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

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

AP-42 Section 12.2
Reference
Report Sect. 4
Reference 69

Reviewed
AS

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

CHESTER ENVIRONMENTAL

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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		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)	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 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)	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 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)	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

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.

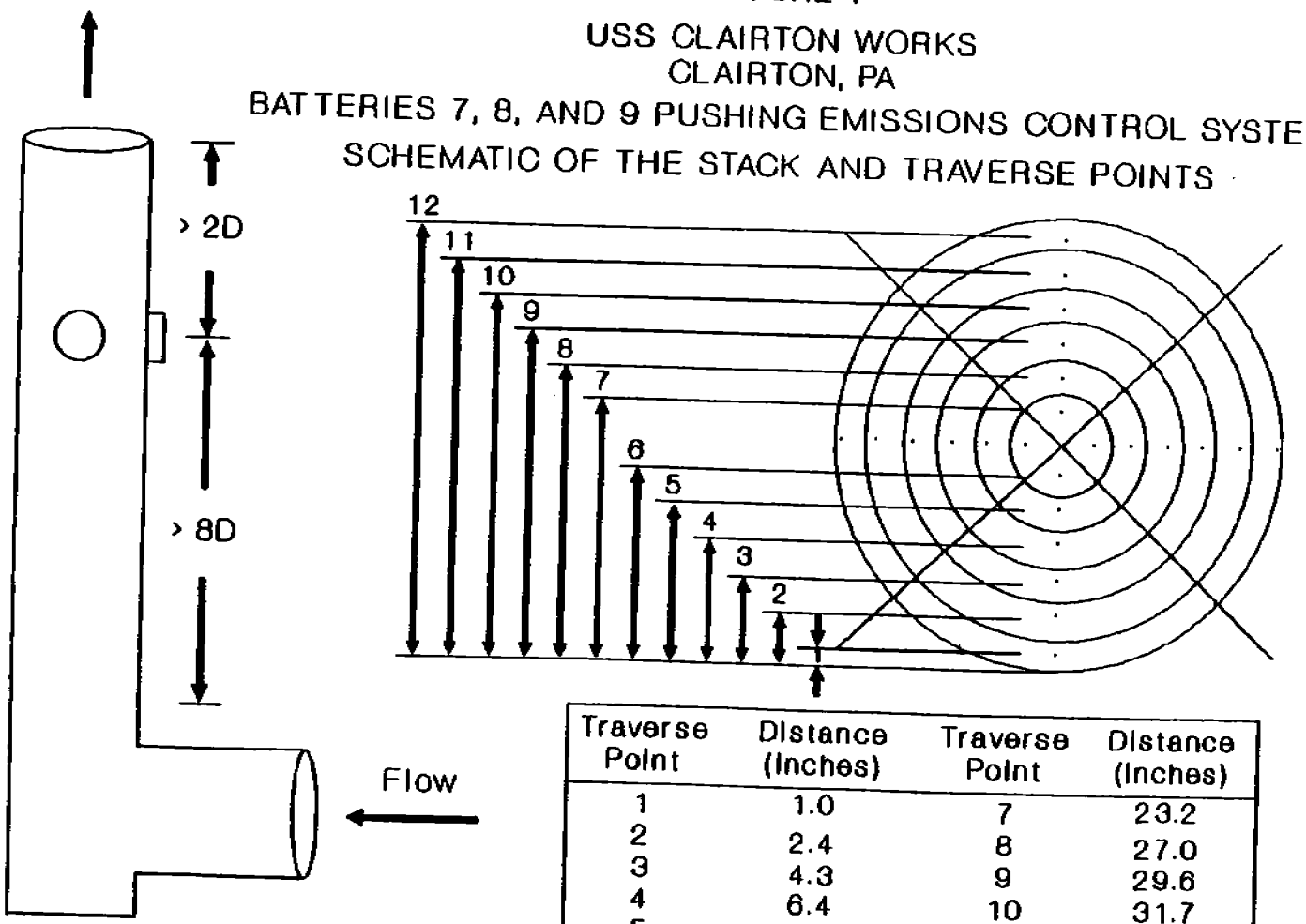
A report summarizing the compliance test program will be submitted within 60 days following completion of field work. The report will describe test methodologies utilized and present a textual and tabular summary of the emissions results and related sampling information. Copies of operational data will 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. 30197-01
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) 0.97739
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. 76"
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		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	52	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 UNIT 7-9 Battery PEC
PROJECT NO. 300197-101
TEST CREW KC
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@)
METER CORRECTION (Y) 1.026
CALIBRATION DATE
PITOT CORRECTION 0.84
CONTROL BOX NO.

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

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ΔP (in. H20)	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		289.163	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	<0.01cfm
After	5.0	<0.01cfm

PITOT LEAK CHECK

	Positive	Negative
Before	0"/9sec	0"/9sec
After	0"/15sec	0"/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 REC
PROJECT NO. 300197-01
TEST CREW [illegible]
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 12-31-92
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. CR-2-3 T1
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. 1601 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 UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW RPC
BAROMETRIC PRESSURE 28.60

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

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		309.335	1.5	1.00	1.00	57	46	4.0	102	250	46°F	250	1 min./point
33.6		309.918	1.7	1.13	1.13	58	46	4.0	102				
31.7		310.489	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		312.151	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	89				
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 Rec
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) 1.056
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= 29.8
%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 PEC
PROJECT NO. 300197-101
TEST CREW J.S
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLR-2-4-1
NOZZLE (SIZE,#) 0.150 #11
STATIC PRESSURE 1.0"
PORT DIRECTION West

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

HOT/COLD BOX NO. S
PROBE NO. 5-3
FILTER NO. [illegible] QZ
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		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		36.532	2.2	3.11	3.11	46	43	5.0	93				
29.6		37.436	2.0	2.83	2.83	46	43	5.0	96				
27.0		38.886	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	5.0	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		44.535	1.2	1.70	1.70	47	44	3.0	80				
1.0		45.317	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]	[illegible]
After	[illegible]	[illegible]

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. 70097-01
TEST CREW JJS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-8-92
TEST NO. CLP-2-4-1
NOZZLE (SIZE,#) 0.18 [illegible]
STATIC PRESSURE 1.0"
PORT DIRECTION West

