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	28.80				0.50	113.700		
HALF		78.0			115.0	93.0	104.0				
STOP	12.25		5.000						118.692		
CALCULATION	12.25	538.0	5.013	28.80			564.0	28.84	4.992	1.0513	1.687
START			0.000	28.80				1.00	118.900		
HALF		79.0			115.0	93.0	104.0				
STOP	8.43		5.000						123.868		
CALCULATION	8.43	539.0	5.013	28.80			564.0	28.87	4.968	1.0531	1.604
START			0.000	28.80				2.00	124.400		
HALF		79.0			115.0	93.0	104.0				
STOP	6.00		5.000						129.381		
CALCULATION	6.00	539.0	5.013	28.80			564.0	28.95	4.981	1.0477	1.625
AVERAGE										1.0507	1.638

POST TEST

BOX # 2 BP 28.90 in. Hg
DATE 01-05-93 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	28.90				1.15	409.100		
HALF		70.0			114.0	87.0	100.5				
STOP	8.00		5.000						414.090		
CALCULATION	8.00	530.0	5.013	28.90			560.5	28.98	4.990	1.0592	1.610
START			0.000	28.90				1.15	414.300		
HALF		70.0			115.0	90.0	102.5				
STOP	7.97		5.000						419.310		
CALCULATION	7.97	530.0	5.013	28.90			562.5	28.98	5.010	1.0588	1.593
START			0.000	28.90				1.15	419.700		
HALF		70.0			115.0	90.0	102.5				
STOP	8.03		5.000						424.721		
CALCULATION	8.03	530.0	5.013	28.90			562.5	28.98	5.021	1.0564	1.617
AVERAGE										1.0581	1.606
DIFFERENCE										-0.7%	2.0%

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 2
DATE 07-31-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.05
0.50	0.50

PRE-TEST LEAK CHECK

DATE 07-31-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	97.251	97.484	0.233	10.000	-0.000
WET	0.000	0.230	0.230		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

PRE-TEST PYROMETER CHECK

DATE 07-31-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	39.0
0.40	50	49.0
0.84	70	68.0
1.29	90	88.0
1.74	110	108.0
2.66	150	149.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 2
DATE 01-05-93
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.05
0.50	0.50

POST-TEST LEAK CHECK

DATE 11-12-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	17.430	17.612	0.182	10.000	-0.0002
WET	0.000	0.180	0.180		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST PYROMETER CHECK

DATE 01-07-93
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	41.0
0.40	50	51.0
0.84	70	70.0
1.29	90	90.0
1.74	110	111.0
2.66	150	151.0
3.82	200	202.0
6.09	300	302.0
8.31	400	403.0
10.57	500	503.0

QA ORIFICE AUDIT

ORIFICE	BAPC-3	DATE	12-07-92	B.P.	28.85
OPERATOR	RPC	BOX #	2		

RUN	1		2		3	
INITIAL CF	263.500		270.850		278.200	
FINAL CF	270.506		277.784		285.154	
DIFFERENCE	7.006		6.934		6.954	
	IN	OUT	IN	OUT	IN	OUT
TEMP INITIAL	73	73	96	75	101	76
TEMP 5 MIN	82	73	98	75	105	77
TEMP 10 MIN	94	73	99	76	106	77
TEMP 15 MIN	96	75	101	76	110	80
		TEMP R		TEMP R		TEMP R
TEMP AVG	79.875	539.875	87	547	91.5	551.5
TIME (MIN.)	15.00		15.00		15.00	
	IN WATE	IN HG	IN WATER	IN HG	IN WATER	IN HG
ORIFICE	0.65	0.05	0.65	0.05	0.65	0.05
METER PRESSURE		28.90		28.90		28.90
	°F	°C	°F	°C	°F	°C
AMBIENT TEMP.	74.0	23.3	74.0	23.3	74.0	23.3
VACUUM IN HG	18.5		18.5		18.5	
DGM CAL Y	1.0507		1.0507		1.0507	
STD CF	6.980		6.818		6.782	
STD CUBIC METERS	0.1977		0.1931		0.1921	

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 4 BP 28.95 in. Hg
DATE 11-25-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	28.95				0.50	355.600		
HALF		72.0			81.0	79.0	80.0				
STOP	12.10		5.000						360.800		
CALCULATION	12.10	532.0	5.013	28.95			540.0	28.99	5.200	0.9772	1.672
START			0.000	28.95				1.00	361.500		
HALF		72.0			84.0	83.0	83.5				
STOP	8.90		5.000						366.734		
CALCULATION	8.90	532.0	5.013	28.95			543.5	29.02	5.234	0.9759	1.798
START			0.000	28.95				2.00	367.400		
HALF		72.0			85.0	84.0	84.5				
STOP	6.42		5.000						372.670		
CALCULATION	6.42	532.0	5.013	28.95			544.5	29.10	5.270	0.9686	1.867
AVERAGE										0.9739	1.779

POST TEST

BOX # 4 BP 29.05 in. Hg
DATE 01-07-93 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	29.05				1.00	494.100		
HALF		70.0			77.0	76.0	76.5				
STOP	8.63		5.000						499.250		
CALCULATION	8.63	530.0	5.013	29.05			536.5	29.12	5.150	0.9828	1.694
START			0.000	29.05				1.00	499.600		
HALF		70.0			80.0	79.0	79.5				
STOP	8.65		5.000						504.766		
CALCULATION	8.65	530.0	5.013	29.05			539.5	29.12	5.166	0.9852	1.692
START			0.000	29.05				1.00	505.100		
HALF		70.0			83.0	81.0	82.0				
STOP	8.61		5.000						510.247		
CALCULATION	8.61	530.0	5.013	29.05			542.0	29.12	5.147	0.9934	1.669
AVERAGE										0.9871	1.685
DIFFERENCE										-1.3%	5.6%

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 4
DATE 11-25-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.49

PRE-TEST LEAK CHECK

DATE 11-25-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	354.811	354.984	0.173	10.000	0.001
WET	0.000	0.180	0.180		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

PRE-TEST PYROMETER CHECK

DATE 11-25-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	71.0
1.29	90	91.0
1.74	110	110.0
2.66	150	150.0
3.82	200	202.0
6.09	300	302.0
8.31	400	402.0
10.57	500	502.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 4
DATE 01-07-93
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

POST-TEST LEAK CHECK

DATE 01-07-93
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	493.445	493.574	0.129	10.000	-0.0008
WET	0.000	0.121	0.121		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST PYROMETER CHECK

DATE 01-07-93
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	41.0
0.40	50	51.0
0.84	70	70.0
1.29	90	91.0
1.74	110	111.0
2.66	150	151.0
3.82	200	201.0
6.09	300	301.0
8.31	400	402.0
10.57	500	502.0

QA ORIFICE AUDIT

ORIFICE	BAPC-3	DATE	12-07-92	B.P.	28.85
OPERATOR	RPC	BOX #	4		

RUN	1		2		3	
INITIAL CF	483.900		496.500		504.600	
FINAL CF	491.400		504.010		512.121	
DIFFERENCE	7.500		7.510		7.521	
	IN	OUT	IN	OUT	IN	OUT
TEMP INITIAL	71	69	78	75	82	80
TEMP 5 MIN	74	73	78	77	83	80
TEMP 10 MIN	75	74	80	78	85	81
TEMP 15 MIN	78	76	81	79	85	83
		TEMP R		TEMP R		TEMP R
TEMP AVG	73.75	533.75	78.25	538.25	82.375	542.375
TIME (MIN.)	15.00		15.00		15.00	
	IN WATE	IN HG	IN WATER	IN HG	IN WATER	IN HG
ORIFICE	0.65	0.05	0.65	0.05	0.65	0.05
METER PRESSURE		28.90		28.90		28.90
	°F	°C	°F	°C	°F	°C
AMBIENT TEMP.	75.0	23.9	75.0	23.9	75.0	23.9
VACUUM IN HG	19.0		19.0		19.0	
DGM CAL Y	0.9739		0.9739		0.9739	
STD CF	7.005		6.956		6.913	
STD CUBIC METERS	0.1984		0.1970		0.1958	

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 5 BP 28.85 in. Hg
DATE 12-07-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	28.85				0.50	15.100		
HALF		70.0			86.0	78.0	82.0				
STOP	12.40		5.000						20.407		
CALCULATION	12.40	530.0	5.013	28.85			542.0	28.89	5.307	0.9647	1.742
START			0.000	28.85				1.00	20.900		
HALF		70.0			90.0	79.0	84.5				
STOP	8.83		5.000						26.221		
CALCULATION	8.83	530.0	5.013	28.85			544.5	28.92	5.321	0.9653	1.759
START			0.000	28.85				2.00	26.810		
HALF		70.0			93.0	81.0	87.0				
STOP	6.20		5.000						32.131		
CALCULATION	6.20	530.0	5.013	28.85			547.0	29.00	5.321	0.9673	1.727
AVERAGE										0.9658	1.743

POST TEST

BOX # 5 BP 29.05 in. Hg
DATE 01-07-93 OPERATOR RPC

	WET TEST METER				DRY TEST METER						
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	METER COEFFICIENT Y	ORIFICE COEFFICIENT ΔH@
START			0.000	29.05				2.00	193.500		
HALF		70.0			89.0	83.0	86.0				
STOP	6.05		5.000						198.720		
CALCULATION	6.05	530.0	5.013	29.05			546.0	29.20	5.220	0.9843	1.636
START			0.000	29.05				2.00	199.100		
HALF		70.0			88.0	84.0	86.0				
STOP	6.05		5.000						204.361		
CALCULATION	6.05	530.0	5.013	29.05			546.0	29.20	5.261	0.9766	1.636
START			0.000	29.05				2.00	205.000		
HALF		70.0			88.0	85.0	86.5				
STOP	6.05		5.000						210.266		
CALCULATION	6.05	530.0	5.013	29.05			546.5	29.20	5.266	0.9766	1.634
AVERAGE										0.9791	1.635
DIFFERENCE										-1.4%	6.6%

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 5
DATE 12-07-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

PRE-TEST LEAK CHECK

DATE 12-07-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	13.600	13.786	0.186	10.000	-0.000
WET	0.000	0.185	0.185		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

PRE-TEST PYROMETER CHECK

DATE 11-15-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	152.0
3.82	200	202.0
6.09	300	301.0
8.31	400	402.0
10.57	500	503.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 5
DATE 01-07-93
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

POST-TEST LEAK CHECK

DATE 01-07-93
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	191.000	191.182	0.182	10.000	0.0001
WET	0.000	0.183	0.183		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST PYROMETER CHECK

DATE 01-07-93
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	39.0
0.40	50	49.0
0.84	70	69.0
1.29	90	89.0
1.74	110	110.0
2.66	150	150.0
3.82	200	199.0
6.09	300	300.0
8.31	400	400.0
10.57	500	500.0

QA ORIFICE AUDIT

ORIFICE	BAPC-3	DATE	12-07-92	B.P.	28.85
OPERATOR	RPC	BOX #	5		

RUN	1		2		3	
INITIAL CF	989.000		996.900		1004.800	
FINAL CF	996.620		1004.509		1012.422	
DIFFERENCE	7.620		7.609		7.622	
	IN	OUT	IN	OUT	IN	OUT
TEMP INITIAL	79	74	78	77	79	78
TEMP 5 MIN	77	75	78	77	80	79
TEMP 10 MIN	77	76	79	77	80	78
TEMP 15 MIN	77	76	79	78	80	79
		TEMP R		TEMP R		TEMP R
TEMP AVG	76.375	536.375	77.875	537.875	79.125	539.125
TIME (MIN.)	15.00		15.00		15.00	
	IN WATE	IN HG	IN WATER	IN HG	IN WATER	IN HG
ORIFICE	0.70	0.05	0.70	0.05	0.70	0.05
METER PRESSURE		28.90		28.90		28.90
	°F	°C	°F	°C	°F	°C
AMBIENT TEMP.	74.0	23.3	74.0	23.3	74.0	23.3
VACUUM IN HG	19.0		19.0		19.0	
DGM CAL Y	0.9658		0.9658		0.9658	
STD CF	7.024		6.995		6.990	
STD CUBIC METERS	0.1989		0.1981		0.1980	

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 6 BP 28.95 in. Hg
DATE 11-25-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT ΔH@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD		
START			0.000	28.95				0.50	701.900		
HALF		72.0			104.0	85.0	94.5				
STOP	12.43		5.000						707.316		
CALCULATION	12.43	532.0	5.013	28.95			554.5	28.99	5.416	0.9634	1.718
START			0.000	28.95				1.00	707.700		
HALF		72.0			87.0	107.0	97.0				
STOP	9.00		5.000						713.044		
CALCULATION	9.00	532.0	5.013	28.95			557.0	29.02	5.344	0.9796	1.794
START			0.000	28.95				2.00	714.000		
HALF		72.0			110.0	89.0	99.5				
STOP	6.70		5.000						719.250		
CALCULATION	6.70	532.0	5.013	28.95			559.5	29.10	5.250	0.9990	1.979
AVERAGE										0.9807	1.830

POST TEST

BOX # 6 BP 29.05 in. Hg
DATE 01-07-9~~2~~3 JPS OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT ΔH@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD		
START			0.000	29.05				1.00	842.200		
HALF		70.0			100.0	75.0	87.5				
STOP	9.33		5.000						847.296		
CALCULATION	9.33	530.0	5.013	29.05			547.5	29.12	5.096	1.0135	1.940
START			0.000	29.05				1.00	847.500		
HALF		70.0			101.0	79.0	90.0				
STOP	9.35		5.000						852.600		
CALCULATION	9.35	530.0	5.013	29.05			550.0	29.12	5.100	1.0174	1.939
START			0.000	29.05				1.00	852.950		
HALF		70.0			103.0	81.0	92.0				
STOP	9.35		5.000						858.040		
CALCULATION	9.35	530.0	5.013	29.05			552.0	29.12	5.090	1.0231	1.932
AVERAGE										1.0180	1.937
DIFFERENCE										-3.7%	-5.5%

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 6
DATE 11-02-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

PRE-TEST LEAK CHECK

DATE 11-25-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	701.305	701.473	0.168	10.000	0.000
WET	0.000	0.171	0.171		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

PRE-TEST PYROMETER CHECK

DATE 11-02-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	151.0
3.82	200	200.0
6.09	300	300.0
8.31	400	402.0
10.57	500	502.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 6
DATE 01-07-93
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

POST-TEST LEAK CHECK

DATE 01-07-93
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	841.100	841.349	0.249	10.000	0.0001
WET	0.000	0.250	0.250		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST PYROMETER CHECK

DATE 01-07-93
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	300.0
8.31	400	401.0
10.57	500	501.0

QA ORIFICE AUDIT

ORIFICE	BAPC-3	DATE	10-27-92	B.P.	28.80
OPERATOR	RPC	BOX #	6		

RUN	1		2		3	
INITIAL CF	374.300		382.200		390.100	
FINAL CF	381.841		389.751		397.662	
DIFFERENCE	7.541		7.551		7.562	
	IN	OUT	IN	OUT	IN	OUT
TEMP INITIAL	77	77	81	77	85	79
TEMP 5 MIN	79	77	84	77	87	80
TEMP 10 MIN	79	77	84	79	89	81
TEMP 15 MIN	81	77	85	79	89	82
		TEMP R		TEMP R		TEMP R
TEMP AVG	78	538	80.75	540.75	84	544
TIME (MIN.)	15.00		15.00		15.00	
	IN WATE	IN HG	IN WATER	IN HG	IN WATER	IN HG
ORIFICE	0.70	0.05	0.70	0.05	0.70	0.05
METER PRESSURE		28.85		28.85		28.85
	°F	°C	°F	°C	°F	°C
AMBIENT TEMP.	78.0	25.6	80.0	26.7	84.0	28.9
VACUUM IN HG	18.0		18.0		18.0	
DGM CAL Y	0.9617		0.9617		0.9617	
STD CF	6.889		6.863		6.832	
STD CUBIC METERS	0.1951		0.1944		0.1935	

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 6 BP 29.2 in. Hg
DATE 05-20-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT	ORIFICE COEFFICIENT
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD	Y	ΔH@
START			0.000	29.20				0.50	777.500		
HALF		72.0			94.0	83.0	88.5				
STOP	13.40		5.000						782.822		
CALCULATION	13.40	532.0	5.013	29.20			548.5	29.24	5.322	0.9698	2.002
START			0.000	29.20				1.00	783.500		
HALF		72.0			96.0	85.0	90.5				
STOP	9.46		5.000						788.954		
CALCULATION	9.46	532.0	5.013	29.20			550.5	29.27	5.454	0.9486	1.988
START			0.000	29.20				2.00	789.800		
HALF		72.0			109.0	89.0	99.0				
STOP	6.70		5.000						795.222		
CALCULATION	6.70	532.0	5.013	29.20			559.0	29.35	5.422	0.9665	1.964
AVERAGE										0.9617	1.985

POST TEST

BOX # 6 BP 28.65 in. Hg
DATE 11-2-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT ΔH@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD		
START			0.000	28.65					408.000		
HALF		70.0			95.0	75.0	85.0	1.50			
STOP	7.47		5.000						413.291		
CALCULATION	7.47	530.0	5.013	28.65			545.0	28.76	5.291	0.9704	1.900
START			0.000	28.65					413.600		
HALF		70.0			100.0	80.0	90.0	1.50			
STOP	7.48		5.000						418.892		
CALCULATION	7.48	530.0	5.013	28.65			550.0	28.76	5.292	0.9792	1.888
START			0.000	28.65					419.400		
HALF		70.0			105.0	85.0	95.0	1.50			
STOP	7.50		5.000						424.715		
CALCULATION	7.50	530.0	5.013	28.65			555.0	28.76	5.315	0.9838	1.881
AVERAGE										0.9778	1.889
DIFFERENCE										-1.6%	5.0%

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 6
DATE 05-20-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

PRE-TEST LEAK CHECK

DATE 05-20-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	776.425	776.572	0.147	10.000	-0.002
WET	0.000	0.131	0.131		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

PRE-TEST PYROMETER CHECK

DATE 05-20-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	41.0
0.40	50	51.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	300.0
8.31	400	399.0
10.57	500	500.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 6
DATE 11-02-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	0.50
1.00	1.00
2.00	2.00
4.00	4.00
6.00	6.00
8.00	8.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P	MANOMETER
0.50	---
0.40	---
0.30	---
0.20	---
0.10	---

Calibration not necessary.
Primary standard on control box.