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

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		46.075	1.0	1.41	1.41	45	44	2.5	79	250	68°F	250	1 min./point
2.4		46.502	1.2	1.70	1.70	45	44	2.5	79				
4.3		47.600	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		53.850	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 29.60

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

ORIFICE CORRECTION (▲H@) 1.743
METER CORRECTION (Y) [illegible]
CALIBRATION DATE 12/3/92
PITOT CORRECTION 0.84
CONTROL BOX NO. 5

HOT/COLD BOX NO. 5
PROBE NO. 5-3
FILTER NO. 159 672
STACK DIA. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ▲P (in. H20)	Orifice ▲H Required (in. H20)	Orifice ▲H 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		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 PC
PROJECT NO. 300197.01
TEST CREW JJS
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CL2-2-4 -1
NOZZLE (SIZE,#) .153 #11
STATIC PRESSURE 1.0"
PORT DIRECTION S. wall

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 0.9658
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 Q12
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		68.681	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				
18.8		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= 28.0
%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 UNIT 7-9 Battery PCC
PROJECT NO. 300197-101
TEST CREW JJS
BAROMETRIC PRESSURE 29.60

TEST DATE 12-8-92
TEST NO. CLP-2-4 -1
NOZZLE (SIZE,#) 0.180 #11
STATIC PRESSURE 1.0"
PORT DIRECTION South

ORIFICE CORRECTION (▲H@) 1.743
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. 159 472
STACK DIA. 36"
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
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		87.669	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. 300197-01
TEST CREW TM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CLR-2-1-2
NOZZLE (SIZE,#) 0.180 #22
STATIC PRESSURE 0.0
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.830
METER CORRECTION (Y) 0.9907
CALIBRATION DATE 11-25-92
PITOT CORRECTION 0.84
CONTROL BOX NO. 6

HOT/COLD BOX NO. 2
PROBE NO. 5-1
FILTER NO. 1&2 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				
17.8		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	2.5	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 SEC

	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	0.7
3.	Empty	452.5	452.4	0.1
4.	Silica Gel	636.9	628.0	8.9
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. CLR-2-1-2
NOZZLE (SIZE,#) 0.80 #22
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
1.0		765.920	1.2	1.21	1.21	40	37	3.5	93	250	<68F	250	1 min./point
2.4		766.355	0.80	0.80	0.80	40	38	3.5	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		772.639	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 MJ
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. 462 GFF
STACK DIA. 8'
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		779.329	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

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. CE-2-1-2
NOZZLE (SIZE,in) 0.180 #22
STATIC PRESSURE 0.60
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.830
METER CORRECTION (Y) 0.9817
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	3.5	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

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. 30197-04
TEST CREW TM
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CU2-2-1-2
NOZZLE (SIZE,#) 0.180 *20
STATIC PRESSURE 0.60
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.230
METER CORRECTION (Y) 0.9607
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	48°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		794.143	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 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. 5-3
FILTER NO. 165 WT2
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		424.860	1.10	0.65	0.65	47	51	4.0	89	250	46°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= 17.0

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 PCC
PROJECT NO. 300197-01
TEST CREW JB
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CR-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	<65°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	98				
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		435.914	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= 28.8
%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 REC
PROJECT NO. 30097-01
TEST CREW JBS
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 GFF
STACK DIA. 7 3/16"
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		438.775	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 UNIT 7-9 Battery PEC
PROJECT NO. 300197-01
TEST CREW JBS
BAROMETRIC PRESSURE 29.62

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

ORIFICE CORRECTION (▲H@) 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 WTZ
STACK DIA. 36"
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		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		448.456	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 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 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. 165 WTZ
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		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				
12.0		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 RK
BAROMETRIC PRESSURE 27.62

TEST DATE 12-9-92
TEST NO. CLR-2-3-2
NOZZLE (SIZE,#) 0.158 #18
STATIC PRESSURE 1.3
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. 1.63 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 H2O	570.4	569.6	0.8
2.	100mL H2O	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 UNIT 7-9 Battery 1&2
PROJECT NO. 300197-9
TEST CREW RIC
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 (▲H@) 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 ▲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
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 (▲H@) 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 ▲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		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				
11.8		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 UNIT 7-9 Battery PEC
PROJECT NO. 30097-011
TEST CREW RPC
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CP2-2-3-2
NOZZLE (SIZE,#) .158 #18
STATIC PRESSURE 1.2
PORT DIRECTION West

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 QRTZ
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		343.358	1.7	.94	.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				
17.8		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 UNIT 7-9 Battery PCC
PROJECT NO. 300197-01
TEST CREW RPC
BAROMETRIC PRESSURE 28.62

TEST DATE 12-9-92
TEST NO. CW2-2-3-2
NOZZLE (SIZE,#) .168 #18
STATIC PRESSURE 1.2
PORT DIRECTION West

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE 7-31-92
PITOT CORRECTION 0.94
CONTROL BOX NO. 4

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
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				
21.2		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=28.6
%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. 3201977-01
TEST CREW JJS
BAROMETRIC PRESSURE 29.62

TEST DATE 12-9-92
TEST NO. CR-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 CR
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	48°F	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		94.735	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=19

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,in) 0.180 HII
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. 36.4
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		101.546	1.10	1.09	1.09	56	52	2.5	76	250	48°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 (ΔH@) 1.743	HOT/COLD BOX NO. 5
TEST UNIT 7-9 Battery RC	TEST NO. CLR-2-4-2	METER CORRECTION (Y) 0.9658	PROBE NO. 5-3
PROJECT NO. 300197-01	NOZZLE (SIZE,in) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 16.4 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 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		110.685	1.40	1.39	1.39	59	55	3.0	89	250	<68F	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 UNIT 7-9 Battery PEC
PROJECT NO. 30019770/
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 West

ORIFICE CORRECTION (ΔH@) 1.743
METER CORRECTION (Y) 1.9658
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 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		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		137.700	2.40	2.45	2.45	64	59	5.0	92				
		138.865											
													Estimates:
													MW=28.8
													%H2O= 1%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DOM 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 0.60"	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		796.475	1.4	1.40	1.40	33	32	3.5	90				
29.4		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		798.840	0.8	0.80	0.80	34	31	3.0	92				
9.0		799.900	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	94				
2.4		801.710	0.8	0.80	0.80	33	31	3.0	93				
1.0		802.290	0.8	0.80	0.80	34	31	3.0	93				
		802.850											
													Estimates:
													MW= 28.8
													%H2O= 10%

SYSTEM LEAK CHECK

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	10.0	0.015
After	8.0	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. CP-2-1 -3	METER CORRECTION (Y) 0.9907	PROBE NO. 5-1
PROJECT NO. 300197-101	NOZZLE (SIZE,#) 0.190 #22	CALIBRATION DATE 11-25-92	FILTER NO. 166 GTE
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
1.0		802.850	0.8	0.80	0.80	34	31	3.0	75	250	<68F	250	1 min./point
2.4		803.465	0.8	0.80	0.80	34	31	3.0	74				
4.3		804.019	0.8	0.80	0.80	33	31	3.0	75				
6.4		804.600	0.8	0.80	0.80	34	31	3.0	90				
9.0		805.289	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	92				
27.0		806.949	1.2	1.21	1.21	33	31	3.5	92				
29.6		807.350	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	94				
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@) 1.820	HOT/COLD BOX NO. 2
TEST UNIT 7-9 Battery PCC	TEST NO. CR2-2-1-3	METER CORRECTION (Y) 0.9807	PROBE NO. 5-1
PROJECT NO. 30219 7401	NOZZLE (SIZE,#) 0.190 #22	CALIBRATION DATE 11-25-92	FILTER NO. 166 COTC
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		814.100	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= 1.90

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
TEST UNIT	7-9 Battery PEC	TEST NO.	CR-2-1-3	METER CORRECTION (Y)	0.9807
PROJECT NO.	300197-01	NOZZLE (SIZE,#)	0.180 #22	CALIBRATION DATE	11-25-92
TEST CREW	TM	STATIC PRESSURE	2.6	PITOT CORRECTION	0.84
BAROMETRIC PRESSURE	29.10	PORT DIRECTION	South	CONTROL BOX NO.	6

HOT/COLD BOX NO.	2
PROBE NO.	5-1
FILTER NO.	106 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		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		819.320	1.0	1.00	1.00	39	35	3.0	100				
27.0		819.965	.8	.80	.80	39	35	3.0	99				
23.2		820.571	.8	.80	.80	39	35	3.0	99				
12.8		821.190	.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	97				
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		823.979	1.0	1.00	1.00	40	35	3.0	95				
		824.569											
													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 2-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT USS Clairton Works	TEST DATE 12-10-92	ORIFICE CORRECTION (ΔH@) 1.770	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. [illegible] 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	[illegible]	250	<68°F	250	1 min./point
2.4		825.119	1.2	1.21	1.21	42	39	3.5	[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		828.186	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= 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

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

TEST DATE 12-10-92
TEST NO. CR-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. 10
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
35.0		456.981	1.50	0.90	0.90	45	46	6.5	85	250	68°F	250	1 min./point
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		459.898	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	0.90	0.54	0.54	45	47	5.0	85				
		463.227											

Estimates:
MW= 28.8
%H2O= 1%

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 H2O	553.6	548.6	5.0
2.	100 mL H2O	510.7	510.2	0.5
3.	Empty	464.2	464.2	0.0
4.	Silica Gel	455.8	449.3	6.5
5.				

AQE 6/92

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. 160 QTZ
TEST CREW TB	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. 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		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		464.694	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				
12.0		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= 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 12-10-92	ORIFICE CORRECTION (ΔH@) 1.779	HOT/COLD BOX NO. 6
TEST UNIT 7-9 Battery PE	TEST NO. CLR-2-2-3	METER CORRECTION (Y) 0.9739	PROBE NO. 5-1
PROJECT NO. 30097-01	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 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		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				
6.9		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		474.320	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 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. 30097-01	NOZZLE (SIZE,#) 0.158, #16	CALIBRATION DATE 11-25-92	FILTER NO. 168 QTZ
TEST CREW JPJ	STATIC PRESSURE 1.3"	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION South	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
35.0		475.302	1.10	0.67	0.67	49	51	5.0	88	250	46°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= 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 12-10-92	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. 30097-01	NOZZLE (SIZE,#) 0.158 #16	CALIBRATION DATE 11-25-92	FILTER NO. 168 QTZ
TEST CREW JB	STATIC PRESSURE	PITOT CORRECTION 0.84	STACK DIA. 36"
BAROMETRIC PRESSURE 29.10	PORT DIRECTION South	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		481.369	1.30	0.79	0.79	50	52	6.0	90	250	<68F	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	0.86	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 PC
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CL2-2-3 -3
NOZZLE (SIZE,#) 0.158 #13
STATIC PRESSURE 1.2
PORT DIRECTION West

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

HOT/COLD BOX NO. 3
PROBE NO. 54
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. 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	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 start
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/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 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 DATE 12-10-92		ORIFICE CORRECTION (▲H@) 1.641	HOT/COLD BOX NO. 3	
TEST UNIT 7-9 Battery BEC	TEST NO. CL2-2-3	-3	METER CORRECTION (Y) 1.050	PROBE NO. 5-4	
PROJECT NO. 300197-01	NOZZLE (SIZE,#) 0.158	#18	CALIBRATION DATE ~~12-8-92~~ 7/21/92	FILTER NO. 169	QTZ
TEST CREW RPC	STATIC PRESSURE 1.2		PITOT CORRECTION 0.84	STACK DIA. 36"	
BAROMETRIC PRESSURE 29.10	PORT DIRECTION West		CONTROL BOX NO. 2	PORT SIZE 4"	

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pitot ▲P (in. H20)	Orifice ▲H Required (in. H20)	Orifice ▲H 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		361.633	1.4	.77	.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= 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 PCC
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~~ 7/21/92
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. H20)	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		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 79 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 #8
STATIC PRESSURE 1.2
PORT DIRECTION South

ORIFICE CORRECTION (ΔH@) 1.641
METER CORRECTION (Y) 1.050
CALIBRATION DATE ~~12-4-92~~ 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 PE
PROJECT NO. 302197-01
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 South