0 to 5" H2O RANGE

MAGNEHELIC Δ H	MANOMETER
4.00	4.00
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

POST-TEST LEAK CHECK

DATE 9-3-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	401.290	401.410	0.120	10.000	0.0001
WET	0.000	0.121	0.121		

PYROMETER CALIBRATION

DATE 04-28-88
OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.31	400	400.0
10.57	500	500.0

POST-TEST PYROMETER CHECK

DATE 9-3-92
OPERATOR RPC

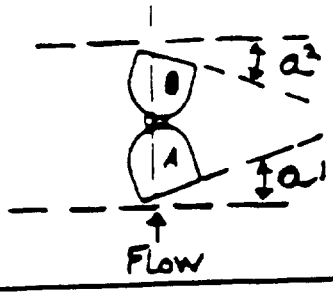
VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	151.0
3.82	200	200.0
6.09	300	300.0
8.31	400	402.0
10.57	500	502.0

GEOMETRIC PITOT CALIBRATION

Caliper # XEF-59
Precheck ✓
Post Check

Probe #: S-1
Date: 11-2-92
Initials: [illegible]

①

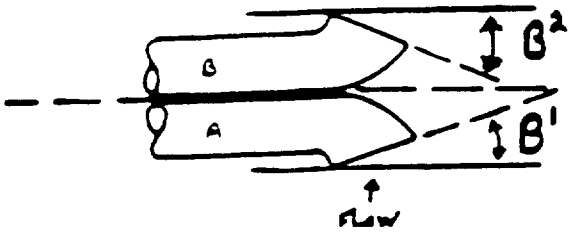


a¹ = 3.0°
a² = 4.0°
a¹, a² = <10°

B¹ = 2.5°
B² = 3.0°
B¹, B², = <5°

F = 1.025"

②



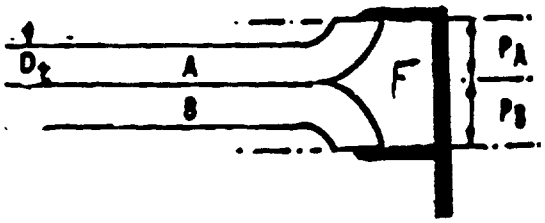
μ = 0.0241 — μ = ≤ 0.1250" (μ = F TAN γ)

V = 0.0241 — V = ≤0.03125" (V = F TAN θ)

W = 0.528 — W ≥ 0"

X = 0.786 — X ≥ 0.750" (3/4" using 1/2" nozzle)

③



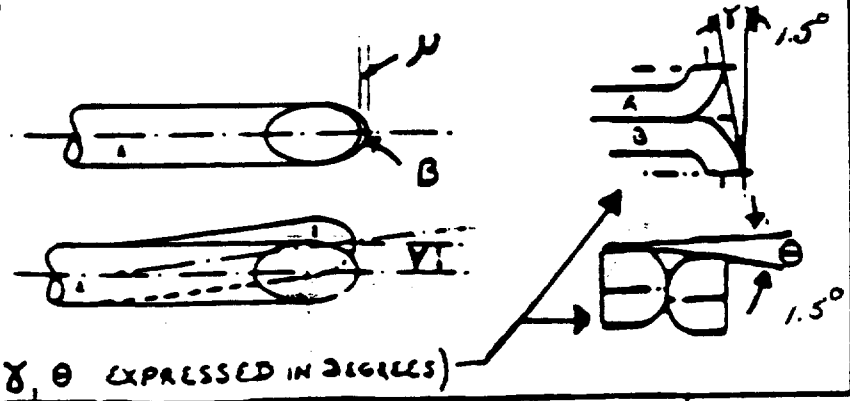
1.05 D_t < Φ < 1.50 D_t
P_A = P_B
2.10 D_t < A < 3.00 D_t

Y = 5.946 — Y ≥ 3.0"

Z = 3.372 — Z > 2.0"

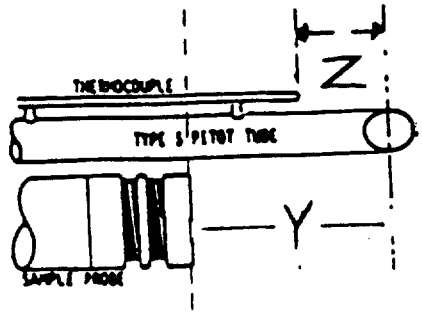
D_t = 0.375 — D_t > .1875" to .375" (3/16" to 3/8")

④

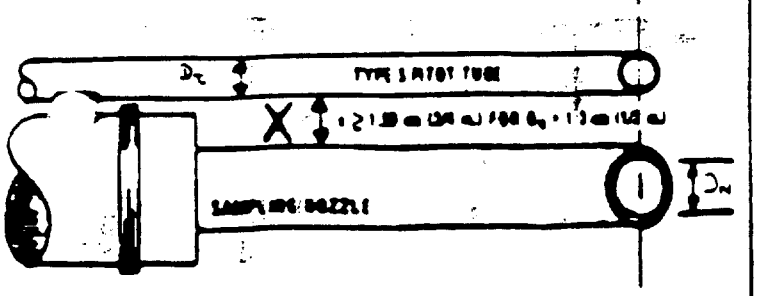


(γ, θ EXPRESSED IN DEGREES)

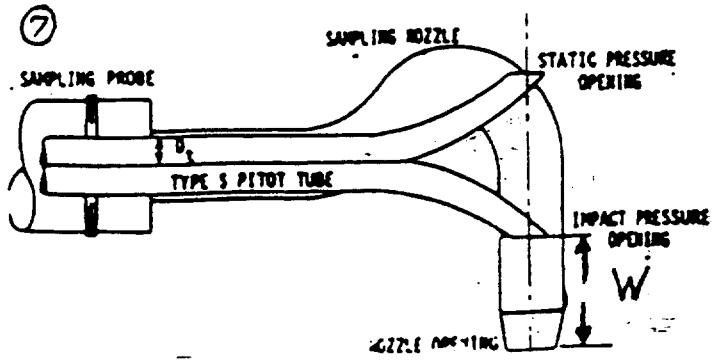
⑥



⑤



⑦

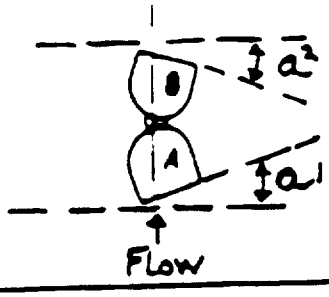


GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68
Precheck
Post Check ✓

Probe #: 5-1
Date: 18-11-78
Initials: TMM

①

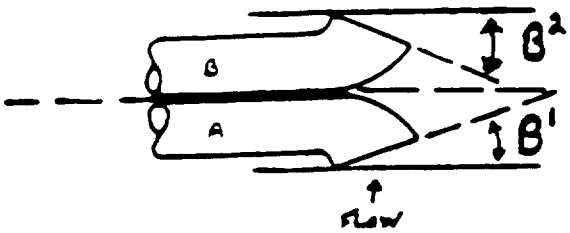


a^1 = 2.0
a^2 = 4.0
$a^1, a^2 = <10°$

B^1 = 3.0
B^2 = 3.0
$B^1, B^2, = <5°$

F = 1.028"

②



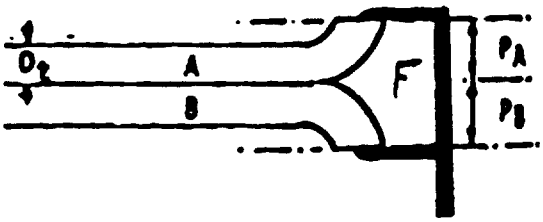
μ = 0.0179 — μ = ≤ 0.1250" (μ = F TAN γ)

V = 0.0179 — V = ≤0.03125" (V = F TAN θ)

W = 0.361 — W ≥ 0"

X = .800 — X ≥ 0.750" (3/4" using 1/2" nozzle)

③



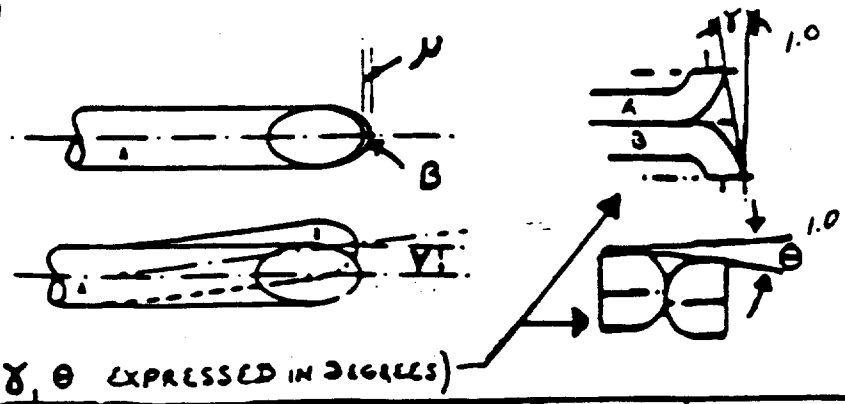
1.05 D_t < d < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

Y = 6.184 — Y ≥ 3.0"

Z = 3.168 — Z > 2.0"

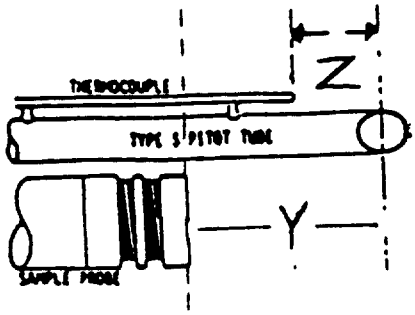
D_t = 0.375 — D_t > .1875" to .375" (3/16" to 3/8")

④

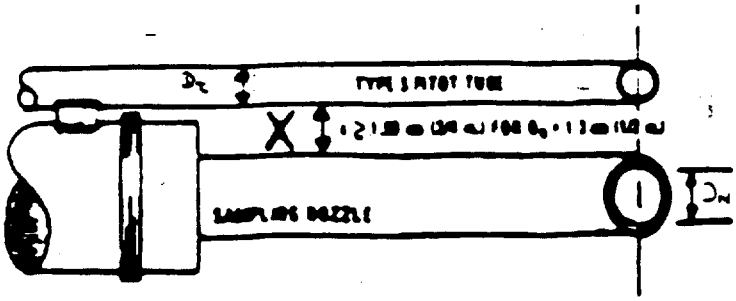


(γ, θ EXPRESSED IN DEGREES)

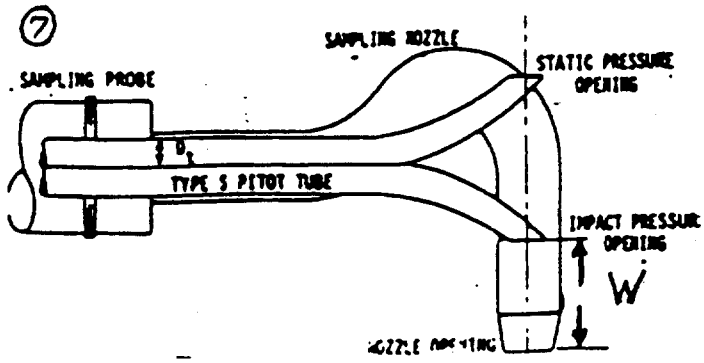
⑥



⑤



⑦

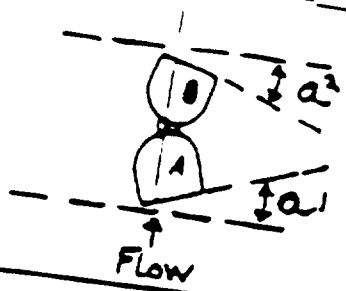


GEOMETRIC PITOT CALIBRATION

Caliper # XF565
Precheck ✓
Post Check

Probe #: 5.2
Date: 11-2-92
Initials:

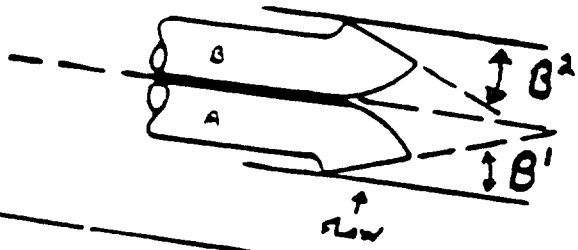
①



a¹ = 4.0°
a² = 3.0°
a¹, a² = <10°

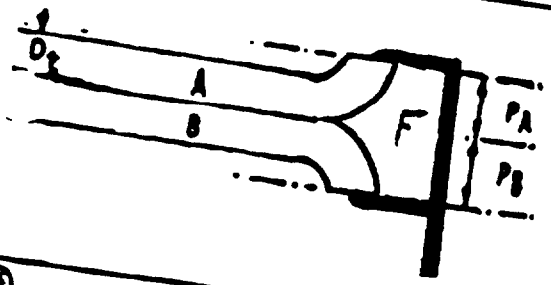
B¹ = 0
B² = 4.0°
B¹, B², = <5°

②



F = 0.980"
μ = 0.0465
μ = ≤ 0.1250" (μ = F TAN γ)
V = 0
V = ≤0.03125" (V = F TAN θ))
W = 0.355
W ≥ 0"

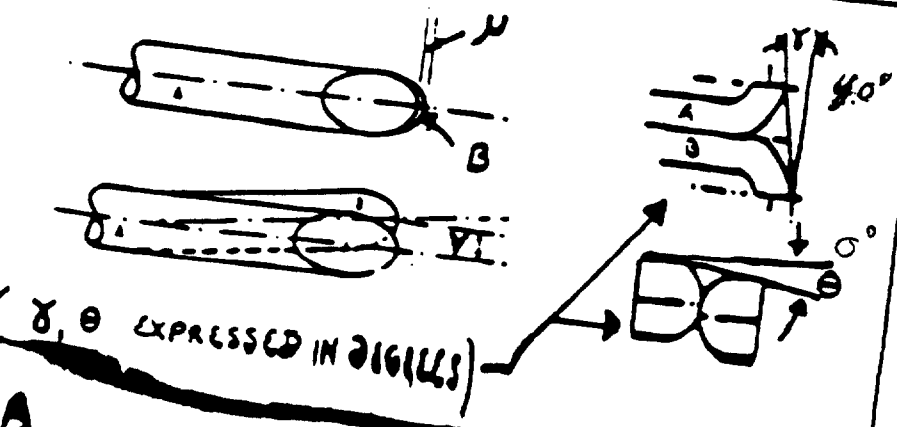
③



1.05 D_t < B < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

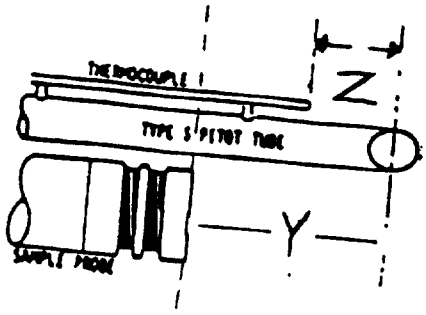
X = 0.781
X ≥ 0.750"
(3/4" using 1/2" nozzle)
Y = 5.844
Y ≥ 3.0"
Z = 2.265
Z > 2.0"
D_t = 0.377
D_t > .1875" to .375"
(3/16" to 3/8")

④

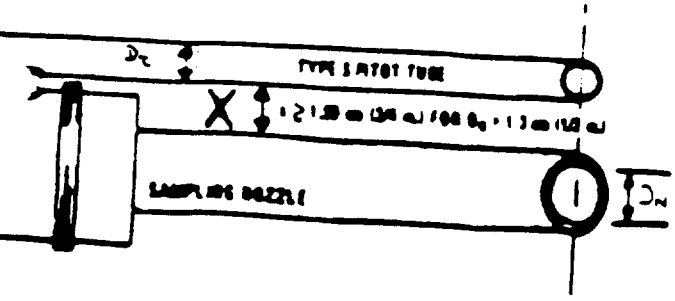


(γ, θ EXPRESSED IN DEGREES)

⑥



⑤



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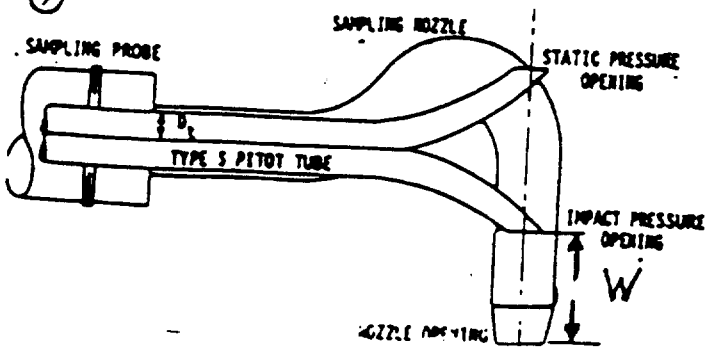
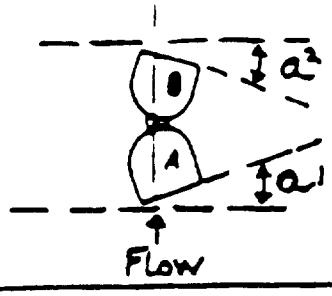


GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68
Precheck
Post Check ✓

Probe #: 5-2
Date: 12-11-92
Initials: TMT

①

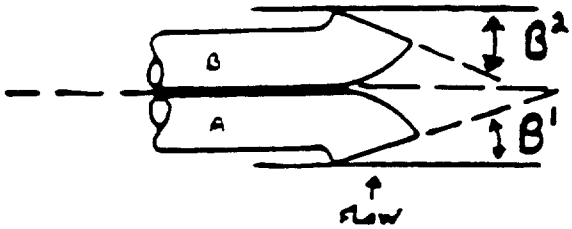


a^1 = 2.0
a^2 = 2.5
$a^1, a^2 = <10°$

B^1 = 3.0
B^2 = 0
$B^1, B^2, = <5°$

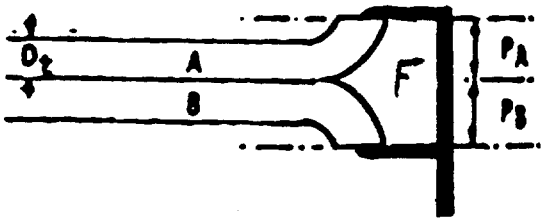
F = 0.996"

②



μ = 0 — μ = ≤ 0.1250" (μ = F TAN γ
V = 0 — V = ≤0.03125" (V = F TAN θ
W = 0.231 — W ≥ 0"