ORIFICE CORRECTION (▲H@) 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 GFF
STACK DIA. 56"
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
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				
32.6		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 TS
BAROMETRIC PRESSURE 29.10

TEST DATE 12-10-92
TEST NO. CR-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. [redacted]8
PROBE NO. 5[redacted]
FILTER NO. 167 [redacted]
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		139.223	1.90	1.98	1.98	46	46	14.0	86	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	Ok/15 sec	ok/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	572.0	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. 300197-01	NOZZLE (SIZE,#) 0.180 #11	CALIBRATION DATE 12-8-92	FILTER NO. 16.7 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= 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 (▲H@) 1.743	HOT/COLD BOX NO. 8
TEST UNIT 7-9 Battery Pet	TEST NO. CR-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 ▲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		156.708	2.10	2.08	2.08	53	50	14.0	86	250	48°F	250	1 min./point
31.6		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=16

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 (▲H@) 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,#) 0.100 #11	CALIBRATION DATE 12-8-92	FILTER NO. 167 QTZ
TEST CREW JJS	STATIC PRESSURE 1.4	PITOT CORRECTION 0.84	STACK DIA. 76"
BAROMETRIC PRESSURE 29.10	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		165.944	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				
12.8		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= 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 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) 0.96580
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. 36"
PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Flow 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 EMISSION OBSERVATIONS FORM BAG HOUSE READINGS
7-8-9

OBSERVER: BEANIE 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: HAGG

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

OBSERVER: BEINIE MAY

DATE: 12-8-92

FACILITY: U.S.X CLAIRTON

OBSERVATION: START TIME: 12:45

END TIME: _____

OBSERVATION POINT:

SOUTH OF BAGHOUSE COKE YARD

SOURCE: 7-8-9 BAG HOUSE

DISTANCE: 300 FT

DIRECTION FROM: SOUTH

HEIGHT: 75 FT

WIND:

SPEED: 12 MPH

DIRECTION: WEST

TEMPERATURE: 35

SKY CONDITION: OVERCAST

BACKGROUND: SKY

A 3

READING CONDITIONS: FAIR

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 180

No. READINGS >= 20% 0

No. READINGS >= 60% 0

GREATEST OPACITY: 0

CREW: C FOREMAN: HALL

COMMENTS: _____

A14-9	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 Jaime 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-2/7	8:53		15%	.00	10%		
A-15/8	8:58	.00	10%	.00	10%		
B-5/7	9:05	.00	15%	.00	15%		
A-17/8	9:11	.00	0%	.03	25%		
B-17/7	9:18	.02	85%	.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	10%	.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-29/7	10:41	.06	65%	.07	30%		
B-29/7	10:48	.00	15%	.06	40%		
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 28 September, 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-7/8	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%		Green Gas Face
A16/9	12:11	:00	0%	:00	10%		
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	35%		

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 19 December 1992
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	1:25	[illegible]	[illegible]	[illegible]	[illegible]		
B-22/8	1:24	[illegible]	[illegible]	[illegible]	5		
A-24/8	1:10	[illegible]	[illegible]	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]	25%		
A1/8	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 1983
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:
8-9/5	2:47	00 0	00 0		
8-9/7	2:52	00 0	00 0		
8-7/9	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: USX 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: 34°

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					
B27-7	1	0	0	0	0	11:45	31					
A27-7	2	0	0	0	0	11:51	32					
B29-7	3	0	0	0	0	11:56	33					
A29-7	4	0	0	0	0	12:02	34					
B31-7	5	0	0	0	0	12:08	35					
C2-7	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	12:55	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					
B16-7	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 Pastrick
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/B-13	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 clearing car outlet during the push and travel.

* 13-15 Travel > 10% Opacity

CC-10296 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	07	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	54	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	05	
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	5	5		11-12	5	5	
	28	28			31	31	

Total Ovens Pushed 59

Total Ovens Charged 59

Pusherman

Battery Foreman

SC-10265 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. B5-8

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	06	
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. A5-7

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. B5-7

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	42	
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

Pushermen

Battery Foreman

DEC 17 '92 15:40 FROM COKING OFFICE TO BOB BROWN PAGE.003

CC-10285 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.

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	55	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:

N/A N/A N/A

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. 1101
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	
C1	4	11	4	33	
C2					

BATTERY NO. B5-7

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	00	
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	50	
1					
2					

REMARKS:

Condition of Signals: 17/20

Condition of Pusher: 16 / 21 / 22

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-10298 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 12-1-82

BATTERY NO. A-9						BATTERY NO. B-9						BATTERY NO. A-8					
OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES	OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES	OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1						1	11	20	11	42		1	5	08	5	30	
3						3	11	32	11	54		3	5	20	5	42	
5						5	11	44				5	5	32	5	54	
7						7	11	56				7	5	44	6	06	
9			12	03		9						9	5	56	6	18	
11			12	15		11						11	6	08	6	30	
13	12	05	12	27		13						13	6	20	6	42	
15	12	17	12	42		15						15	6	32	6	54	
17	12	29	12	53		17						17	6	44	7	06	
19	12	44	1	05		19						19	6	56	7	18	
21	12	55	1	16		21						21	7	08	7	30	
23	1	07	1	27		23						23	7	20	7	42	
25	1	18	1	39		25						25	7	32	7	54	
27	1	29	1	50		27						27	7	44	8	04	
29	1	41	2	08		29						29	7	56	8	12	
31	1	52	2	20		31						31	8	02	8	24	
2	8	14	8	36		2	2	10	2	32		2					
4	8	26	8	48		4	2	22	2	45		4					
6	8	38	9	00		6	2	34	2	56		6					
8	8	50	9	12		8	2	47	3	07		8					
10	9	02	9	24		10	2	58	3	18		10					
12	9	14	9	36		12	3	09	3	29		12					
14	9	26	9	48		14	3	20	3	40		14					
16	9	38	10	00		16	3	31	3	51		16					
18	9	50	10	12		18	3	42	4	00		18					
20	10	02	10	24		20	3	53	4	12		20					
22	10	14	10	36		22	4	02	4	24		22					
24	10	26	10	48		24	4	14	4	36		24					
26	10	38	11	00		26	4	26	4	48		26					
28	10	50	11	14		28	4	38	4	58		28					
30	11	02	11	30		30	4	50	5	06		30					
1						C 1	4	56	5	18		1					
2						2						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
03.001.0028