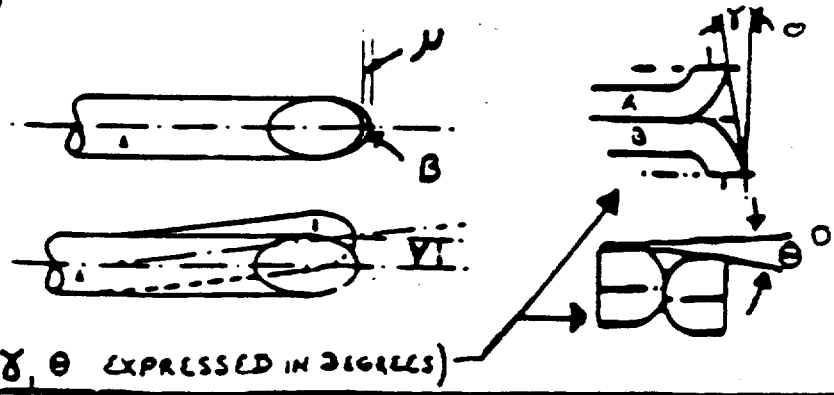
③



1.05 D_t < A < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

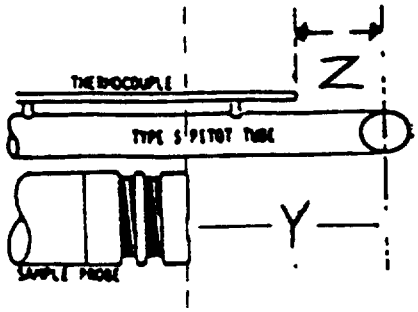
X = 0.789 — X ≥ 0.750" (3/4" using 1/2" nozzle)
Y = 6.029 — Y ≥ 3.0"
Z = 3.502 — Z > 2.0"
D_t = 0.374 — D_t > .1875" to .375" (3/16" to 3/8")

④

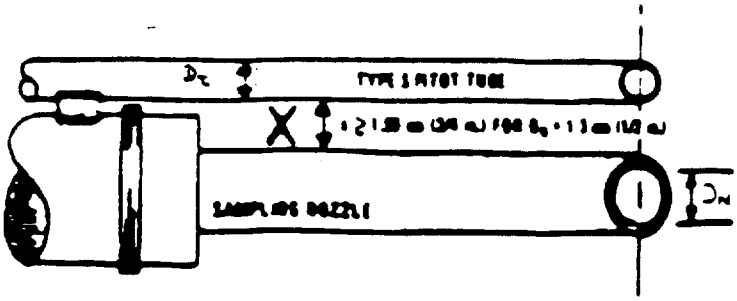


(γ, θ EXPRESSED IN DEGREES)

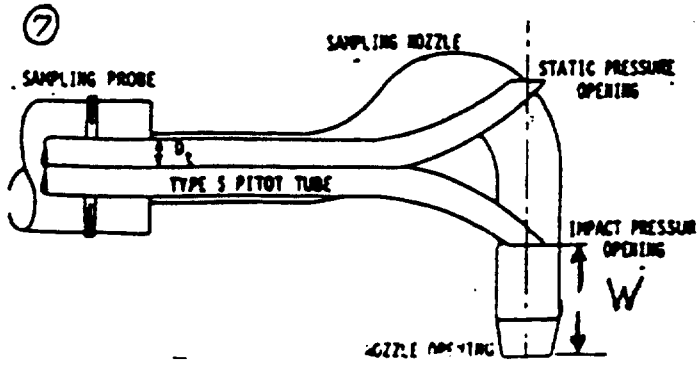
⑥



⑤



⑦

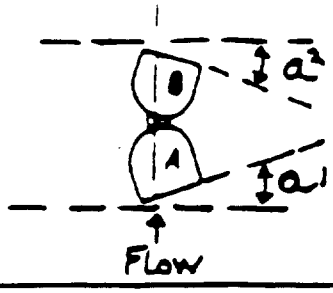


GEOMETRIC PITOT CALIBRATION

Caliper # XCF-59
Precheck ✓
Post Check

Probe #: 5-3
Date: 2-27-92
Initials: [illegible]

①

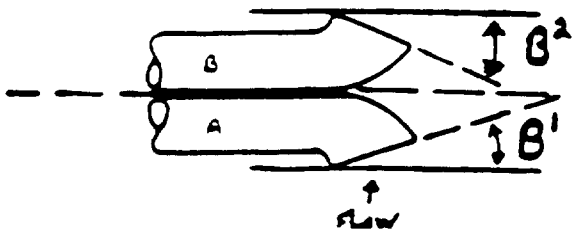


a¹ = 1.0°
a² = 1.5°
a¹, a² = <10°

B¹ = 0°
B² = 1.5°
B¹, B², = <5°

F = 0.869"

②



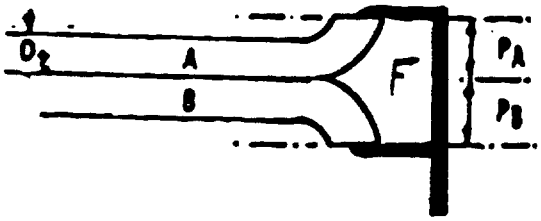
μ = 0 — μ = ≤ 0.1250" (μ = F TAN γ)

V = 0 — V = ≤0.03125" (V = F TAN θ)

W = 0.495 — W ≥ 0"

X = 0.775 — X ≥ 0.750" (3/4" using 1/2" nozzle)

③



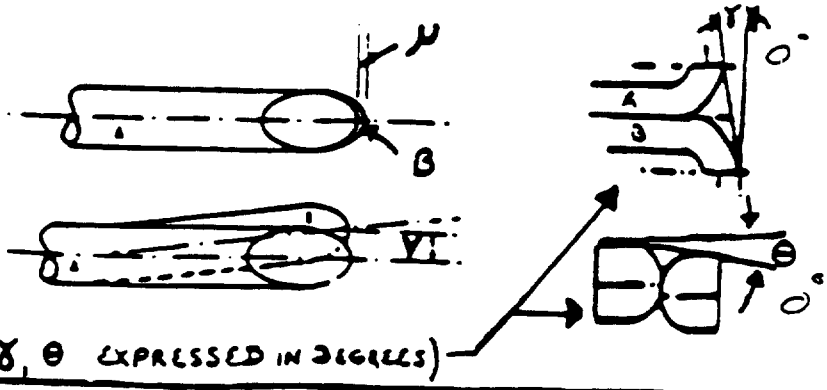
1.05 D_t < A < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

Y = 5.678 — Y ≥ 3.0"

Z = 2.120 — Z > 2.0"

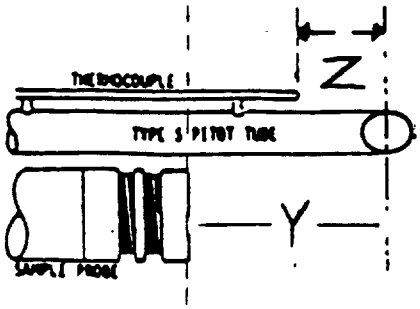
D_t = 0.375 — D_t > .1875" to .375" (3/16" to 3/8")

④

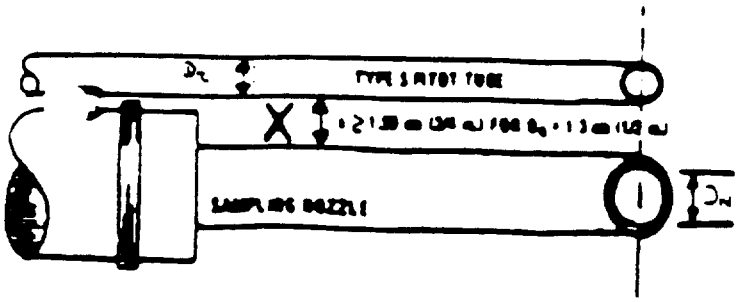


(γ, θ EXPRESSED IN DEGREES)

⑥



⑤



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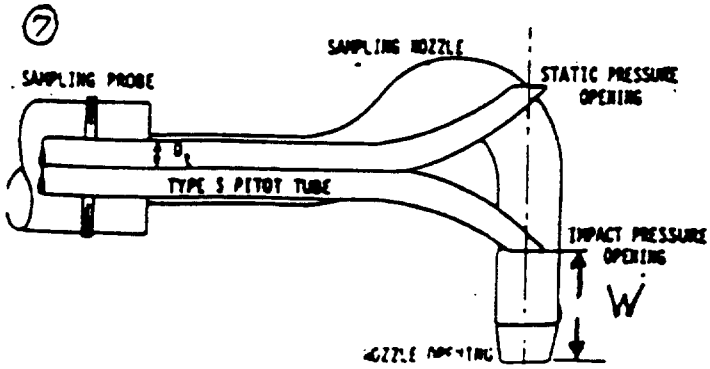
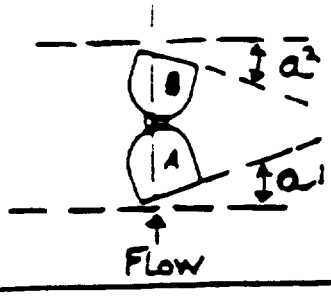


GEOMETRIC PITOT CALIBRATION

Caliper # XFJ-68
Precheck
Post Check K

Probe #: 5-3
Date: 12-11-92
Initials: KM

①

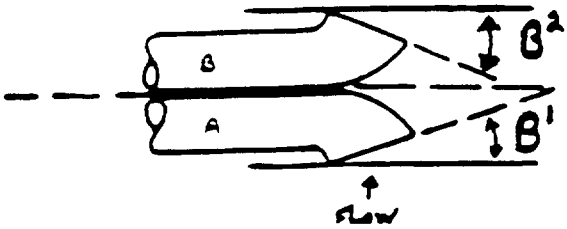


a^1 = 0
a^2 = 3.0
a^1, a^2 = <10°

B^1 = 1.0
B^2 = 1.0
B^1, B^2, = <5°

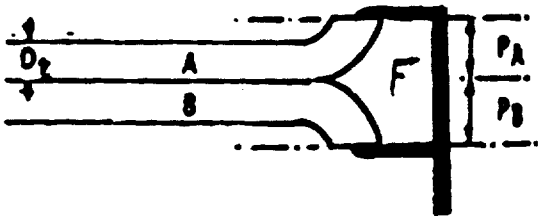
F = 0.875"

②



μ = 0.0152 — μ = ≤ 0.1250" (μ = F TAN γ)
V = 0.0305 — V = ≤0.03125" (V = F TAN θ)
W = 0.405 — W ≥ 0"
X = 0.879 — X ≥ 0.750" (3/4" using 1/2" nozzle)

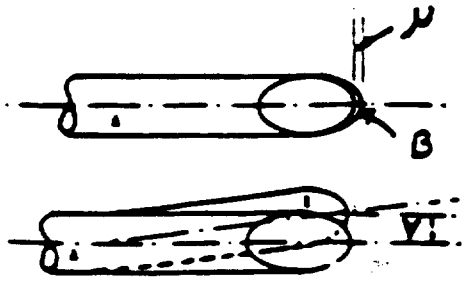
③

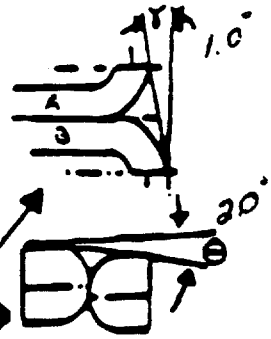


1.05 D_t < A < 1.50 D_t
P_A = P_B
2.10 D_t < A < 3.00 D_t

Y = 5.656 — Y ≥ 3.0"
Z = 2.051 — Z > 2.0"
D_t = 0.376 — D_t > .1875" to .375" (3/16" to 3/8")

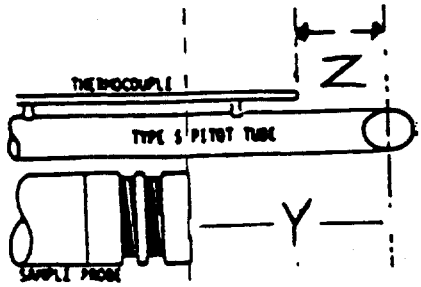
④



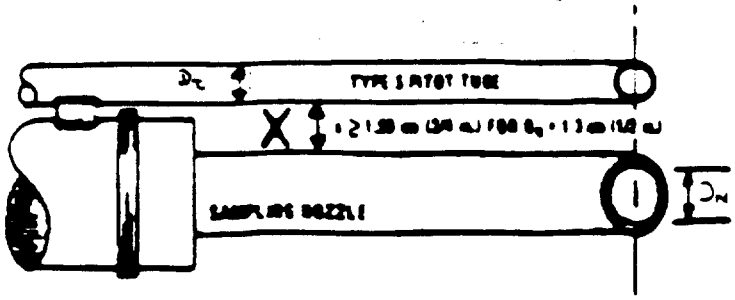


(γ, θ EXPRESSED IN DEGREES)

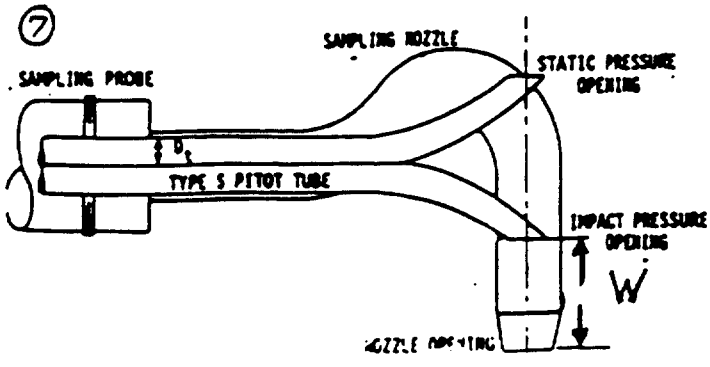
⑥



⑤



⑦

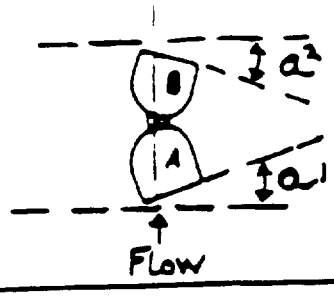


GEOMETRIC PITOT CALIBRATION

Caliper # XCF-59
Precheck ✓
Post Check

Probe #: 5-4
Date: 2-27-92
Initials: TAM

①

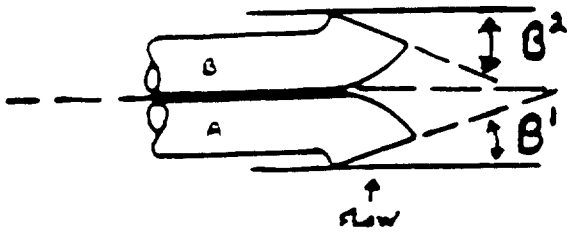


a¹ = 1.0°
a² = 2.5°
a¹, a² = <10°

B¹ = 1.5°
B² = 0.5°
B¹, B², = <5°

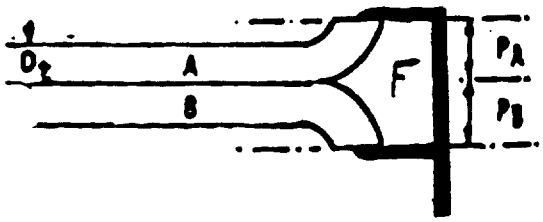
F = 0.854"

②



μ = 0.0149 — μ = ≤ 0.1250" (μ = F TAN γ)
V = 0.0074 — V = ≤0.03125" (V = F TAN θ)
W = 0.741 — W ≥ 0"
X = 0.762 — X ≥ 0.750" (3/4" using 1/2" nozzle)

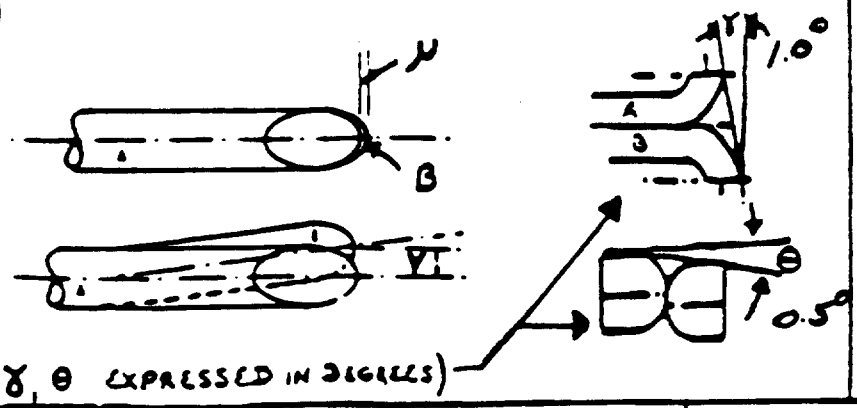
③



1.05 D_t < P < 1.50 D_t
P_A = P_B
2.10 D_t < A < 3.00 D_t

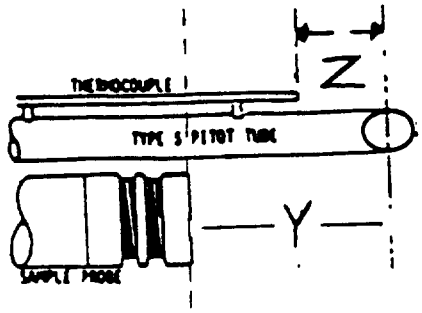
Y = 5.826 — Y ≥ 3.0"
Z = 2.831 — Z > 2.0"
D_t = 0.376 — D_t > .1875" to .375" (3/16" to 3/8")

④

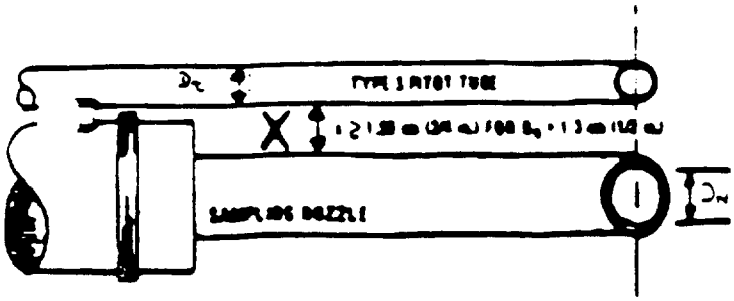


(γ, θ EXPRESSED IN DEGREES)

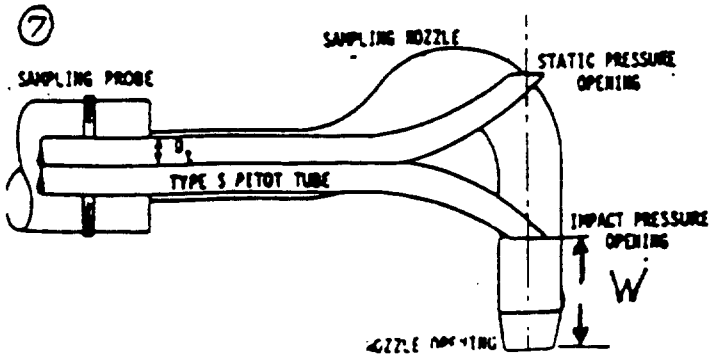
⑥



⑤



⑦

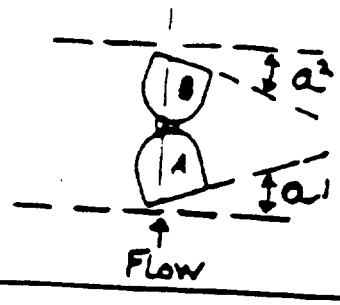


GEOMETRIC PITOT CALIBRATION

Caliper # XP5.68
Precheck
Post Check ✓

Probe #: 5.4
Date: 12.11.92
Initials: ZM

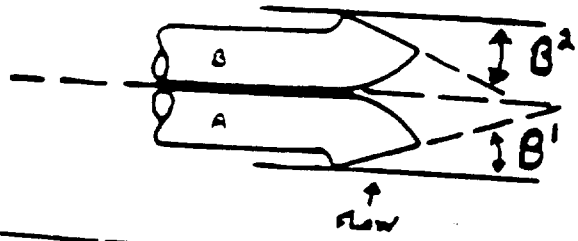
①



a¹ = 1.0
a² = 3.0 — a¹, a² = <10°

B¹ = 2.0
B² = 1.0 — B¹, B², = <5°

②



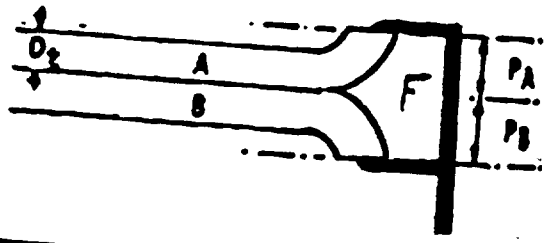
F = 0.869 "

μ = 0.0151 — μ = ≤ 0.1250" (μ = F TAN γ)

V = 0.0151 — V = ≤0.03125" (V = F TAN θ)

W = 0.464 — W ≥ 0 "

③



1.05 D_t < A < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

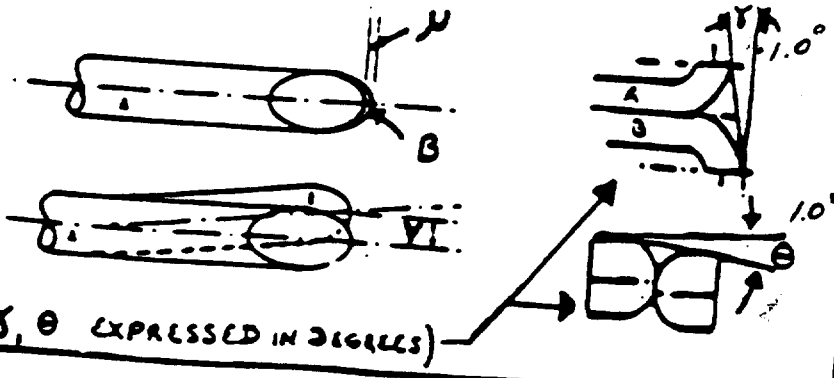
X = 0.791 — X ≥ 0.750" (3/4" using 1/2" nozzle)

Y = 5.671 — Y ≥ 3.0"

Z = 2.104 — Z > 2.0"

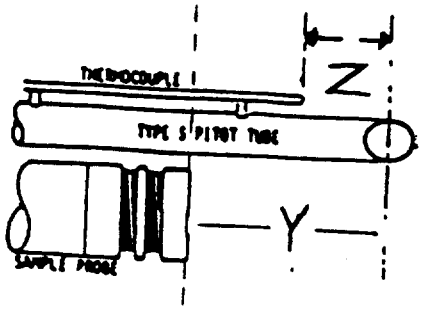
D_t = 0.371 — D_t > .1875" to .375" (3/16" to 3/8")

④

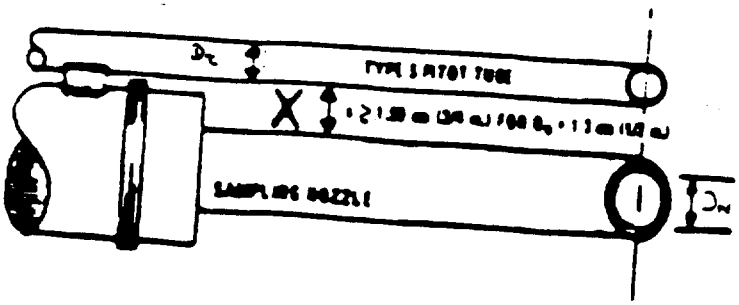


(γ, θ EXPRESSED IN DEGREES)

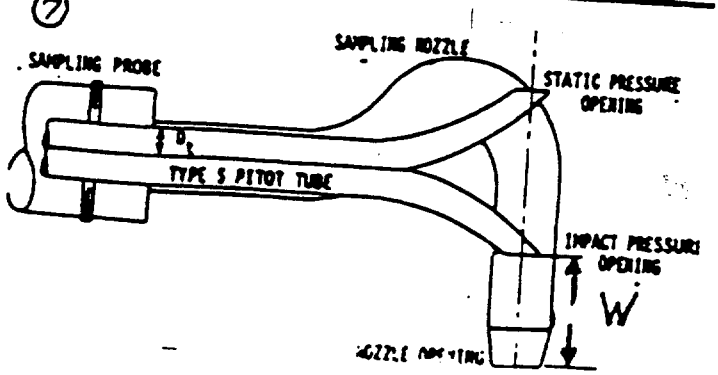
⑥



⑤



⑦



COMPLIANCE DEMONSTRATION
7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL

USS CLAIRTON WORKS
CLAIRTON, PA

APPENDIX D

ANALYTICAL RESULTS, EMISSIONS CALCULATIONS

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

ANALYTICAL REPORTING FORM

CLIENT: USX-Clairton Steel
PLANT LOCATION: Battery PEC
PROJECT NUMBER: 300197-01
UNIT TESTED: 7-9 Battery PEC

TEST DATE: 12/8-12/10/92
DATE RECEIVED: 12/10/92
DATE ANALYZED: 12/10+12/18/92
ANALYTICAL METHOD:

Test Number	Filter ID Number	Component	Cyclone Weight Units ( )	Filter Weight Units (grams)	Soluble Portion of Front Half H2O Rinse Units (grams)	Soluble Portion of Front Half Acetone Rinse Units (grams)	Soluble Portion of Back Half H2O Rinse Units (grams)	Soluble Portion of Back Half Acetone Rinse Units (grams)	0.22μm Filter Insoluble Portion of Back Half H2O Rinse Units (grams)
CLR-2-1-1	Q154	Particulate		0.0060	0.1456	0.0328	0.0070	0.0041	0.0012
CLR-2-2-1	Q161	Particulate		0.0006	0.0159	0.0020	0.1727	0.0048	0.0010
CLR-2-3-1	Q160	Particulate		0.0002	0.0040	0.0034	0.0078	0.0055	0.0011
CLR-2-4-1	Q159	Particulate		0.0003	0.0028	0.0044	0.0289	0.0045	0.0003
CLR-2-1-2	Q162	Particulate		0.0030	0.0697	0.0161	0.0022	0.0055	0.0002
CLR-2-2-2	Q165	Particulate		0.0002	0.0019	0.0024	0.0034	0.0009	0.0005
CLR-2-3-2	Q163	Particulate		0.0001	0.0012	0.0011	0.0906	0.0038	0.0008
CLR-2-4-2	Q164	Particulate		0.0017	0.0016	0.0037	0.0024	0.0045	0.0013
CLR-2-1-3	Q166	Particulate		0.0023	0.0158	0.0562	0.0060	0.0027	0.0003
CLR-2-2-3	Q168	Particulate		0.0005	0.0021	0.0026	0.0043	0.0016	0.0003
CLR-2-3-3	Q169	Particulate		0.0009	0.0049	0.0047	0.0121	0.0046	0.0002
CLR-2-4-3	Q167	Particulate		0.0008	0.0025	0.0039	0.0033	0.0051	0.0005

Analyst's Signature: Patrick J. Stockton
Date: 12/30/92

Comments

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-1

DATE: 12-8-92
CHARGE #: ...150-300197
TEST #: CLR-2-1-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.07395	14.32246

---

2. STACK CONDITIONS

FLOW (ACFM)	24408.
(SCFM)	22842.
MOISTURE CONTENT (%)	1.07
STACK TEMPERATURE (F)	99.0

---

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	38.653
PERCENT ISOKINETIC	114.04

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-1-1 12-8-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	719.969	.800	.81	.81	37.	37.	3.0	95.	51.7
33.6			1.200	1.22	1.22	37.	37.	3.0	95.	63.4
31.7			1.200	1.22	1.22	37.	35.	3.0	99.	63.6
29.6			1.200	1.21	1.21	37.	35.	3.0	95.	63.4
27.0			1.400	1.43	1.43	39.	35.	3.0	97.	68.6
23.2			1.200	1.22	1.22	39.	35.	3.0	97.	63.5
12.8			.800	.82	.82	39.	35.	3.0	99.	51.9
9.0			.800	.82	.82	39.	35.	3.0	97.	51.8
6.4			.800	.82	.82	39.	37.	3.0	99.	51.9
4.3			.800	.82	.82	39.	37.	3.0	93.	51.6
2.4			.800	.82	.82	39.	37.	3.0	92.	51.6
1.0W			.800	.82	.82	40.	37.	3.0	88.	51.4
1.0W			.800	.82	.82	40.	37.	3.0	88.	51.4
2.4			.800	.82	.82	39.	37.	3.0	86.	51.3
4.3			.800	.82	.82	39.	37.	3.0	92.	51.6
6.4			.800	.81	.81	40.	37.	3.0	101.	52.0
9.0			.800	.81	.81	40.	38.	3.0	101.	52.0
12.8			.800	.81	.81	39.	39.	3.0	105.	52.2
23.2			1.200	1.22	1.22	42.	39.	3.0	95.	63.4
27.0			1.400	1.42	1.42	43.	39.	3.5	99.	68.7
29.6			1.200	1.22	1.22	42.	39.	3.0	100.	63.6
31.7			1.300	1.31	1.31	42.	39.	3.5	99.	66.2
33.6			1.500	1.51	1.51	43.	39.	3.5	99.	71.1
35.0W			1.200	1.21	1.21	41.	39.	3.0	100.	63.6
35.0W			.800	.81	.81	41.	40.	2.5	101.	52.0
33.6			.800	.81	.81	41.	39.	2.5	105.	52.2
31.7			1.200	1.21	1.21	39.	39.	3.0	100.	63.6
29.6			1.200	1.21	1.21	40.	39.	3.0	105.	63.9
27.0			1.200	1.21	1.21	41.	39.	3.0	100.	63.6
23.2			1.000	1.01	1.01	42.	39.	3.0	102.	58.2
12.8			1.000	1.01	1.01	41.	39.	3.0	105.	58.4
9.0			.800	.81	.81	41.	39.	2.5	105.	52.2
6.4			.800	.81	.81	40.	39.	2.5	104.	52.1
4.3			.800	.81	.81	40.	39.	2.5	91.	51.5
2.4			.800	.81	.81	40.	39.	2.5	88.	51.4
1.0W			.800	.81	.81	40.	39.	2.5	88.	51.4
35.0S			.800	.81	.81	41.	39.	2.5	100.	52.0
33.6			.800	.81	.81	41.	39.	2.5	104.	52.1
31.7			1.200	1.21	1.21	44.	40.	3.0	101.	63.7
29.6			1.000	1.01	1.01	44.	40.	2.5	102.	58.2
27.0			1.000	1.01	1.01	42.	40.	2.5	104.	58.3
23.2			1.000	1.01	1.01	42.	40.	2.5	104.	58.3
12.8			1.000	1.01	1.01	41.	40.	2.5	104.	58.3
9.0			1.000	1.01	1.01	41.	40.	2.5	103.	58.2

6.4			.800	.81	.81	41.	39.	2.5	105.	52.2
4.3			.800	.81	.81	40.	39.	2.5	103.	52.1
2.4			1.200	1.21	1.21	41.	39.	2.5	88.	63.0
1.0S			1.200	1.21	1.21	40.	39.	2.5	88.	63.0
1.0S			1.200	1.21	1.21	41.	39.	3.0	92.	63.2
2.4			.800	.81	.81	43.	40.	2.5	89.	51.4
4.3			1.200	1.21	1.21	42.	40.	3.0	100.	63.6
6.4			.800	.81	.81	43.	40.	2.5	104.	52.1
9.0			.800	.81	.81	42.	40.	2.5	105.	52.2
12.8			.800	.81	.81	42.	40.	2.5	105.	52.2
23.2			1.200	1.20	1.20	43.	40.	3.0	107.	64.0
27.0			1.000	1.00	1.00	44.	40.	3.0	105.	58.4
29.6			1.200	1.20	1.20	44.	41.	3.0	105.	63.9
31.7			1.000	1.00	1.00	42.	40.	3.0	107.	58.5
33.6			1.200	1.20	1.20	42.	40.	3.5	105.	63.9
35.0S	930.0	757.551	1.000	1.00	1.00	42.	40.	3.0	105.	58.4

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	2.3
	2	.3
	3	-.2
	4	.0
ABSORBED H2O		6.5

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.830	11-25-92
METER	0.9807	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

		RATE	IN.HG
INITIAL	LT	.009CFM	5.0
FINAL	LT	.004CFM	5.0

CONTROL BOX NO. 6 PROBE NO. 5-1 NOZZLE NO. 22

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-1-1 — 12-8-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.	29.60
B.	AVG. DELTA H (IN H2O)	1.01
C.	METER PRESSURE (IN. HG.)	29.67
D.	STATIC PRESSURE (IN. H2O)	.60
E.	STATIC PRESSURE (IN. HG.)	.044
F.	STACK PRESSURE (IN. HG.) (A+E)	29.64
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.1800
I.	NOZZLE AREA (SQ. FT.)	.000177
J.	AVG. STACK TEMP (DEG. R.)	559.0
K.	AVG. METER TEMP (DEG. R.)	499.7
L.	CONDENSATE VOL. (ML)	2.4
M.	ABSORBED H2O (ML)	6.5
N.	TOTAL H2O (ML)	8.9
O.	METERED GAS (CF)	37.582
P.	GAS METER CORRECTION	.9807
Q.	CORRECTED METERED GAS (CF)	36.857
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.400
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	37.257
T.	PERCENT H2O (100R/S)	1.07
	THEORETICAL MAXIMUM	6.33
	PERCENT WATER USED	1.07
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	38.653
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9893	X	44.0	=	.00
CO	.000	X	.9893	X	28.0	=	.00
O2	.205	X	.9893	X	32.0	=	6.49
N2	.795	X	.9893	X	28.2	=	22.18
H2O		X	T/100= .0107	X	18.0	=	.19
					MOLECULAR WEIGHT OF STACK GAS	=	28.86

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	57.55
Y.	AVG. FLOW RATE (CFM) (X*H*60)	24408.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	22842.
	STACK FLOW RATE (DRY)	22597.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	114.04

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-1-1 12-8-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00600	.00000	.17840

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00120	.01110

PARTICULATE	.19670
ALL MATLS.	.19670

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.07395	14.32246

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-2

DATE: 12-8-92
CHARGE #: ...150-300197
TEST #: CLR-2-2-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00580	1.23425

2. STACK CONDITIONS

FLOW (ACFM)	26311.
(SCFM)	25104.
MOISTURE CONTENT (%)	1.16
STACK TEMPERATURE (F)	89.1

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	51.747
PERCENT ISOKINETIC	98.36

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
CLR-2-2-1

7,8,9 BATTERY PEC
12-8-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	373.052	1.100	2.18	2.18	48.	50.	7.5	87.	60.2
33.6			1.200	2.38	2.38	46.	50.	8.0	87.	62.9
31.7			1.200	2.38	2.38	47.	49.	8.5	88.	62.9
29.6			1.200	2.45	2.45	48.	49.	9.0	87.	62.9
27.0			1.200	2.45	2.45	48.	47.	9.0	86.	62.8
23.2			1.100	2.24	2.24	48.	48.	8.0	89.	60.3
12.8			1.200	2.45	2.45	47.	48.	9.0	87.	62.9
9.0			1.100	2.24	2.24	47.	48.	8.0	87.	60.2
6.4			1.200	2.45	2.45	49.	48.	9.0	88.	62.9
4.3			1.200	2.45	2.45	48.	48.	9.0	85.	62.7
2.4			1.100	2.24	2.24	49.	49.	8.0	85.	60.1
1.0W			1.100	2.24	2.24	49.	50.	8.0	84.	60.0
1.0W			1.100	2.24	2.24	48.	49.	8.0	85.	60.1
2.4			1.200	2.45	2.45	49.	49.	9.0	85.	62.7
4.3			1.200	2.45	2.45	48.	48.	9.0	85.	62.7
6.4			1.200	2.45	2.45	48.	48.	9.0	90.	63.0
9.0			1.200	2.45	2.45	48.	50.	9.0	91.	63.1
12.8			1.200	2.45	2.45	48.	49.	9.0	88.	62.9
23.2			1.100	2.24	2.24	48.	48.	8.0	86.	60.1
27.0			1.100	2.24	2.24	48.	48.	8.0	87.	60.2
29.6			1.100	2.24	2.24	48.	49.	8.0	87.	60.2
31.7			1.200	2.45	2.45	50.	50.	9.0	87.	62.9
33.6			1.100	2.24	2.24	50.	50.	8.0	90.	60.3
35.0W			1.200	2.45	2.45	51.	51.	9.0	92.	63.1
35.0W			1.100	2.24	2.24	51.	52.	8.0	89.	60.3
33.6			1.100	2.24	2.24	51.	51.	8.0	90.	60.3
31.7			1.100	2.24	2.24	52.	52.	8.0	89.	60.3
29.6			1.200	2.45	2.45	52.	53.	9.0	89.	63.0
27.0			1.200	2.45	2.45	53.	52.	9.0	92.	63.1
23.2			1.200	2.45	2.45	52.	51.	9.0	93.	63.2
12.8			1.200	2.45	2.45	52.	52.	9.0	92.	63.1
9.0			1.200	2.45	2.45	51.	52.	9.0	91.	63.1
6.4			1.200	2.45	2.45	52.	52.	9.0	90.	63.0
4.3			1.200	2.45	2.45	52.	51.	9.0	83.	62.6
2.4			1.200	2.45	2.45	52.	53.	8.0	84.	60.0
1.0W			1.100	2.24	2.24	52.	52.	8.0	84.	60.0
35.0S			1.100	2.24	2.24	52.	52.	9.0	89.	63.0
33.6			1.200	2.45	2.45	53.	52.	9.0	90.	63.0
31.7			1.200	2.45	2.45	52.	53.	9.0	89.	63.0
29.6			1.200	2.45	2.45	52.	53.	9.0	89.	63.0
27.0			1.200	2.45	2.45	52.	53.	9.0	89.	63.0
23.2			1.200	2.45	2.45	52.	53.	9.0	91.	63.1
12.8			1.100	2.24	2.24	52.	55.	8.0	91.	60.4
9.0			1.200	2.45	2.45	51.	54.	9.0	92.	63.1