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 3

12 Hrs. Beginning 12:00 M

Date 12-10-92 P.M

BATTERY NO. B5 8						BATTERY NO. A5 7						BATTERY NO. B5 7					
OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES	OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES	OVEN NO.	TIME PUSHED		TIME CHARGED		NOTES
1						1	11	20	11	38		1	5	30	5	48	
3						3	11	30				3	5	40	6	08	
5						5	11	40				5	5	50	6	18	
7						7						7	6	10	6	28	
9			12	04		9						9	6	20	6	38	
11			12	16		11						11	6	30	6	48	
13	12	06	12	28		13						13	6	40	7	03	
15	12	18	12	40		15						15	6	50	7	13	
17	12	30	12	52		17						17	7	05	7	23	
19	12	42	1	04		19						19	7	15	7	33	
21	12	55	1	16		21						21	7	25	7	43	
23	1	06	1	28		23						23	7	35	7	53	
25	1	18	1	40		25						25	7	45	8	09	
27	1	30	1	52		27						27	7	55	8	23	
29	1	42	2	04		29						29	8	10	8	33	
31	1	55	2	10		31						31	—	—	—	—	
2	8	25	8	13		2	2	18	2	40		2					
4	8	35	8	53		4	2	30	2	52		4					
6	8	45	9	08		6	2	42	3	05		6					
8	8	55	9	23		8	2	55	3	13		8					
10	9	10	9	33		10	3	07	3	23		10					
12	9	25	9	43		12	3	15	3	33		12					
14	9	35	9	53		14	3	25	3	43		14					
16	9	45	10	08		16	3	35	3	53		16					
18	9	55	10	18		18	3	45	4	07		18					
20	10	10	10	28		20	3	55	4	27		20					
22	10	20	10	38		22	4	09	4	34		22					
24	10	30	10	48		24	4	29	4	57		24					
26	10	40	11	03		26	4	40	5	08		26					
28	10	50	11	08		28	4	59	5	28		28					
30	11	05	11	18		30	5	10	5	38		30					
C1	11	10	11	28		1						1					
C2	2	06	2	16		2						2					

REMARKS:

N/A N/A

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

Total Ovens Charged 60

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	[illegible]	11:50pm	12:00am	[illegible]
2	B31/7	[illegible]	11:56pm	12:06am	[illegible]
3	A28/8	[illegible]	12:02am	12:12am	[illegible]
4	B28/7	[illegible]	12:08am	12:18am	[illegible]
5	A30/8	[illegible]	12:14am	12:24am	[illegible]
6	B30/7	[illegible]	12:20am	12:30am	[illegible]
7	A1 /9	[illegible]	12:26am	12:36am	[illegible]
8	B1 /9	[illegible]	12:32am	12:42am	[illegible]
9	A3 /9	[illegible]	12:38am	12:48am	[illegible]
10	B3 /8	[illegible]	12:44am	12:54am	[illegible]
11	A5 /9	[illegible]	12:50am	1:00am	1:1[illegible]
12	B5 /8	[illegible]	12:56am	1:06am	[illegible]
13	A7 /9	[illegible]	1:02am	1:12am	[illegible]
14	B7 /8	[illegible]	1:08am	1:18am	[illegible]
15	A9 /9	[illegible]	1:14am	1:24am	[illegible]
16	B9 /8	[illegible]	1:20am	1:30am	[illegible]
17	A11/9	[illegible]	1:26am	1:36am	1:4[illegible]
18	B11/8	[illegible]	1:32am	1:42am	[illegible]
19	A13/9	[illegible]	1:38am	1:48am	[illegible]
20	B13/8	[illegible]	1:44am	1:54am	[illegible]
21	A15/9	[illegible]	1:50am	2:00am	[illegible]
22	B15/8	[illegible]	1:56am	2:06am	[illegible]
23	A17/9	[illegible]	2:02am	2:12am	[illegible]
24	B17/8	[illegible]	2:08am	2:18am	[illegible]
25	A19/9	[illegible]	2:14am	2:24am	[illegible]
26	B19/8	[illegible]	2:20am	2:30am	[illegible]
27	A21/9	[illegible]	2:26am	2:36am	[illegible]
28	B21/8	[illegible]	2:32am	2:42am	[illegible]
29	A23/9	[illegible]	2:38am	2:48am	[illegible]
30	B23/8	[illegible]	2:44am	2:54am	[illegible]
31	A25/9	[illegible]	2:50am	3:00am	[illegible]
32	B25/8	[illegible]	2:56am	3:06am	[illegible]
33	A27/9	[illegible]	3:02am	3:12am	[illegible]
34	B27/8	[illegible]	3:08am	3:18am	[illegible]
35	A29/9	[illegible]	3:14am	3:24am	[illegible]
36	B29/8	[illegible]	3:20am	3:30am	[illegible]
37	A31/9	[illegible]	3:26am	3:36am	[illegible]
38	B31/8	[illegible]	3:32am	3:42am	[illegible]
39	C2 /8	[illegible]	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	[illegible]
44	B6 /9	******	4:08am	4:18am	[illegible]
45	A6 /7	******	4:14am	4:24am	[illegible]
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	[illegible]
54	B16/9	******	5:08am	5:18am	[illegible]
55	A16/7	******	5:14am	5:24am	[illegible]
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 ω 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	A11/6	******	7:50am	8:00am	8:09am
2	B11/7	******	7:57am	8:07am	8:16am
3	B13/7	******	8:02am	8:12am	8:21am
4	B14/7	******	8:08am	8:18am	8:27am
5	A16/9	******	8:14am	8:24am	8:33am
6	A13/8	******	8:20am	8:30am	8:39am
7	A14/8	******	8:26am	8:36am	8:45am
8	B15/7	******	8:32am	8:42am	8:51am
9	B17/7	******	8:37am	8:47am	8:56am
10	A16/9	******	8:43am	8:53am	9:02am
11	A20/9	16:01	8:49am	8:59am	9:08am
12	A17/8	******	8:55am	9:05am	9:14am
13	A19/9	******	9:01am	9:11am	9:20am
14	B16/7	******	9:07am	9:17am	9:26am
15	A22/9	******	9:13am	9:23am	9:32am
16	A24/9	16:14	9:19am	9:29am	9:38am
17	A21/9	16:08	9:25am	9:35am	9:44am
18	A23/9	******	9:31am	9:41am	9:50am
19	B23/7	******	9:37am	9:47am	9:56am
20	B25/7	******	9:43am	9:53am	10:02am
21	A26/9	******	9:49am	9:59am	10:09am
22	A28/9	16:27	9:55am	10:05am	10:15am
23	A25/8	16:21	9:59am	10:09am	10:18am
24	A27/8	******	10:05am	10:15am	10:24am
25	B27/7	******	10:11am	10:21am	10:30am
26	B29/7	******	10:17am	10:27am	10:36am
27	A30/9	******	10:23am	10:33am	10:42am
28	B1 /9	16:40	10:30am	10:40am	10:49am
29	A29/8	16:28	10:36am	10:46am	10:55am
30	A31/8	******	10:42am	10:52am	11:01am
31	B31/7	******	10:48am	10:58am	11:07am
32	B3 /9	10:58	10:54am	11:04am	11:13am
33	B5 /9	16:40	11:00am	11:10am	11:19am
34	B6 /8	42:28	11:06am	11:16am	11:25am
35	B4 /8	******	11:12am	11:22am	11:31am
36	A1 /7	******	11:19am	11:29am	11:38am
37	A3 /7	17:11	11:25am	11:35am	11:44am
38	B7 /9	17:05	11:31am	11:41am	11:50am
39	B9 /9	16:59	11:37am	11:47am	11:56am
40	B8 /8	16:53	11:43am	11:53am	12:02pm
41	B10/8	******	11:50am	12:00pm	12:09pm
42	B8 /9	******	11:56am	12:06pm	12:15pm
43	A5 /7	17:30	12:02pm	12:12pm	12:21pm
44	A7 /7	17:24	12:08pm	12:18pm	12:27pm
45	B11/9	17:12	12:14pm	12:24pm	12:33pm
46	B13/9	17:06	12:20pm	12:30pm	12:39pm
47	B10/8	******	12:26pm	12:36pm	12:45pm
48	B12/8	******	12:32pm	12:42pm	12:51pm
49	A9 /7	17:43	12:38pm	12:48pm	12:57pm
50	A11/7	17:37	12:45pm	12:55pm	1:04pm
51	B15/9	17:25	12:51pm	1:01pm	1:10pm
52	B17/9	17:19	12:57pm	1:07pm	1:16pm
53	B14/8	******	1:03pm	1:13pm	1:22pm
54	B16/8	******	1:09pm	1:19pm	1:28pm
55	A13/7	17:56	1:16pm	1:26pm	1:35pm
56	A15/7	17:50	1:22pm	1:32pm	1:41pm
57	B19/9	17:38	1:28pm	1:38pm	1:47pm
58	B21/9	17:32	1:34pm	1:44pm	1:53pm
59	B18/8	******	1:40pm	1:50pm	1:59pm
60	B20/8	20:50	1:46pm	1:56pm	2:05pm
61	A17/7	18:09	1:52pm	2:02pm	2:11pm
62	A19/7	18:03	1:58pm	2:08pm	2:17pm
63	B23/9	17:51	2:05pm	2:15pm	2:24pm
64	B25/9	17:45	2:11pm	2:21pm	2:30pm
65	B22/8	21:09	2:17pm	2:27pm	2:36pm
66	B24/8	21:03	2:23pm	2:33pm	2:42pm
67	A21/7	18:21	2:29pm	2:39pm	2:48pm
68	A23/7	18:16	2:35pm	2:45pm	2:54pm
69	B27/9	18:04	2:41pm	2:51pm	3:00pm
70	B29/9	17:58	2:48pm	2:58pm	3:07pm
71	B26/8	21:22	2:54pm	3:04pm	3:13pm
72	B28/8	21:16	3:00pm	3:10pm	3:19pm
73	A25/7	18:34	3:06pm	3:16pm	3:25pm
74	A27/7	18:29	3:13pm	3:23pm	3:32pm
75	B31/9	18:17	3:19pm	3:29pm	3:38pm
76	D2 /9	18:11	3:25pm	3:35pm	3:44pm
77	B30/8	21:35	3:31pm	3:41pm	3:50pm
78	D1 /8	21:35	3:37pm	3:47pm	3:56pm
	A29/7	47:00	3:43pm	3:53pm	4:02pm