6.4			1.200	2.45	2.45	51.	54.	9.0	90.	63.0
4.3			1.200	2.45	2.45	51.	52.	9.0	90.	63.0
2.4			1.200	2.45	2.45	52.	52.	9.0	90.	63.0
1.0S			1.000	2.04	2.04	52.	52.	8.0	89.	57.5
1.0S			1.100	2.24	2.24	51.	53.	8.0	90.	60.3
2.4			1.200	2.45	2.45	52.	52.	9.0	90.	63.0
4.3			1.100	2.24	2.24	53.	51.	8.0	93.	60.5
6.4			1.200	2.45	2.45	54.	53.	9.0	94.	63.3
9.0			1.200	2.45	2.45	51.	55.	9.0	94.	63.3
12.8			1.100	2.24	2.24	53.	52.	8.0	93.	60.5
23.2			1.200	2.45	2.45	52.	54.	9.0	92.	63.1
27.0			1.200	2.45	2.45	53.	53.	9.0	92.	63.1
29.6			1.200	2.45	2.45	54.	53.	9.0	93.	63.2
31.7			1.200	2.45	2.45	52.	55.	9.0	93.	63.2
33.6			1.200	2.45	2.45	55.	52.	9.0	92.	63.1
35.0S	930.0	424.675	1.200	2.45	2.45	51.	54.	9.0	91.	63.1

O R S A T				
CO2	.0	IMPINGER NO.	1	6.0
O2	20.5		2	-1.6
CO	.0		3	.1
N	79.5		4	.0
		ABSORBED H2O		8.4

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.779	11-25-92
METER	0.9739	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

		RATE	IN.HG
INITIAL	LT	.015CFM	5.0
FINAL	LT	.006CFM	9.0

CONTROL BOX NO. 4 PROBE NO. 5-2 NOZZLE NO. 45

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-2-1 12-8-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.60
B.	AVG. DELTA H (IN H2O).....	2.38
C.	METER PRESSURE (IN. HG.).....	29.77
D.	STATIC PRESSURE (IN. H2O).....	1.20
E.	STATIC PRESSURE (IN. HG.).....	.088
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.69
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.2140
I.	NOZZLE AREA (SQ. FT.).....	.000250
J.	AVG. STACK TEMP (DEG. R.).....	549.1
K.	AVG. METER TEMP (DEG. R.).....	510.8
L.	CONDENSATE VOL. (ML).....	4.5
M.	ABSORBED H2O (ML).....	8.4
N.	TOTAL H2O (ML).....	12.9
O.	METERED GAS (CF).....	51.623
P.	GAS METER CORRECTION.....	.9739
Q.	CORRECTED METERED GAS (CF).....	50.276
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.591
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	50.867
T.	PERCENT H2O (100R/S).....	1.16
	THEORETICAL MAXIMUM.....	4.64
	PERCENT WATER USED.....	1.16
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	51.747
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9884	X	44.0	=	.00
CO	.000	X	.9884	X	28.0	=	.00
O2	.205	X	.9884	X	32.0	=	6.48
N2	.795	X	.9884	X	28.2	=	22.16
H2O		X	T/100= .0116	X	18.0	=	.21
					MOLECULAR WEIGHT OF STACK GAS	=	28.85

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS)..... [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	62.04
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	26311.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	25104.
	STACK FLOW RATE (DRY).....	24813.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC..... (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	98.36

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-2-1 — 12-8-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00060	.00000	.01790

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00100	.17750
PARTICULATE	.19700	
ALL MATLS.	.19700	

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00580	1.23425

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-3

DATE: 12-8-92
CHARGE #: ...150-300197
TEST #: CLR-2-3-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00374	.86098

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2. STACK CONDITIONS

FLOW (ACFM)	29128.
(SCFM)	27208.
MOISTURE CONTENT (%)	1.30
STACK TEMPERATURE (F)	100.9

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	35.819
PERCENT ISOKINETIC	62.91

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-1 12-8-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY)CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FFT/SEC
35.0W	830.0	289.165	1.200	.80	.80	54.	45.	4.0	99.	63.6
33.6			1.600	1.06	1.06	55.	45.	4.0	100.	73.5
31.7			1.700	1.13	1.13	53.	44.	4.0	98.	75.6
29.6			1.600	1.06	1.06	54.	43.	4.0	98.	73.3
27.0			1.500	1.00	1.00	54.	43.	3.5	99.	71.1
23.2			1.400	.93	.93	55.	43.	3.5	100.	68.7
12.8			1.400	.93	.93	53.	43.	3.5	100.	68.7
9.0			1.500	1.00	1.00	55.	43.	3.5	101.	71.2
6.4			1.400	.93	.93	53.	43.	3.0	100.	68.7
4.3			1.300	.86	.86	55.	44.	3.0	101.	66.3
2.4			1.200	.80	.80	54.	43.	3.0	95.	63.3
1.0W			1.300	.86	.86	54.	43.	3.5	92.	65.7
1.0W			1.300	.80	.80	56.	43.	3.0	93.	65.8
2.4			1.400	.93	.93	55.	44.	3.5	99.	68.7
4.3			1.500	1.00	1.00	55.	44.	3.5	105.	71.4
6.4			1.500	1.00	1.00	56.	44.	3.5	104.	71.4
9.0			1.400	.93	.93	56.	44.	3.5	101.	68.8
12.8			1.600	1.06	1.06	56.	44.	4.0	102.	73.6
23.2			1.300	.86	.86	57.	44.	3.0	100.	66.2
27.0			1.400	.93	.93	57.	44.	3.5	98.	68.6
29.6			1.300	.86	.86	58.	45.	3.0	100.	66.2
31.7			1.500	1.00	1.00	58.	46.	4.0	102.	71.3
33.6			1.200	.80	.80	58.	46.	3.0	101.	63.7
35.0W			1.300	.86	.86	58.	46.	3.0	102.	66.3
35.0W			1.200	.80	.80	57.	46.	3.0	102.	63.7
33.6			1.400	.93	.93	57.	46.	3.5	103.	68.9
31.7			1.600	1.06	1.06	57.	46.	4.0	101.	73.5
29.6			1.500	1.00	1.00	56.	45.	4.0	101.	71.2
27.0			1.500	1.00	1.00	57.	45.	4.0	102.	71.3
23.2			1.600	1.06	1.06	59.	46.	4.0	103.	73.7
12.8			1.500	1.00	1.00	56.	46.	3.5	103.	71.3
9.0			1.300	.86	.86	57.	46.	3.0	105.	66.5
6.4			1.400	.93	.93	57.	45.	3.5	102.	68.8
4.3			1.600	1.06	1.06	57.	46.	4.0	100.	73.5
2.4			1.500	1.00	1.00	57.	45.	4.0	101.	71.2
1.0W			1.600	1.06	1.06	57.	45.	4.0	100.	73.5
35.0S			1.500	1.00	1.00	57.	46.	4.0	102.	71.3
33.6			1.700	1.13	1.13	58.	46.	4.0	102.	75.9
31.7			1.600	1.06	1.06	58.	46.	4.0	102.	73.6
29.6			1.700	1.13	1.13	59.	46.	4.0	100.	75.7
27.0			1.400	.93	.93	58.	46.	3.5	103.	68.9
23.2			1.600	1.06	1.06	59.	47.	4.0	103.	73.7
12.8			1.200	.80	.80	59.	47.	3.0	102.	63.7
9.0			1.300	.86	.86	57.	46.	3.0	98.	66.1

6.4			1.100	.73	.73	57.	46.	3.0	89.	60.3
4.3			1.300	.86	.86	57.	46.	3.0	103.	66.4
2.4			1.100	.73	.73	57.	45.	3.0	100.	60.9
1.0S			1.100	.73	.73	56.	45.	3.0	100.	60.9
1.0S			1.100	.73	.73	57.	45.	3.0	100.	60.9
2.4			1.100	.73	.73	57.	46.	3.0	102.	61.0
4.3			1.100	.73	.73	57.	46.	3.0	102.	61.0
6.4			1.200	.80	.80	56.	46.	3.0	105.	63.9
9.0			1.200	.80	.80	57.	46.	3.0	104.	63.8
12.8			1.300	.86	.86	56.	46.	3.0	103.	66.4
23.2			1.300	.86	.86	58.	46.	3.0	103.	66.4
27.0			1.600	1.06	1.06	59.	46.	4.0	102.	73.6
29.6			1.550	1.03	1.03	61.	47.	4.0	105.	72.6
31.7			1.500	1.00	1.00	60.	47.	4.0	104.	71.4
33.6			1.500	1.00	1.00	60.	46.	4.0	104.	71.4
35.0S	930.0	322.410	1.550	1.03	1.03	59.	46.	4.0	102.	72.4

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	1.0
	2	2.1
	3	.4
	4	.0
ABSORBED H2O		6.5

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.638	07-31-92
METER	1.0507	07-31-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL	LT 0.01CFM	5.0
FINAL	LT 0.01CFM	5.0

CONTROL BOX NO. 2 PROBE NO. 5-4 NOZZLE NO. 54

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-1 12-8-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.60
B.	AVG. DELTA H (IN H2O)	.93
C.	METER PRESSURE (IN. HG.)	29.67
D.	STATIC PRESSURE (IN. H2O)	1.20
E.	STATIC PRESSURE (IN. HG.)	.088
F.	STACK PRESSURE (IN. HG.) (A+E)	29.69
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.2140
I.	NOZZLE AREA (SQ. FT.)	.000250
J.	AVG. STACK TEMP (DEG. R.)	560.9
K.	AVG. METER TEMP (DEG. R.)	510.9
L.	CONDENSATE VOL. (ML)	3.5
M.	ABSORBED H2O (ML)	6.5
N.	TOTAL H2O (ML)	10.0
O.	METERED GAS (CF)	33.245
P.	GAS METER CORRECTION	1.0507
Q.	CORRECTED METERED GAS (CF)	34.931
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.460
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	35.390
T.	PERCENT H2O (100R/S)	1.30
	THEORETICAL MAXIMUM	6.71
	PERCENT WATER USED	1.30
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	35.819
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9870	X	44.0	=	.00
CO	.000	X	.9870	X	28.0	=	.00
O2	.205	X	.9870	X	32.0	=	6.47
N2	.795	X	.9870	X	28.2	=	22.13
H2O		X	T/100= .0130	X	18.0	=	.23
					MOLECULAR WEIGHT OF STACK GAS	=	28.84

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	68.68
Y.	AVG. FLOW RATE (CFM) (X*H*60)	29128.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	27208.
	STACK FLOW RATE (DRY)	26854.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	62.91

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-1 12-8-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00020	.00000	.00740

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00110	.01330

PARTICULATE	.02200
ALL MATLS.	.02200

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00374	.86098

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-4

DATE: 12-8-92
CHARGE #: ...150-300197
TEST #: CLR-2-4-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00216	.52899

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2. STACK CONDITIONS

FLOW (ACFM)	30479.
(SCFM)	28909.
MOISTURE CONTENT (%)	.96
STACK TEMPERATURE (F)	92.1

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	55.725
PERCENT ISOKINETIC	129.76

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-4-1 — 12-8-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY)CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	34.695	2.000	2.97	2.97	45.	42.	5.0	95.	81.7
33.6			2.000	2.83	2.83	45.	43.	5.0	99.	82.0
31.7			2.200	3.11	3.11	46.	43.	5.0	93.	85.6
29.6			2.000	2.83	2.83	46.	43.	5.0	96.	81.8
27.0			1.900	2.68	2.68	47.	43.	5.0	93.	79.5
23.2			1.900	2.68	2.68	47.	43.	5.0	100.	80.0
12.8			1.400	1.98	1.93	47.	43.	3.0	92.	68.2
9.0			1.300	1.84	1.84	48.	44.	3.0	96.	66.0
6.4			1.200	1.70	1.70	48.	44.	3.0	94.	63.2
4.3			1.400	1.98	1.98	48.	44.	3.0	95.	68.4
2.4			1.200	1.70	1.70	47.	44.	3.0	80.	62.4
1.0W			1.000	1.41	1.41	48.	44.	2.5	77.	56.8
1.0W			1.000	1.41	1.41	48.	44.	2.5	79.	57.0
2.4			1.200	1.70	1.70	48.	44.	2.5	79.	62.4
4.3			1.400	1.98	1.98	46.	43.	3.5	87.	67.9
6.4			1.200	1.70	1.70	47.	43.	3.0	96.	63.4
9.0			1.500	2.12	2.12	48.	43.	3.5	95.	70.8
12.8			1.400	1.98	1.98	47.	43.	3.5	95.	68.4
23.2			1.500	2.12	2.12	48.	43.	3.5	93.	70.7
27.0			1.600	2.26	2.26	49.	45.	4.0	89.	72.7
29.6			2.000	2.83	2.83	50.	45.	5.0	92.	81.5
31.7			2.400	3.39	3.39	51.	46.	6.0	96.	89.6
33.6			2.200	3.11	3.11	50.	46.	5.5	94.	85.6
35.0W			2.200	3.11	3.11	51.	47.	5.5	97.	85.9
35.0W			2.400	3.39	3.39	52.	47.	5.5	97.	89.7
33.6			2.300	3.25	3.25	52.	47.	5.0	97.	87.8
31.7			2.200	3.11	3.11	52.	47.	5.0	94.	85.6
29.6			2.000	2.83	2.83	52.	48.	5.0	96.	81.8
27.0			2.000	2.83	2.83	52.	48.	4.5	97.	81.9
23.2			1.800	2.54	2.54	53.	48.	4.0	100.	77.9
12.8			1.300	1.84	1.84	52.	48.	3.0	95.	65.9
9.0			1.200	1.70	1.70	52.	48.	3.0	95.	63.3
6.4			1.400	1.98	1.98	51.	47.	3.0	95.	68.4
4.3			1.400	1.98	1.98	50.	48.	3.0	91.	68.1
2.4			1.200	1.70	1.70	51.	47.	3.0	83.	62.6
1.0W			.900	1.27	1.27	51.	48.	2.0	77.	53.9
35.0S			1.400	1.98	1.98	52.	48.	3.0	95.	68.4
33.6			1.800	2.54	2.54	52.	48.	4.5	95.	77.5
31.7			1.600	2.26	2.26	53.	48.	4.0	91.	72.8
29.6			1.800	2.54	2.54	53.	49.	4.0	89.	77.1
27.0			1.600	2.26	2.26	53.	49.	4.0	91.	72.8
23.2			1.400	1.98	1.98	53.	49.	3.0	97.	68.5
12.8			1.300	1.84	1.84	53.	49.	3.0	93.	65.8
9.0			1.600	2.26	2.26	52.	49.	3.0	96.	73.2

6.4			1.300	1.84	1.84	52.	48.	3.0	95.	65.9
4.3			1.200	1.70	1.70	51.	47.	3.0	97.	63.4
2.4			1.300	1.84	1.84	51.	47.	3.0	74.	64.6
1.0S			1.200	1.70	1.70	51.	47.	3.0	79.	62.4
1.0S			1.200	1.70	1.70	51.	47.	3.0	72.	62.0
2.4			1.600	2.26	2.26	53.	48.	3.5	95.	73.1
4.3			1.500	2.12	2.12	52.	47.	3.5	95.	70.8
6.4			1.500	2.12	2.12	51.	47.	3.5	99.	71.0
9.0			1.500	2.12	2.12	51.	47.	3.5	95.	70.8
12.8			1.300	1.84	1.84	52.	47.	3.5	97.	66.0
23.2			1.400	1.98	1.98	52.	48.	3.0	93.	68.3
27.0			1.500	2.12	2.12	53.	48.	4.0	93.	70.7
29.6			2.000	2.83	2.83	53.	48.	5.0	94.	81.7
31.7			1.400	1.98	1.98	52.	48.	4.0	96.	68.4
33.6			1.700	2.40	2.40	52.	47.	4.5	93.	75.2
35.0S	930.0	90.484	1.200	1.70	1.70	51.	47.	3.0	92.	63.1

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	-3.7
	2	4.5
	3	.6
	4	.0
ABSORBED H2O		10.1

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.743	12-07-92
METER	0.9658	12-07-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.015CFM	5.0
FINAL LT	.005CFM	7.0

CONTROL BOX NO. 5 PROBE NO. 5-3 NOZZLE NO. 11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-1 12-8-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.60
B.	AVG. DELTA H (IN H2O).....	2.23
C.	METER PRESSURE (IN. HG.).....	29.76
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.67
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.1800
I.	NOZZLE AREA (SQ. FT.).....	.000177
J.	AVG. STACK TEMP (DEG. R.).....	552.1
K.	AVG. METER TEMP (DEG. R.).....	508.2
L.	CONDENSATE VOL. (ML).....	1.4
M.	ABSORBED H2O (ML).....	10.1
N.	TOTAL H2O (ML).....	11.5
O.	METERED GAS (CF).....	55.789
P.	GAS METER CORRECTION.....	.9658
Q.	CORRECTED METERED GAS (CF).....	53.881
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.524
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	54.405
T.	PERCENT H2O (100R/S).....	.96
	THEORETICAL MAXIMUM.....	5.10
	PERCENT WATER USED.....	.96
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	55.725
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9904	X	44.0	=	.00
CO	.000	X	.9904	X	28.0	=	.00
O2	.205	X	.9904	X	32.0	=	6.50
N2	.795	X	.9904	X	28.2	=	22.20
H2O		X	T/100= .0096	X	18.0	=	.17
					MOLECULAR WEIGHT OF STACK GAS	=	28.87

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	71.86
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	30479.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	28909.
	STACK FLOW RATE (DRY).....	28631.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	129.76
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-1 12-8-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00030	.00000	.00720

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00030	.03340

PARTICULATE	.04120
ALL MATLS.	.04120

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00216	.52899

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-1

DATE: 12-9-92
CHARGE #: ...150-300197
TEST #: CLR-2-1-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.03637	7.08601

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2. STACK CONDITIONS

FLOW (ACFM)	24656.
(SCFM)	22991.
MOISTURE CONTENT (%)	1.14
STACK TEMPERATURE (F)	101.4

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	37.683
PERCENT ISOKINETIC	110.53