PUSHING SCHEDULE

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

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B23/9	1:45	3:50pm	4:00pm	4:10pm
2	A23/7	1:50	3:55pm	4:05pm	4:15pm
3	B25/9	1:51	4:00pm	4:10pm	4:20pm
4	A25/7	1:55	4:05pm	4:15pm	4:25pm
5	B27/9	1:45	4:08pm	4:18pm	4:28pm
6	A27/7	1:47	4:14pm	4:24pm	4:34pm
7	B29/9	1:47	4:20pm	4:30pm	4:40pm
8	A29/7	1:48	4:26pm	4:36pm	4:46pm
9	B31/9	0:49	4:32pm	4:42pm	4:52pm
10	A31/7	1:19	4:38pm	4:48pm	4:58pm
11	B1 /8	19:45	4:44pm	4:54pm	5:04pm
12	A1 /7	1:25	4:50pm	5:00pm	5:10pm
13	B3 /8	19:46	4:56pm	5:06pm	5:16pm
14	A3 /7	19:46	5:02pm	5:12pm	5:22pm
15	B4 /8	19:46	5:08pm	5:18pm	5:28pm
16	A5 /7	19:46	5:14pm	5:24pm	5:34pm
17	B6 /8	19:46	5:20pm	5:30pm	5:40pm
18	A8 /7	19:46	5:26pm	5:36pm	5:46pm
19	B8 /8	19:46	5:32pm	5:42pm	5:52pm
20	A10/7	45:24	5:38pm	5:48pm	5:58pm
21	B10/8	45:24	5:44pm	5:54pm	6:04pm
22	A12/7	45:24	5:50pm	6:00pm	6:10pm
23	B12/8	45:24	5:56pm	6:06pm	6:16pm
24	A14/7	45:24	6:02pm	6:12pm	6:22pm
25	B14/8	45:24	6:08pm	6:18pm	6:28pm
26	A16/7	45:24	6:14pm	6:24pm	6:34pm
27	B16/8	45:24	6:20pm	6:30pm	6:40pm
28	A18/7	45:24	6:26pm	6:36pm	6:46pm
29	B18/8	45:24	6:32pm	6:42pm	6:52pm
30	A20/7	19:46	6:38pm	6:48pm	6:58pm
31	B20/8	45:24	6:44pm	6:54pm	7:04pm
32	A22/7	45:24	6:50pm	7:00pm	7:10pm
33	B22/8	45:24	6:56pm	7:06pm	7:16pm
34	A24/7	45:24	7:02pm	7:12pm	7:22pm
35	B24/8	45:24	7:08pm	7:18pm	7:28pm
36	A26/7	45:24	7:14pm	7:24pm	7:34pm
37	B26/8	45:24	7:20pm	7:30pm	7:40pm
38	A28/7	19:46	7:26pm	7:36pm	7:46pm
39	B28/8	19:00	7:32pm	7:42pm	7:52pm
40	A30/7	19:00	7:38pm	7:48pm	7:58pm
41	B30/8	19:00	7:44pm	7:54pm	8:04pm
42	A1 /7	19:00	7:50pm	8:00pm	8:10pm
43	B1 /8	19:00	7:56pm	8:06pm	8:16pm
44	A3 /7	19:00	8:02pm	8:12pm	8:22pm
45	B3 /8	19:00	8:08pm	8:18pm	8:28pm
46	A5 /7	19:00	8:14pm	8:24pm	8:34pm
47	B5 /8	19:00	8:20pm	8:30pm	8:40pm
48	A7 /7	19:00	8:26pm	8:36pm	8:46pm
49	B7 /8	19:00	8:32pm	8:42pm	8:52pm
50	A9 /7	19:00	8:38pm	8:48pm	8:58pm
51	B9 /8	19:00	8:44pm	8:54pm	9:04pm
52	A11/7	19:00	8:50pm	9:00pm	9:10pm
53	B11/8	19:00	8:56pm	9:06pm	9:16pm
54	A13/7	19:00	9:02pm	9:12pm	9:22pm
55	B13/8	19:00	9:08pm	9:18pm	9:28pm
56	A15/7	19:00	9:14pm	9:24pm	9:34pm
57	B15/8	19:00	9:20pm	9:30pm	9:40pm
58	A17/7	19:00	9:26pm	9:36pm	9:46pm
59	B17/8	19:00	9:32pm	9:42pm	9:52pm
60	A19/7	19:00	9:38pm	9:48pm	9:58pm
61	B19/8	19:00	9:44pm	9:54pm	10:04pm
62	A21/7	19:00	9:50pm	10:00pm	10:10pm
63	B21/8	19:00	9:56pm	10:06pm	10:16pm
64	A23/7	19:00	10:02pm	10:12pm	10:22pm
65	B23/8	19:00	10:08pm	10:18pm	10:28pm
66	A25/7	19:00	10:14pm	10:24pm	10:34pm
67	B25/8	19:00	10:20pm	10:30pm	10:40pm
68	A27/7	19:00	10:26pm	10:36pm	10:46pm
69	B27/8	19:00	10:32pm	10:42pm	10:52pm
70	A29/7	19:00	10:38pm	10:48pm	10:58pm
71	B29/8	19:00	10:44pm	10:54pm	11:04pm
72	A31/7	19:00	10:50pm	11:00pm	11:10pm
73	B31/8	19:00	10:56pm	11:06pm	11:16pm
74	A3 /7	19:00	11:02pm	11:12pm	11:22pm
75	B3 /8	19:00	11:08pm	11:18pm	11:28pm
76	A4 /7	******	11:14pm	11:24pm	11:34pm
77	B4 /9	******	11:20pm	11:30pm	11:40pm
78	A4 /7	******	11:26pm	11:36pm	11:46pm
79	B6 /9	******	11:32pm	11:42pm	11:52pm
80	A6 /7	******	11:38pm	11:48pm	11:58pm
		******	11:44pm	11:54pm	12:04am