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-1-2 12-9-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0S	830.0	758.240	1.000	1.01	1.01	33.	34.	3.0	95.	57.8
33.6			1.000	1.01	1.01	33.	33.	3.0	99.	58.0
31.7			1.000	1.01	1.01	34.	33.	3.0	95.	57.8
29.6			1.200	1.20	1.20	34.	33.	3.0	99.	63.6
27.0			1.200	1.20	1.20	35.	33.	3.5	99.	63.6
23.2			1.000	1.00	1.00	35.	33.	3.0	100.	58.1
12.8			.800	.80	.80	39.	35.	2.5	101.	52.0
9.0			1.000	1.01	1.01	39.	35.	3.0	101.	58.1
6.4			1.000	1.01	1.01	39.	35.	3.0	100.	58.1
4.3			.800	.81	.81	41.	35.	2.5	99.	51.9
2.4			1.000	1.01	1.01	40.	36.	3.0	94.	57.8
1.0S			1.200	1.21	1.21	40.	37.	3.5	94.	63.3
1.0S			1.200	1.21	1.21	40.	37.	3.5	93.	63.2
2.4			.800	.80	.80	40.	38.	2.5	104.	52.1
4.3			1.000	1.00	1.00	40.	39.	3.0	105.	58.3
6.4			1.200	1.21	1.21	39.	37.	3.5	105.	63.9
9.0			1.000	1.00	1.00	39.	37.	3.0	109.	58.5
12.8			.800	.80	.80	41.	39.	3.0	105.	52.2
23.2			1.000	1.00	1.00	40.	39.	3.0	110.	58.6
27.0			1.200	1.20	1.20	40.	39.	3.5	105.	63.9
29.6			1.000	1.00	1.00	41.	39.	3.2	104.	58.3
31.7			1.000	1.00	1.00	41.	39.	3.0	109.	58.5
33.6			1.000	1.00	1.00	40.	39.	3.0	109.	58.5
35.0S			1.000	1.00	1.00	41.	39.	3.0	107.	58.4
35.0S			1.000	1.00	1.00	41.	39.	3.0	109.	58.5
33.6			.800	.80	.80	40.	39.	3.0	109.	52.4
31.7			1.200	1.20	1.20	40.	39.	3.5	107.	64.0
29.6			1.000	1.00	1.00	39.	39.	3.0	109.	58.5
27.0			1.200	1.20	1.20	39.	37.	3.5	110.	64.2
23.2			1.000	1.00	1.00	39.	37.	3.0	105.	58.3
12.8			.800	.80	.80	40.	37.	3.0	107.	52.3
9.0			.800	.80	.80	40.	37.	3.0	109.	52.4
6.4			1.200	1.20	1.20	41.	39.	3.5	102.	63.7
4.3			1.000	1.00	1.00	40.	39.	3.0	90.	57.6
2.4			1.200	1.20	1.20	40.	37.	3.5	89.	63.0
1.0S			1.000	1.00	1.00	40.	37.	3.0	89.	57.5
35.0W			1.200	1.20	1.20	40.	39.	3.5	100.	63.6
33.6			1.200	1.20	1.20	40.	39.	3.5	103.	63.8
31.7			1.000	1.00	1.00	40.	39.	3.5	100.	58.1
29.6			1.400	1.40	1.40	41.	39.	3.8	100.	68.7
27.0			1.200	1.20	1.20	41.	39.	3.5	102.	63.7
23.2			1.000	1.00	1.00	40.	39.	3.0	103.	58.2
12.8			.800	.80	.80	40.	39.	3.0	103.	52.1
9.0			.800	.80	.80	41.	39.	3.0	103.	52.1

6.4			.800	.80	.80	41.	39.	3.0	104.	52.1
4.3			.800	.80	.80	42.	39.	3.0	98.	51.9
2.4			.800	.80	.80	42.	39.	3.0	89.	51.4
1.0W			.800	.80	.80	42.	40.	2.5	87.	51.3
1.0W			.800	.80	.80	43.	40.	2.5	85.	51.2
2.4			.800	.80	.80	42.	40.	2.5	103.	52.1
4.3			.800	.80	.80	41.	40.	2.5	100.	51.9
6.4			.800	.80	.80	42.	40.	2.5	102.	52.0
9.0			.800	.80	.80	42.	40.	2.5	104.	52.1
12.8			.800	.80	.80	42.	40.	2.5	105.	52.2
23.2			1.000	1.00	1.00	43.	40.	3.0	104.	58.3
27.0			1.200	1.20	1.20	43.	40.	3.0	103.	63.8
29.6			1.200	1.20	1.20	43.	40.	3.0	104.	63.8
31.7			1.400	1.40	1.40	45.	41.	3.8	105.	69.0
33.6			1.200	1.20	1.20	44.	41.	3.5	104.	63.8
35.0W	930.0	794.810	1.200	1.20	1.20	44.	40.	3.5	97.	63.5

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	.0
	2	.2
	3	.1
	4	.0
ABSORBED H2O		8.9

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.830	11-25-92
METER	0.9807	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.012CFM	6.0
FINAL LT	.007CFM	4.0

CONTROL BOX NO. 6 PROBE NO. 5-1 NOZZLE NO. 22

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-1-2 — 12-9-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.62
B.	AVG. DELTA H (IN H2O)	1.01
C.	METER PRESSURE (IN. HG.)	29.69
D.	STATIC PRESSURE (IN. H2O)	.60
E.	STATIC PRESSURE (IN. HG.)	.044
F.	STACK PRESSURE (IN. HG.) (A+E)	29.66
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.1800
I.	NOZZLE AREA (SQ. FT.)	.000177
J.	AVG. STACK TEMP (DEG. R.)	561.4
K.	AVG. METER TEMP (DEG. R.)	499.1
L.	CONDENSATE VOL. (ML)	.3
M.	ABSORBED H2O (ML)	8.9
N.	TOTAL H2O (ML)	9.2
O.	METERED GAS (CF)	36.570
P.	GAS METER CORRECTION	.9807
Q.	CORRECTED METERED GAS (CF)	35.864
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.413
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	36.277
T.	PERCENT H2O (100R/S)	1.14
	THEORETICAL MAXIMUM	6.72
	PERCENT WATER USED	1.14
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	37.683
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9886	X	44.0	=	.00
CO	.000	X	.9886	X	28.0	=	.00
O2	.205	X	.9886	X	32.0	=	6.49
N2	.795	X	.9886	X	28.2	=	22.16
H2O		X	T/100= .0114	X	18.0	=	.20
					MOLECULAR WEIGHT OF STACK GAS	=	28.85

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	58.13
Y.	AVG. FLOW RATE (CFM) (X*H*60)	24656.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	22991.
	STACK FLOW RATE (DRY)	22729.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	110.53

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-1-2 12-9-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00300	.00000	.08580

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00020	.00770
PARTICULATE	.09670	
ALL MATLS.	.09670	

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.03637	7.08601

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-2

DATE: 12-9-92
CHARGE #: ...150-300197
TEST #: CLR-2-2-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00243	.55604

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2. STACK CONDITIONS

FLOW (ACFM)	28634.
(SCFM)	27060.
MOISTURE CONTENT (%)	1.15
STACK TEMPERATURE (F)	94.9

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	31.751
PERCENT ISOKINETIC	102.70

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-2-2 — 12-9-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
35.0W	830.0	424.860	1.100	.65	.65	47.	51.	4.0	89.	60.3
33.6			1.800	1.09	1.09	47.	50.	6.0	90.	77.2
31.7			1.500	.91	.91	47.	50.	5.0	91.	70.5
29.6			1.600	.97	.97	46.	48.	5.5	92.	72.9
27.0			1.500	.91	.91	49.	48.	5.0	96.	70.8
23.2			1.300	.79	.79	48.	48.	5.0	93.	65.7
12.8			1.100	.67	.67	50.	50.	4.0	92.	60.4
9.0			1.200	.73	.73	49.	49.	4.5	94.	63.2
6.4			1.300	.79	.79	51.	51.	5.0	94.	65.8
4.3			1.300	.79	.79	51.	51.	5.0	92.	65.7
2.4			1.400	.85	.85	51.	51.	5.0	91.	68.1
1.0W			1.100	.67	.67	51.	51.	4.0	92.	60.4
1.0W			1.100	.67	.67	51.	52.	4.0	93.	60.5
2.4			1.300	.79	.79	52.	52.	5.0	95.	65.9
4.3			1.400	.85	.85	53.	52.	5.0	97.	68.5
6.4			1.400	.85	.85	52.	54.	5.0	96.	68.4
9.0			1.300	.79	.79	54.	52.	5.0	96.	65.9
12.8			1.200	.73	.73	54.	52.	4.5	95.	63.3
23.2			1.300	.79	.79	52.	53.	5.0	98.	66.0
27.0			1.400	.85	.85	53.	54.	5.0	96.	68.4
29.6			1.700	1.03	1.03	54.	53.	5.5	95.	75.3
31.7			1.700	1.03	1.03	54.	55.	5.5	98.	75.5
33.6			1.700	1.03	1.03	54.	53.	5.5	96.	75.4
35.0W			1.400	.85	.85	55.	54.	5.0	97.	68.5
35.0W			1.400	.85	.85	53.	55.	5.0	98.	68.5
33.6			1.700	1.03	1.03	54.	55.	5.5	98.	75.5
31.7			1.700	1.03	1.03	54.	54.	5.5	97.	75.5
29.6			1.600	.97	.97	54.	55.	5.0	98.	73.3
27.0			1.400	.85	.85	52.	55.	5.0	97.	68.5
23.2			1.300	.79	.79	52.	53.	5.0	95.	65.9
12.8			1.300	.79	.79	52.	55.	5.0	94.	65.8
9.0			1.200	.73	.73	54.	54.	4.5	98.	63.5
6.4			1.400	.85	.85	52.	54.	5.0	93.	68.2
4.3			1.400	.85	.85	52.	55.	5.0	95.	68.4
2.4			1.300	.79	.79	53.	55.	4.5	94.	65.8
1.0W			1.400	.85	.85	55.	54.	5.0	94.	68.3
35.0S			1.200	.73	.73	53.	54.	4.0	94.	63.2
33.6			1.500	.91	.91	54.	55.	5.0	94.	70.7
31.7			1.500	.91	.91	53.	53.	5.0	96.	70.8
29.6			1.400	.85	.85	54.	55.	5.0	96.	68.4
27.0			1.400	.85	.85	54.	56.	5.0	98.	68.5
23.2			1.400	.85	.85	55.	54.	5.0	96.	68.4
12.8			1.200	.73	.73	55.	55.	4.0	95.	63.3
9.0			1.300	.79	.79	54.	56.	4.5	96.	65.9

6.4			1.300	.79	.79	54.	56.	4.5	95.	65.9
4.3			1.400	.85	.85	54.	53.	5.0	93.	68.2
2.4			1.300	.79	.79	54.	56.	4.5	93.	65.7
1.0S			1.100	.67	.67	55.	55.	4.0	92.	60.4
1.0S			1.000	.61	.61	56.	57.	4.0	92.	57.6
2.4			1.300	.79	.79	54.	53.	4.5	93.	65.7
4.3			1.300	.79	.79	54.	56.	4.5	93.	65.7
6.4			1.300	.79	.79	54.	55.	4.5	96.	65.9
9.0			1.300	.79	.79	56.	56.	4.5	96.	65.9
12.8			1.300	.79	.79	56.	56.	4.5	95.	65.9
23.2			1.400	.85	.85	56.	56.	5.0	96.	68.4
27.0			1.500	.91	.91	56.	55.	5.0	96.	70.8
29.6			1.600	.97	.97	56.	56.	5.2	99.	73.3
31.7			1.300	.79	.79	55.	57.	4.5	97.	66.0
33.6			1.100	.67	.67	56.	57.	4.0	96.	60.6
35.0S	930.0	456.787	1.700	1.03	1.03	57.	57.	5.0	98.	75.5

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	.0
	2	-.2
	3	-.4
	4	.0
ABSORBED H2O		8.4

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.779	11-25-92
METER	0.9739	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.002CFM	5.0
FINAL LT	.004CFM	6.0

CONTROL BOX NO. 4 PROBE NO. 5-2 NOZZLE NO. 16

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-2-2 12-9-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.62
B.	AVG. DELTA H (IN H2O)	.83
C.	METER PRESSURE (IN. HG.)	29.68
D.	STATIC PRESSURE (IN. H2O)	1.30
E.	STATIC PRESSURE (IN. HG.)	.096
F.	STACK PRESSURE (IN. HG.) (A+E)	29.72
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.1580
I.	NOZZLE AREA (SQ. FT.)	.000136
J.	AVG. STACK TEMP (DEG. R.)	554.9
K.	AVG. METER TEMP (DEG. R.)	513.3
L.	CONDENSATE VOL. (ML)	-.6
M.	ABSORBED H2O (ML)	8.4
N.	TOTAL H2O (ML)	7.8
O.	METERED GAS (CF)	31.927
P.	GAS METER CORRECTION	.9739
Q.	CORRECTED METERED GAS (CF)	31.094
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.360
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	31.454
T.	PERCENT H2O (100R/S)	1.15
	THEORETICAL MAXIMUM	5.59
	PERCENT WATER USED	1.15
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	31.751
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9885	X	44.0	=	.00
CO	.000	X	.9885	X	28.0	=	.00
O2	.205	X	.9885	X	32.0	=	6.48
N2	.795	X	.9885	X	28.2	=	22.16
H2O		X	T/100= .0115	X	18.0	=	.21
					MOLECULAR WEIGHT OF STACK GAS	=	28.85

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	67.51
Y.	AVG. FLOW RATE (CFM) (X*H*60)	28634.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	27060.
	STACK FLOW RATE (DRY)	26750.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	102.70

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-2-2 12-9-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00020	.00000	.00430

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00050	.00340

PARTICULATE	.00840
ALL MATLS.	.00840

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00243	.55604

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-3

DATE: 12-9-92
CHARGE #: ...150-300197
TEST #: CLR-2-3-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00148	.34444

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2. STACK CONDITIONS

FLOW (ACFM)	29332.
(SCFM)	27471.
MOISTURE CONTENT (%)	1.26
STACK TEMPERATURE (F)	99.8

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	33.264
PERCENT ISOKINETIC	106.11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-2 12-9-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY)CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0S	830.0	323.712	1.200	.67	.67	58.	49.	3.0	92.	63.1
33.6			1.400	.78	.78	57.	48.	3.0	94.	68.3
31.7			1.600	.89	.89	60.	48.	4.0	94.	73.0
29.6			1.700	.94	.94	59.	47.	4.0	96.	75.4
27.0			1.900	1.05	1.05	60.	47.	4.0	97.	79.8
23.2			1.700	.94	.94	60.	47.	4.0	98.	75.6
12.8			1.300	.72	.72	61.	48.	3.0	100.	66.2
9.0			1.200	.67	.67	63.	48.	3.0	100.	63.6
6.4			1.300	.72	.72	63.	50.	3.0	107.	66.6
4.3			1.100	.61	.61	63.	50.	2.5	96.	60.7
2.4			1.100	.61	.61	64.	51.	2.5	94.	60.6
1.0S			1.100	.61	.61	64.	51.	2.5	94.	60.6
1.0S			1.200	.67	.67	65.	51.	2.5	94.	63.2
2.4			1.200	.67	.67	65.	52.	2.5	98.	63.5
4.3			1.200	.67	.67	65.	52.	2.5	95.	63.3
6.4			1.100	.62	.62	66.	52.	2.5	101.	60.9
9.0			1.250	.70	.70	66.	53.	2.5	102.	65.0
12.8			1.150	.64	.64	66.	54.	2.5	101.	62.3
23.2			1.700	.95	.95	69.	54.	4.0	100.	75.7
27.0			1.700	.95	.95	68.	53.	4.0	99.	75.6
29.6			1.800	1.01	1.01	67.	53.	4.0	100.	77.9
31.7			1.550	.87	.87	66.	53.	4.0	106.	72.7
33.6			1.600	.90	.90	65.	52.	3.5	100.	73.4
35.0S			1.600	.90	.90	66.	53.	3.5	102.	73.6
35.0S			1.500	.84	.84	66.	53.	3.5	101.	71.2
33.6			1.700	.95	.95	66.	53.	3.5	101.	75.8
31.7			1.600	.90	.90	65.	53.	3.5	102.	73.6
29.6			1.650	.92	.92	68.	53.	3.5	101.	74.6
27.0			1.750	.98	.98	68.	53.	3.5	100.	76.8
23.2			1.600	.90	.90	67.	53.	4.0	105.	73.8
12.8			1.300	.73	.73	66.	53.	4.0	101.	66.2
9.0			1.300	.73	.73	67.	53.	3.0	100.	66.2
6.4			1.300	.73	.73	66.	53.	3.0	102.	66.3
4.3			1.300	.73	.73	66.	54.	3.0	102.	66.3
2.4			1.200	.67	.67	67.	54.	3.0	101.	63.6
1.0S			1.200	.67	.67	66.	54.	3.0	100.	63.6
35.0W			1.400	.78	.78	65.	54.	3.0	102.	68.8
33.6			1.550	.87	.87	67.	54.	3.0	101.	72.3
31.7			1.700	.95	.95	67.	54.	3.5	101.	75.8
29.6			1.650	.92	.92	68.	54.	3.5	101.	74.6
27.0			1.700	.95	.95	68.	54.	4.0	101.	75.8
23.2			1.400	.78	.78	69.	54.	3.0	102.	68.8
12.8			1.400	.78	.78	68.	55.	3.0	102.	68.8
9.0			1.500	.84	.84	69.	55.	3.0	103.	71.3

6.4			1.550	.87	.87	69.	55.	3.5	103.	72.5
4.3			1.200	.67	.67	69.	55.	3.0	102.	63.7
2.4			1.400	.78	.78	69.	55.	3.0	93.	68.3
1.0W			1.100	.65	.65	69.	56.	2.5	90.	60.3
1.0W			1.000	.56	.56	68.	57.	2.0	91.	57.6
2.4			1.100	.62	.62	69.	56.	2.5	91.	60.4
4.3			1.300	.73	.73	66.	56.	2.5	101.	66.2
6.4			1.400	.78	.78	68.	56.	3.0	101.	68.7
9.0			1.500	.84	.84	68.	56.	3.5	101.	71.2
12.8			1.400	.78	.78	70.	56.	3.0	105.	69.0
23.2			1.600	.90	.90	70.	56.	4.0	102.	73.6
27.0			1.500	.84	.84	69.	56.	3.5	102.	71.2
29.6			1.700	.95	.95	69.	57.	4.0	101.	75.8
31.7			1.600	.90	.90	70.	57.	3.5	104.	73.7
33.6			1.500	.84	.84	71.	57.	3.5	102.	71.2
35.0W	930.0	355.100	1.500	.84	.84	68.	56.	3.5	109.	71.7

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	.8
	2	-.4
	3	.0
	4	.0
ABSORBED H2O		8.6

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.638	07-31-92
METER	1.0507	07-31-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.015CFM	5.0
FINAL LT	.005CFM	6.0

CONTROL BOX NO. 2 PROBE NO. 5-4 NOZZLE NO. 54

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-2 12-9-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.62
B.	AVG. DELTA H (IN H2O).....	.80
C.	METER PRESSURE (IN. HG.).....	29.68
D.	STATIC PRESSURE (IN. H2O).....	1.20
E.	STATIC PRESSURE (IN. HG.).....	.088
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.71
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.1580
I.	NOZZLE AREA (SQ. FT.).....	.000136
J.	AVG. STACK TEMP (DEG. R.).....	559.8
K.	AVG. METER TEMP (DEG. R.).....	519.6
L.	CONDENSATE VOL. (ML).....	.4
M.	ABSORBED H2O (ML).....	8.6
N.	TOTAL H2O (ML).....	9.0
O.	METERED GAS (CF).....	31.388
P.	GAS METER CORRECTION.....	1.0507
Q.	CORRECTED METERED GAS (CF).....	32.979
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.421
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	33.400
T.	PERCENT H2O (100R/S).....	1.26
	THEORETICAL MAXIMUM.....	6.51
	PERCENT WATER USED.....	1.26
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	33.264
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9874	X	44.0	=	.00
CO	.000	X	.9874	X	28.0	=	.00
O2	.205	X	.9874	X	32.0	=	6.48
N2	.795	X	.9874	X	28.2	=	22.14
H2O		X	T/100= .0126	X	18.0	=	.23
					MOLECULAR WEIGHT OF STACK GAS	=	28.84

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	69.16
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	29332.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	27471.
	STACK FLOW RATE (DRY).....	27125.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	106.11
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-2 12-9-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00010	.00000	.00230

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00080	.09440

PARTICULATE	.09760
ALL MATLS.	.09760

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00148	.34444

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-4

DATE: 12-9-92
CHARGE #: ...150-300197
TEST #: CLR-2-4-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00281	.69229

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2. STACK CONDITIONS

FLOW (ACFM)	30453.
(SCFM)	29178.
MOISTURE CONTENT (%)	1.64
STACK TEMPERATURE (F)	87.4

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	45.418
PERCENT ISOKINETIC	105.51

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-4-2 — 12-9-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0S	830.0	92.555	1.400	1.39	1.39	51.	48.	2.5	84.	67.7
33.6			1.900	1.88	1.88	50.	48.	5.0	81.	78.7
31.7			1.800	1.79	1.79	50.	48.	4.5	85.	76.9
29.6			2.000	1.98	1.98	50.	48.	5.0	82.	80.8
27.0			1.700	1.69	1.69	51.	48.	4.0	85.	74.7
23.2			1.400	1.39	1.39	51.	48.	3.5	85.	67.8
12.8			1.500	1.49	1.49	52.	49.	3.5	85.	70.2
9.0			1.600	1.59	1.59	54.	49.	4.0	87.	72.6
6.4			1.500	1.49	1.49	54.	50.	3.5	86.	70.2
4.3			1.600	1.59	1.59	54.	50.	3.5	86.	72.5
2.4			1.300	1.29	1.29	55.	51.	3.0	76.	64.8
1.0S			1.100	1.09	1.09	56.	52.	2.5	76.	59.6
1.0S			1.100	1.09	1.09	56.	52.	2.5	76.	59.6
2.4			1.300	1.29	1.29	57.	53.	3.0	85.	65.3
4.3			1.500	1.49	1.49	57.	53.	3.5	87.	70.3
6.4			1.500	1.59	1.59	57.	53.	3.0	86.	70.2
9.0			1.500	1.59	1.59	58.	54.	3.5	88.	70.4
12.8			1.400	1.39	1.39	58.	54.	3.5	87.	67.9
23.2			1.600	1.59	1.59	58.	55.	3.5	88.	72.7
27.0			1.600	1.59	1.59	58.	54.	3.5	86.	72.5
29.6			1.900	1.88	1.88	59.	55.	4.0	88.	79.2
31.7			1.400	1.39	1.39	59.	55.	3.0	88.	68.0
33.6			1.900	1.88	1.88	59.	55.	4.0	89.	79.3
35.0S			1.400	1.39	1.39	59.	55.	3.0	89.	68.0
35.0S			1.400	1.39	1.39	59.	55.	3.0	89.	68.0
33.6			1.300	1.29	1.29	59.	55.	3.0	89.	65.6
31.7			1.800	1.79	1.79	60.	56.	4.0	90.	77.2
29.6			1.800	1.79	1.79	59.	55.	4.0	88.	77.1
27.0			1.700	1.69	1.69	59.	56.	3.5	87.	74.8
23.2			1.400	1.39	1.39	59.	56.	3.0	88.	68.0
12.8			1.400	1.39	1.39	59.	56.	2.5	90.	68.1
9.0			1.500	1.49	1.49	60.	56.	3.0	91.	70.6
6.4			1.400	1.39	1.39	60.	56.	3.0	89.	68.0
4.3			1.400	1.39	1.39	60.	56.	2.5	90.	68.1
2.4			1.300	1.29	1.29	60.	57.	2.5	88.	65.5
1.0S			1.100	1.09	1.09	60.	57.	2.5	75.	59.5
35.0W			2.500	2.48	2.48	60.	57.	5.0	91.	91.1
33.6			2.400	2.38	2.38	61.	57.	5.0	90.	89.2
31.7			2.200	2.25	2.25	61.	58.	5.0	92.	85.5
29.6			2.200	2.25	2.25	62.	58.	5.0	90.	85.4
27.0			2.100	2.15	2.15	62.	58.	4.5	90.	83.4
23.2			1.700	1.74	1.74	62.	59.	4.0	90.	75.0
12.8			1.400	1.43	1.43	63.	59.	3.5	93.	68.3
9.0			1.400	1.43	1.43	63.	59.	3.0	92.	68.2

6.4			1.500	1.53	1.53	63.	60.	3.0	91.	70.6
4.3			1.300	1.33	1.33	64.	60.	3.0	93.	65.8
2.4			1.300	1.33	1.33	63.	60.	2.5	84.	65.3
1.0W			.900	.92	.92	63.	59.	2.5	82.	54.2
1.0W			1.000	1.02	1.02	63.	60.	2.0	78.	56.9
2.4			1.100	1.12	1.12	63.	59.	2.5	84.	60.0
4.3			1.100	1.12	1.12	60.	59.	2.5	88.	60.3
6.4			1.300	1.33	1.33	62.	59.	2.5	90.	65.6
9.0			1.500	1.53	1.53	62.	59.	3.0	92.	70.6
12.8			1.400	1.43	1.43	62.	59.	3.0	91.	68.2
23.2			1.500	1.53	1.53	62.	59.	3.0	94.	70.7
27.0			1.800	1.84	1.84	63.	59.	4.0	91.	77.3
29.6			2.200	2.25	2.25	63.	59.	5.0	94.	85.7
31.7			2.100	2.15	2.15	63.	59.	4.5	92.	83.6
33.6			2.300	2.35	2.35	63.	59.	5.0	93.	87.5
35.0W	930.0	138.865	2.400	2.45	2.45	64.	59.	5.0	92.	89.3

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	3.2
	2	.8
	3	.0
	4	.0
ABSORBED H2O		12.1

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.743	12-07-92
METER	0.9658	12-07-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.011CFM	5.0
FINAL LT	.010CFM	6.0

CONTROL BOX NO. 5 PROBE NO. 5-3 NOZZLE NO. 11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-2 12-9-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.62
B.	AVG. DELTA H (IN H2O).....	1.59
C.	METER PRESSURE (IN. HG.).....	29.74
D.	STATIC PRESSURE (IN. H2O).....	1.40
E.	STATIC PRESSURE (IN. HG.).....	.103
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.72
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.1800
I.	NOZZLE AREA (SQ. FT.).....	.000177
J.	AVG. STACK TEMP (DEG. R.).....	547.4
K.	AVG. METER TEMP (DEG. R.).....	517.1
L.	CONDENSATE VOL. (ML).....	4.0
M.	ABSORBED H2O (ML).....	12.1
N.	TOTAL H2O (ML).....	16.1
O.	METERED GAS (CF).....	46.310
P.	GAS METER CORRECTION.....	.9658
Q.	CORRECTED METERED GAS (CF).....	44.726
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.748
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	45.474
T.	PERCENT H2O (100R/S).....	1.64
	THEORETICAL MAXIMUM.....	4.35
	PERCENT WATER USED.....	1.64
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	45.418
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9836	X	44.0	=	.00
CO	.000	X	.9836	X	28.0	=	.00
O2	.205	X	.9836	X	32.0	=	6.45
N2	.795	X	.9836	X	28.2	=	22.05
H2O		X	T/100= .0164	X	18.0	=	.30
					MOLECULAR WEIGHT OF STACK GAS	=	28.80

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	71.80
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	30453.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	29178.
	STACK FLOW RATE (DRY).....	28699.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	105.51
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-2 12-9-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00170	.00000	.00530

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00130	.00670

PARTICULATE	.01500
ALL MATLS.	.01500

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00281	.69229

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-1

DATE: 12-10-92
CHARGE #: ...150-300197
TEST #: CLR-2-1-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.03095	5.93614

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2. STACK CONDITIONS

FLOW (ACFM)	24490.
(SCFM)	22725.
MOISTURE CONTENT (%)	1.53
STACK TEMPERATURE (F)	94.3

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	37.121
PERCENT ISOKINETIC	110.59

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
CLR-2-1-3

7,8,9 BATTERY PEC
12-10-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	795.220	1.400	1.40	1.40	32.	32.	3.5	88.	68.6
33.6			1.400	1.40	1.40	32.	32.	3.5	89.	68.7
31.7			1.400	1.40	1.40	33.	32.	3.5	90.	68.8
29.6			1.200	1.20	1.20	33.	32.	3.5	91.	63.7
27.0			1.200	1.20	1.20	33.	31.	3.5	94.	63.9
23.2			.800	.80	.80	33.	31.	3.0	92.	52.1
12.8			.800	.80	.80	34.	31.	3.0	92.	52.1
9.0			.800	.80	.80	34.	31.	3.0	91.	52.0
6.4			.800	.80	.80	34.	31.	3.0	91.	52.0
4.3			.800	.80	.80	33.	32.	3.0	74.	51.2
2.4			.800	.80	.80	33.	31.	3.0	73.	51.2
1.0W			.800	.80	.80	34.	31.	3.0	73.	51.2
1.0W			.800	.80	.80	34.	31.	3.0	75.	51.3
2.4			.800	.80	.80	34.	31.	3.0	75.	51.3
4.3			.800	.80	.80	33.	31.	3.0	85.	51.7
6.4			.800	.80	.80	34.	31.	3.0	90.	52.0
9.0			.800	.80	.80	34.	31.	3.0	93.	52.1
12.8			.800	.80	.80	33.	31.	3.0	94.	52.2
23.2			1.200	1.21	1.21	32.	31.	3.5	97.	64.1
27.0			1.200	1.21	1.21	33.	31.	3.5	92.	63.8
29.6			1.200	1.21	1.21	33.	31.	3.5	94.	63.9
31.7			1.200	1.21	1.21	33.	31.	3.5	92.	63.8
33.6			1.400	1.41	1.41	35.	32.	3.5	92.	68.9
35.0W			1.200	1.21	1.21	35.	32.	4.0	95.	63.9
35.0W			1.400	1.41	1.41	39.	33.	4.0	99.	69.3
33.6			1.200	1.21	1.21	39.	33.	3.5	99.	64.2
31.7			1.400	1.41	1.41	39.	34.	4.0	99.	69.3
29.6			1.200	1.21	1.21	39.	35.	4.0	100.	64.2
27.0			1.200	1.21	1.21	39.	35.	4.0	103.	64.4
23.2			1.200	1.21	1.21	40.	35.	3.5	102.	64.3
12.8			1.000	1.00	1.00	39.	34.	3.5	104.	58.8
9.0			.800	.80	.80	40.	35.	3.0	104.	52.6
6.4			.800	.80	.80	39.	35.	3.0	105.	52.7
4.3			.800	.80	.80	39.	37.	3.0	97.	52.3
2.4			.800	.80	.80	39.	37.	3.0	84.	51.7
1.0W			.800	.80	.80	39.	37.	3.0	87.	51.8
35.0S			1.000	1.00	1.00	39.	35.	3.0	97.	58.5
33.6			1.200	1.21	1.21	39.	37.	3.0	99.	64.2
31.7			1.000	1.00	1.00	39.	35.	3.0	101.	58.7
29.6			1.000	1.00	1.00	39.	35.	3.0	100.	58.6
27.0			.800	.80	.80	39.	35.	3.0	99.	52.4
23.2			.800	.80	.80	39.	35.	3.0	99.	52.4
12.8			.800	.80	.80	39.	35.	3.0	101.	52.5
9.0			.800	.80	.80	39.	35.	3.0	101.	52.5

6.4			1.000	1.00	1.00	39.	35.	3.0	97.	58.5
4.3			1.000	1.00	1.00	40.	35.	3.0	95.	58.4
2.4			.800	.80	.80	40.	35.	3.0	85.	51.7
1.0S			1.000	1.00	1.00	40.	35.	3.0	85.	57.8
1.0S			.800	.80	.80	42.	39.	2.5	82.	51.6
2.4			1.200	1.21	1.21	42.	39.	3.5	83.	63.3
4.3			.800	.80	.80	41.	39.	2.5	101.	52.5
6.4			1.000	1.00	1.00	41.	39.	3.0	102.	58.7
9.0			1.000	1.00	1.00	41.	39.	3.0	105.	58.9
12.8			.800	.80	.80	41.	39.	2.5	105.	52.7
23.2			.800	.80	.80	41.	39.	2.5	105.	52.7
27.0			.800	.80	.80	41.	39.	2.5	105.	52.7
29.6			1.000	1.00	1.00	41.	39.	3.0	104.	58.8
31.7			1.000	1.00	1.00	41.	39.	3.0	105.	58.9
33.6			1.000	1.00	1.00	41.	39.	3.0	103.	58.8
35.0S	930.0	831.650	1.000	1.00	1.00	41.	39.	3.0	102.	58.7

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	3.4
	2	.1
	3	.0
	4	.0
ABSORBED H2O		8.7

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.830	11-25-92
METER	0.9807	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

		RATE	IN.HG
INITIAL	LT	.015CFM	6.0
FINAL	LT	.009CFM	5.0

CONTROL BOX NO. 6 PROBE NO. 5-1 NOZZLE NO. 22

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-1-3 — 12-10-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.10
B.	AVG. DELTA H (IN H2O)	.99
C.	METER PRESSURE (IN. HG.)	29.17
D.	STATIC PRESSURE (IN. H2O)	.60
E.	STATIC PRESSURE (IN. HG.)	.044
F.	STACK PRESSURE (IN. HG.) (A+E)	29.14
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.1800
I.	NOZZLE AREA (SQ. FT.)	.000177
J.	AVG. STACK TEMP (DEG. R.)	554.3
K.	AVG. METER TEMP (DEG. R.)	495.8
L.	CONDENSATE VOL. (ML)	3.5
M.	ABSORBED H2O (ML)	8.7
N.	TOTAL H2O (ML)	12.2
O.	METERED GAS (CF)	36.430
P.	GAS METER CORRECTION	.9807
Q.	CORRECTED METERED GAS (CF)	35.727
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.554
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	36.281
T.	PERCENT H2O (100R/S)	1.53
	THEORETICAL MAXIMUM	5.53
	PERCENT WATER USED	1.53
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	37.121
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9847	X	44.0	=	.00
CO	.000	X	.9847	X	28.0	=	.00
O2	.205	X	.9847	X	32.0	=	6.46
N2	.795	X	.9847	X	28.2	=	22.08
H2O		X	T/100= .0153	X	18.0	=	.27
					MOLECULAR WEIGHT OF STACK GAS	=	28.81

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	57.74
Y.	AVG. FLOW RATE (CFM) (X*H*60)	24490.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	22725.
	STACK FLOW RATE (DRY)	22378.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	110.59

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-1-3 12-10-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00230	.00000	.07200

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00030	.00870

PARTICULATE	.08330
ALL MATLS.	.08330

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.03095	5.93614

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-2

DATE: 12-10-92
CHARGE #: ...150-300197
TEST #: CLR-2-2-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00282	.61762

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2. STACK CONDITIONS

FLOW (ACFM)	27714.
(SCFM)	26035.
MOISTURE CONTENT (%)	1.85
STACK TEMPERATURE (F)	88.5

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	30.037
PERCENT ISOKINETIC	101.71

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-2-3 12-10-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY)CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	456.981	1.500	.90	.90	45.	46.	6.5	85.	70.8
33.6			1.200	.72	.72	45.	46.	5.5	88.	63.5
31.7			1.600	.96	.96	44.	45.	7.0	86.	73.2
29.6			1.400	.84	.84	45.	45.	6.0	91.	68.8
27.0			1.300	.78	.78	45.	46.	6.0	90.	66.2
23.2			1.300	.78	.78	45.	44.	6.0	87.	66.1
12.8			1.300	.78	.78	45.	46.	6.0	87.	66.1
9.0			1.300	.78	.78	44.	45.	6.0	86.	66.0
6.4			1.300	.78	.78	45.	47.	6.0	87.	66.1
4.3			.800	.48	.48	44.	46.	4.5	83.	51.6
2.4			.800	.48	.48	47.	47.	4.5	86.	51.8
1.0W			.900	.54	.54	45.	47.	5.0	85.	54.9
1.0W			1.100	.66	.66	44.	47.	5.0	87.	60.8
2.4			1.100	.66	.66	44.	47.	5.0	85.	60.7
4.3			1.200	.73	.73	44.	46.	5.5	84.	63.3
6.4			1.300	.79	.79	46.	46.	6.0	82.	65.8
9.0			1.300	.79	.79	46.	46.	6.0	84.	65.9
12.8			1.300	.79	.79	46.	47.	6.0	86.	66.0
23.2			1.200	.73	.73	46.	46.	5.5	87.	63.5
27.0			1.500	.91	.91	44.	45.	6.5	85.	70.8
29.6			1.500	.91	.91	45.	47.	6.5	88.	71.0
31.7			1.100	.67	.67	45.	45.	5.0	85.	60.7
33.6			1.200	.73	.73	45.	48.	5.5	90.	63.6
35.0W			1.100	.67	.67	46.	46.	5.0	87.	60.8
35.0W			1.400	.85	.85	48.	47.	6.0	90.	68.7
33.6			1.200	.73	.73	46.	47.	5.5	87.	63.5
31.7			1.300	.79	.79	48.	48.	6.0	91.	66.3
29.6			1.100	.67	.67	47.	49.	5.0	87.	60.8
27.0			1.500	.91	.91	49.	50.	6.5	91.	71.2
23.2			1.300	.79	.79	48.	49.	6.0	87.	66.1
12.8			1.200	.73	.73	50.	50.	5.5	90.	63.6
9.0			1.300	.79	.79	49.	51.	6.0	88.	66.1
6.4			1.300	.79	.79	52.	48.	6.0	90.	66.2
4.3			1.300	.79	.79	50.	52.	6.0	88.	66.1
2.4			1.200	.73	.73	51.	51.	5.5	88.	63.5
1.0W			1.000	.61	.61	51.	50.	5.0	88.	58.0
35.0S			1.100	.67	.67	49.	51.	5.0	88.	60.8
33.6			1.300	.79	.79	51.	51.	6.0	91.	66.3
31.7			1.700	1.03	1.03	51.	51.	7.0	88.	75.6
29.6			1.000	.61	.61	50.	52.	5.0	86.	57.9
27.0			1.400	.85	.85	49.	50.	6.0	88.	68.6
23.2			1.300	.79	.79	50.	51.	6.0	90.	66.2
12.8			1.200	.73	.73	51.	50.	5.5	89.	63.6
9.0			1.200	.73	.73	51.	51.	5.5	93.	63.8

6.4			1.400	.85	.85	51.	51.	6.0	88.	68.6
4.3			1.500	.91	.91	51.	51.	6.5	91.	71.2
2.4			1.300	.79	.79	50.	52.	6.0	90.	66.2
1.0S			1.300	.79	.79	50.	52.	6.0	93.	66.4
1.0S			1.300	.79	.79	50.	52.	6.0	90.	66.2
2.4			1.400	.85	.85	50.	53.	6.2	90.	68.7
4.3			1.300	.79	.79	52.	51.	6.0	90.	66.2
6.4			1.400	.85	.85	52.	53.	6.2	91.	68.8
9.0			1.200	.73	.73	51.	51.	5.5	96.	64.0
12.8			1.100	.67	.67	50.	53.	5.0	92.	61.0
23.2			1.200	.73	.73	50.	52.	5.5	91.	63.7
27.0			1.300	.79	.79	53.	51.	6.0	91.	66.3
29.6			1.500	.91	.91	53.	51.	6.5	92.	71.3
31.7			1.600	.97	.97	52.	51.	7.0	90.	73.5
33.6			1.500	.91	.91	51.	53.	6.5	92.	71.3
35.0S	930.0	487.443	1.300	.79	.79	52.	52.	5.5	91.	66.3

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	5.0
	2	.5
	3	.0
	4	.0
ABSORBED H2O		6.5

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.779	11-25-92
METER	0.9739	11-25-92
PITOT	0.84	11-2-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.010CFM	5.0
FINAL LT	.010CFM	7.0

CONTROL BOX NO. 4 PROBE NO. 5-2 NOZZLE NO. 16

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-2-3 — 12-10-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.10
B.	AVG. DELTA H (IN H2O).....	.77
C.	METER PRESSURE (IN. HG.).....	29.16
D.	STATIC PRESSURE (IN. H2O).....	1.30
E.	STATIC PRESSURE (IN. HG.).....	.096
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.20
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.1580
I.	NOZZLE AREA (SQ. FT.).....	.000136
J.	AVG. STACK TEMP (DEG. R.).....	548.5
K.	AVG. METER TEMP (DEG. R.).....	508.5
L.	CONDENSATE VOL. (ML).....	5.5
M.	ABSORBED H2O (ML).....	6.5
N.	TOTAL H2O (ML).....	12.0
O.	METERED GAS (CF).....	30.462
P.	GAS METER CORRECTION.....	.9739
Q.	CORRECTED METERED GAS (CF).....	29.667
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.559
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	30.226
T.	PERCENT H2O (100R/S).....	1.85
	THEORETICAL MAXIMUM.....	4.58
	PERCENT WATER USED.....	1.85
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	30.037
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9815	X	44.0	=	.00
CO	.000	X	.9815	X	28.0	=	.00
O2	.205	X	.9815	X	32.0	=	6.44
N2	.795	X	.9815	X	28.2	=	22.00
H2O		X	T/100= .0185	X	18.0	=	.33
					MOLECULAR WEIGHT OF STACK GAS	=	28.78

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	65.35
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	27714.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	26035.
	STACK FLOW RATE (DRY).....	25554.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	101.71
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-2-3 12-10-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00050	.00000	.00470

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00030	.00490

PARTICULATE	.01040
ALL MATLS.	.01040

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00282	.61762

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACL 2-3

DATE: 12-10-92
CHARGE #: ...150-300197
TEST #: CLR-2-3-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00508	1.18968

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2. STACK CONDITIONS

FLOW (ACFM)	29952.
(SCFM)	27869.
MOISTURE CONTENT (%)	1.91
STACK TEMPERATURE (F)	93.6

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	32.455
PERCENT ISOKINETIC	102.72

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
CLR-2-3-3

7,8,9 BATTERY PEC
12-10-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	355.268	1.700	.93	.93	54.	45.	4.0	104.	76.7
33.6			1.500	.82	.82	59.	45.	4.0	101.	71.9
31.7			1.700	.93	.93	59.	45.	4.0	101.	76.5
29.6			1.500	.82	.82	60.	45.	3.5	94.	71.4
27.0			1.900	1.04	1.04	60.	45.	4.0	91.	80.2
23.2			1.800	.99	.99	59.	45.	4.0	89.	77.9
12.8			1.600	.88	.88	57.	45.	3.5	89.	73.4
9.0			1.500	.82	.82	60.	46.	3.0	89.	71.1
6.4			1.700	.93	.93	60.	46.	4.0	94.	76.0
4.3			1.500	.82	.82	60.	46.	3.0	89.	71.1
2.4			1.400	.77	.77	60.	46.	3.0	88.	68.6
1.0W			1.500	.82	.82	61.	46.	3.0	89.	71.1
1.0W			1.400	.78	.78	59.	46.	3.0	84.	68.4
2.4			1.200	.66	.66	60.	47.	2.5	90.	63.7
4.3			1.400	.78	.78	60.	46.	3.0	90.	68.8
6.4			1.600	.89	.89	60.	46.	3.5	89.	73.4
9.0			1.300	.72	.72	59.	46.	3.0	92.	66.4
12.8			1.300	.72	.72	60.	46.	3.0	90.	66.3
23.2			1.400	.78	.78	59.	46.	3.5	90.	68.8
27.0			1.700	.94	.94	63.	47.	4.0	92.	75.9
29.6			1.600	.89	.89	63.	47.	4.0	94.	73.8
31.7			1.550	.87	.87	62.	47.	3.5	91.	72.4
33.6			1.500	.83	.83	62.	48.	3.5	97.	71.6
35.0W			1.400	.78	.78	63.	48.	3.0	98.	69.3
35.0W			1.500	.85	.85	62.	48.	3.5	94.	71.4
33.6			1.500	.85	.85	62.	48.	3.5	95.	71.5
31.7			1.500	.85	.85	62.	49.	3.5	95.	71.5
29.6			1.450	.81	.81	64.	49.	3.5	94.	70.2
27.0			1.550	.87	.87	65.	50.	3.5	98.	72.9
23.2			1.550	.87	.87	65.	50.	3.5	96.	72.7
12.8			1.500	.85	.85	62.	50.	3.5	94.	71.4
9.0			1.600	.88	.88	63.	50.	4.0	96.	73.9
6.4			1.500	.85	.85	63.	50.	4.0	98.	71.7
4.3			1.200	.66	.66	63.	50.	3.0	94.	63.9
2.4			1.600	.88	.88	62.	50.	4.0	93.	73.7
1.0W			1.600	.88	.88	62.	50.	4.0	93.	73.7
35.0S			1.500	.82	.82	63.	50.	3.0	96.	71.6
33.6			1.400	.78	.78	64.	50.	3.5	96.	69.1
31.7			1.800	.99	.99	62.	50.	4.0	97.	78.5
29.6			1.500	.82	.82	64.	50.	3.5	92.	71.3
27.0			1.200	.66	.66	62.	50.	2.5	94.	63.9
23.2			1.500	.82	.82	62.	49.	3.5	93.	71.4
12.8			1.200	.66	.66	63.	50.	2.5	95.	63.9
9.0			1.200	.66	.66	63.	50.	2.5	97.	64.1

6.4			1.300	.72	.72	64.	50.	2.5	93.	66.4
4.3			1.200	.60	.60	64.	50.	2.5	92.	63.8
2.4			1.300	.72	.72	64.	50.	2.5	91.	66.3
1.0S			1.200	.66	.66	62.	50.	2.5	88.	63.5
1.0S			1.200	.66	.66	63.	50.	3.0	88.	63.5
2.4			1.200	.66	.66	62.	50.	3.0	89.	63.6
4.3			1.200	.66	.66	63.	50.	3.0	92.	63.8
6.4			1.300	.72	.72	62.	50.	3.5	90.	66.3
9.0			1.200	.66	.66	63.	50.	3.0	92.	63.8
12.8			1.300	.72	.72	63.	50.	3.5	94.	66.5
23.2			1.300	.72	.72	63.	50.	3.0	95.	66.6
27.0			1.600	.88	.88	64.	50.	3.5	98.	74.0
29.6			1.800	.99	.99	64.	50.	5.0	100.	78.7
31.7			1.700	.93	.93	63.	49.	4.5	101.	76.5
33.6			1.800	.99	.99	64.	51.	5.0	98.	78.5
35.0S	930.0	386.165	1.800	.99	.99	64.	51.	5.0	99.	78.6

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	3.8
	2	.6
	3	.0
	4	.0
ABSORBED H2O		9.0

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.638	07-31-92
METER	1.0507	07-31-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	.011CFM	5.0
FINAL LT	.010CFM	6.0

CONTROL BOX NO. 2 PROBE NO. 5-4 NOZZLE NO. 54

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-3 12-10-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.10
B.	AVG. DELTA H (IN H2O)	.81
C.	METER PRESSURE (IN. HG.)	29.16
D.	STATIC PRESSURE (IN. H2O)	1.20
E.	STATIC PRESSURE (IN. HG.)	.088
F.	STACK PRESSURE (IN. HG.) (A+E)	29.19
G.	STACK DIAMETER (IN.)	36.00
H.	STACK AREA (SQ. FT.)	7.07
	NOZZLE DIAMETER	.1580
I.	NOZZLE AREA (SQ. FT.)	.000136
J.	AVG. STACK TEMP (DEG. R.)	553.6
K.	AVG. METER TEMP (DEG. R.)	515.1
L.	CONDENSATE VOL. (ML)	4.4
M.	ABSORBED H2O (ML)	9.0
N.	TOTAL H2O (ML)	13.4
O.	METERED GAS (CF)	30.897
P.	GAS METER CORRECTION	1.0507
Q.	CORRECTED METERED GAS (CF)	32.463
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	.632
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	33.095
T.	PERCENT H2O (100R/S)	1.91
	THEORETICAL MAXIMUM	5.52
	PERCENT WATER USED	1.91
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	32.455
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9809	X	44.0	=	.00
CO	.000	X	.9809	X	28.0	=	.00
O2	.205	X	.9809	X	32.0	=	6.43
N2	.795	X	.9809	X	28.2	=	21.99
H2O		X	T/100= .0191	X	18.0	=	.34
					MOLECULAR WEIGHT OF STACK GAS	=	28.77

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	70.62
Y.	AVG. FLOW RATE (CFM) (X*H*60)	29952.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	27869.
	STACK FLOW RATE (DRY)	27337.
AA.	SAMPLE TIME (SEC)	3600.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	102.72

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-3-3 12-10-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00090	.00000	.00960

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00020	.01670
PARTICULATE	.02740	
ALL MATLS.	.02740	

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00508	1.18968

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
7,8,9 BATTERY PEC STACK 2-4

DATE: 12-10-92
CHARGE #: ...150-300197
TEST #: CLR-2-4-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00272	.64838

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2. STACK CONDITIONS

FLOW (ACFM)	29532.
(SCFM)	28040.
MOISTURE CONTENT (%)	.95
STACK TEMPERATURE (F)	82.8

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3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	43.535
PERCENT ISOKINETIC	104.51

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA — 7,8,9 BATTERY PEC
CLR-2-4-3 — 12-10-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FT/SEC
35.0W	830.0	139.225	1.900	1.88	1.88	46.	46.	14.0	85.	79.6
33.6			2.500	2.48	2.48	47.	45.	13.5	85.	91.3
31.7			2.200	2.18	2.18	47.	45.	16.5	85.	85.6
29.6			1.800	1.78	1.78	48.	45.	7.5	87.	77.6
27.0			1.700	1.69	1.69	49.	46.	5.5	85.	75.3
23.2			1.700	1.69	1.69	49.	46.	10.0	83.	75.1
12.8			1.300	1.29	1.29	49.	46.	6.0	84.	65.8
9.0			1.200	1.19	1.19	50.	46.	6.5	85.	63.2
6.4			1.300	1.29	1.29	50.	47.	6.0	84.	65.8
4.3			1.300	1.29	1.29	50.	47.	5.5	84.	65.8
2.4			1.200	1.19	1.19	50.	47.	5.0	79.	62.9
1.0W			.300	.30	.30	50.	47.	1.0	70.	31.2
1.0W			1.000	.99	.99	51.	48.	4.5	71.	57.0
2.4			1.100	1.19	1.19	52.	48.	5.0	73.	59.9
4.3			1.300	1.29	1.29	52.	48.	6.0	84.	65.8
6.4			1.300	1.29	1.29	51.	48.	5.5	84.	65.8
9.0			1.200	1.19	1.19	52.	48.	6.0	84.	63.2
12.8			1.200	1.19	1.19	52.	48.	5.0	85.	63.2
23.2			1.400	1.39	1.39	52.	49.	7.0	85.	68.3
27.0			1.800	1.79	1.79	52.	49.	10.5	85.	77.4
29.6			1.900	1.88	1.88	52.	49.	11.0	87.	79.7
31.7			1.900	1.88	1.88	53.	49.	12.5	85.	79.6
33.6			2.200	2.18	2.18	52.	50.	13.0	86.	85.7
35.0W			1.800	1.79	1.79	53.	50.	11.5	84.	77.4
35.0W			2.100	2.08	2.08	53.	50.	14.0	86.	83.7
33.6			2.300	2.28	2.28	53.	50.	16.0	85.	87.5
31.7			2.100	2.08	2.08	53.	51.	15.0	88.	83.9
29.6			1.800	1.79	1.79	54.	51.	10.5	84.	77.4
27.0			1.700	1.69	1.69	54.	51.	7.5	87.	75.4
23.2			1.500	1.49	1.49	55.	51.	7.5	84.	70.6
12.8			1.400	1.39	1.39	55.	52.	7.0	85.	68.3
9.0			1.300	1.29	1.29	55.	52.	6.0	83.	65.7
6.4			1.300	1.29	1.29	54.	52.	6.5	89.	66.1
4.3			1.300	1.29	1.29	55.	51.	7.0	84.	65.8
2.4			1.200	1.19	1.19	54.	52.	5.5	76.	62.7
1.0W			.800	.81	.81	54.	51.	4.0	74.	51.1
35.0S			1.400	1.41	1.41	53.	52.	9.5	83.	68.2
33.6			1.800	1.82	1.82	53.	51.	12.5	84.	77.4
31.7			1.500	1.51	1.51	54.	52.	9.0	84.	70.6
29.6			1.100	1.11	1.11	54.	52.	6.0	82.	60.4
27.0			1.500	1.51	1.51	54.	52.	8.5	82.	70.5
23.2			1.300	1.31	1.31	55.	52.	5.5	84.	65.8
12.8			1.400	1.41	1.41	55.	52.	7.5	84.	68.2
9.0			1.400	1.41	1.41	55.	52.	8.0	86.	68.4

6.4			1.600	1.62	1.62	55.	52.	8.0	82.	72.8
4.3			1.400	1.41	1.41	55.	52.	5.0	83.	68.2
2.4			1.200	1.21	1.21	55.	52.	5.5	77.	62.8
1.0S			1.000	1.01	1.01	55.	52.	5.0	67.	56.8
1.0S			1.000	1.01	1.01	55.	52.	4.5	64.	56.6
2.4			1.200	1.21	1.21	55.	52.	4.5	72.	62.5
4.3			1.400	1.41	1.41	55.	52.	7.0	83.	68.2
6.4			1.400	1.41	1.41	55.	52.	6.0	84.	68.2
9.0			1.400	1.41	1.41	55.	52.	5.5	89.	68.6
12.8			1.300	1.31	1.31	56.	53.	5.0	87.	65.9
23.2			1.600	1.62	1.62	55.	52.	7.0	85.	73.0
27.0			1.500	1.51	1.51	56.	52.	7.0	86.	70.8
29.6			1.800	1.82	1.82	56.	53.	10.5	86.	77.5
31.7			1.600	1.62	1.62	56.	53.	8.0	85.	73.0
33.6			1.800	1.82	1.82	56.	53.	8.0	86.	77.5
35.0S	930.0	183.926	1.300	1.31	1.31	56.	53.	6.0	87.	65.9

O R S A T

CO2	.0
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	-3.5
	2	.0
	3	.0
	4	.0
ABSORBED H2O		12.4

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.743	12-07-92
METER	0.9658	12-07-92
PITOT	0.84	7-27-92

LEAK CHECK

		RATE	IN.HG
INITIAL	LT	.016CFM	5.0
FINAL	LT	.020CFM	16.5

CONTROL BOX NO. 5 PROBE NO. 5-3 NOZZLE NO. 11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-3 12-10-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.10
B.	AVG. DELTA H (IN H2O).....	1.49
C.	METER PRESSURE (IN. HG.).....	29.21
D.	STATIC PRESSURE (IN. H2O).....	1.40
E.	STATIC PRESSURE (IN. HG.).....	.103
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.20
G.	STACK DIAMETER (IN.).....	36.00
H.	STACK AREA (SQ. FT.).....	7.07
	NOZZLE DIAMETER.....	.1800
I.	NOZZLE AREA (SQ. FT.).....	.000177
J.	AVG. STACK TEMP (DEG. R.).....	542.8
K.	AVG. METER TEMP (DEG. R.).....	511.5
L.	CONDENSATE VOL. (ML).....	-3.5
M.	ABSORBED H2O (ML).....	12.4
N.	TOTAL H2O (ML).....	8.9
O.	METERED GAS (CF).....	44.701
P.	GAS METER CORRECTION.....	.9658
Q.	CORRECTED METERED GAS (CF).....	43.172
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.416
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	43.588
T.	PERCENT H2O (100R/S).....	.95
	THEORETICAL MAXIMUM.....	3.90
	PERCENT WATER USED.....	.95
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	43.535
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.000	X	.9905	X	44.0	=	.00
CO	.000	X	.9905	X	28.0	=	.00
O2	.205	X	.9905	X	32.0	=	6.50
N2	.795	X	.9905	X	28.2	=	22.20
H2O		X	T/100= .0095	X	18.0	=	.17
					MOLECULAR WEIGHT OF STACK GAS	=	28.87

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	69.63
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	29532.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	28040.
	STACK FLOW RATE (DRY).....	27772.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	104.51
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 7,8,9 BATTERY PEC
CLR-2-4-3 12-10-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00080	.00000	.00640

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00050	.00840

PARTICULATE	.01610
ALL MATLS.	.01610

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00272	.64838

Emission rates are based on the PA method.
The soluble impinger weight is excluded from the calculations