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

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

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

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

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

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

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B24/8	17:27	7:50am	8:00am	8:25am
2	A26/9	22:07	7:57am	8:06am	8:31am
3	B26/8	17:08	8:02am	8:12am	8:37am
4	A28/9	22:09	8:08am	8:18am	8:43am
5	B28/8	17:14	8:14am	8:24am	8:49am
6	A30/9	21:5?	8:20am	8:30am	8:55am
7	B30/8	16:55	8:26am	8:36am	9:01am
8	C1 /8	1?:56	8:33am	8:43am	9:08am
9	B1 /9	2?:03	8:39am	8:49am	9:14am
10	A1 /7	2?:50	8:45am	8:55am	9:20am
11	B3 /9	21:51	8:51am	9:01am	9:26am
12	A3 /7	21:26	8:57am	9:07am	9:32am
13	B5 /9	21:57	9:03am	9:13am	9:38am
14	A5 /7	21:08	9:10am	9:20am	9:45am
15	B7 /9	21:30	9:16am	9:26am	9:51am
16	A7 /7	21:14	9:22am	9:32am	9:57am
17	B9 /9	21:45	9:28am	9:38am	10:03am
18	A9 /7	20:55	9:34am	9:44am	10:09am
19	B11/9	21:26	9:40am	9:50am	10:15am
20	A11/7	21:07	9:46am	9:56am	10:21am
21	B13/9	21:33	9:53am	10:03am	10:28am
22	A13/7	20:43	9:59am	10:09am	10:34am
23	B15/9	21:14	10:05am	10:15am	10:40am
24	A15/7	20:49	10:11am	10:21am	10:46am
25	B17/9	21:20	10:17am	10:27am	10:52am
26	A17/7	20:30	10:23am	10:33am	10:58am
27	B19/9	21:02	10:30am	10:40am	11:05am
28	A19/7	20:37	10:36am	10:46am	11:11am
29	B21/9	21:08	10:42am	10:52am	11:17am
30	A21/7	20:19	10:48am	10:58am	11:23am
31	B23/9	19:04	10:54am	11:04am	11:29am
32	A23/7	19:04	11:00am	11:10am	11:35am
33	B25/9	19:04	11:06am	11:16am	11:41am
34	A25/7	19:05	11:13am	11:23am	11:48am
35	B27/9	19:05	11:19am	11:29am	11:54am
36	A27/7	19:05	11:25am	11:35am	12:00pm
37	B29/9	19:05	11:31am	11:41am	12:06pm
38	A29/7	19:05	11:37am	11:47am	12:12pm
39	B31/9	19:05	11:43am	11:53am	12:18pm
40	A31/7	19:06	11:50am	12:00pm	12:25pm
41	C3 /9	19:06	11:56am	12:06pm	12:31pm
42	A2 /8	19:06	12:02pm	12:12pm	12:37pm
43	B2 /7	19:06	12:08pm	12:18pm	12:43pm
44	A4 /8	19:06	12:14pm	12:24pm	12:49pm
45	B4 /7	19:06	12:20pm	12:30pm	12:55pm
46	A6 /8	19:06	12:26pm	12:36pm	1:01pm
47	B6 /7	19:06	12:33pm	12:43pm	1:08pm
48	A8 /8	19:07	12:39pm	12:49pm	1:14pm
49	B8 /7	19:07	12:45pm	12:55pm	1:20pm
50	A10/8	19:07	12:51pm	1:01pm	1:26pm
51	B10/7	19:07	12:57pm	1:07pm	1:32pm
52	A12/8	19:07	1:03pm	1:13pm	1:38pm
53	B12/7	19:07	1:09pm	1:19pm	1:44pm
54	A14/8	19:07	1:16pm	1:26pm	1:51pm
55	B14/7	19:08	1:22pm	1:32pm	1:57pm
56	A16/8	19:08	1:28pm	1:38pm	2:03pm
57	B16/7	19:08	1:34pm	1:44pm	2:09pm
58	A18/8	19:08	1:40pm	1:50pm	2:15pm
59	B18/7	19:08	1:46pm	1:56pm	2:21pm
60	A20/8	19:08	1:53pm	2:03pm	2:28pm
61	B20/7	19:09	1:59pm	2:09pm	2:34pm
62	A22/8	19:09	2:05pm	2:15pm	2:40pm
63	B22/7	19:09	2:11pm	2:21pm	2:46pm
64	A24/8	19:09	2:17pm	2:27pm	2:52pm
65	B24/7	19:09	2:23pm	2:33pm	2:58pm
66	A26/8	19:09	2:29pm	2:39pm	3:04pm
67	B26/7	19:09	2:36pm	2:46pm	3:11pm
68	A28/8	19:10	2:42pm	2:52pm	3:17pm
69	B28/7	19:10	2:48pm	2:58pm	3:23pm
70	A30/8	19:10	2:54pm	3:04pm	3:29pm
71	B30/7	19:10	3:00pm	3:10pm	3:35pm
72	A1 /9	19:10	3:06pm	3:16pm	3:41pm
73	B1 /8	19:10	3:12pm	3:22pm	3:48pm
74	A3 /9	19:11	3:19pm	3:29pm	3:54pm
75	B3 /8	19:11	3:25pm	3:35pm	4:00pm
76	A5 /9	19:11	3:31pm	3:41pm	4:06pm
77	B5 /8	19:11	3:37pm	3:47pm	4:12pm
78	A7 /9	19:11	3:43pm	3:53pm	4:18pm

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

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B7 /8	10:12	4:50pm	4:00pm	4:10pm
2	B5 /8	10:12	4:52pm	4:06pm	4:16pm
3	B9 /8	10:12	4:54pm	4:12pm	4:22pm
4	B11/8	10:12	4:56pm	4:18pm	4:28pm
5	B13/8	10:12	4:58pm	4:24pm	4:34pm
6	B15/8	10:12	5:00pm	4:30pm	4:40pm
7	B17/8	10:12	5:02pm	4:36pm	4:46pm
8	B19/8	10:12	5:04pm	4:42pm	4:52pm
9	B21/8	10:12	5:06pm	4:48pm	4:58pm
10	B23/8	10:12	5:08pm	4:54pm	5:04pm
11	B25/8	10:12	5:10pm	5:00pm	5:10pm
12	B27/8	10:12	5:12pm	5:06pm	5:16pm
13	B29/8	10:12	5:14pm	5:12pm	5:22pm
14	B31/8	10:12	5:16pm	5:18pm	5:28pm
15	B33/8	10:12	5:18pm	5:24pm	5:34pm
16	B35/8	10:12	5:20pm	5:30pm	5:40pm
17	B37/8	10:12	5:22pm	5:36pm	5:46pm
18	B39/8	10:12	5:24pm	5:42pm	5:52pm
19	B41/8	10:12	5:26pm	5:48pm	5:58pm
20	B43/8	10:12	5:28pm	5:54pm	6:04pm
21	B45/8	10:12	5:30pm	6:00pm	6:10pm
22	B47/8	10:12	5:32pm	6:06pm	6:16pm
23	B49/8	10:12	5:34pm	6:12pm	6:22pm
24	B51/8	10:12	5:36pm	6:18pm	6:28pm
25	B53/8	10:12	5:38pm	6:24pm	6:34pm
26	B55/8	10:12	5:40pm	6:30pm	6:40pm
27	B57/8	10:12	5:42pm	6:36pm	6:46pm
28	B59/8	10:12	5:44pm	6:42pm	6:52pm
29	B61/8	10:12	5:46pm	6:48pm	6:58pm
30	B63/8	10:12	5:48pm	6:54pm	7:04pm
31	B65/8	10:12	5:50pm	7:00pm	7:10pm
32	B67/8	10:12	5:52pm	7:06pm	7:16pm
33	B69/8	10:12	5:54pm	7:12pm	7:22pm
34	B71/8	10:12	5:56pm	7:18pm	7:28pm
35	B73/8	10:12	5:58pm	7:24pm	7:34pm
36	B75/8	10:12	6:00pm	7:30pm	7:40pm
37	B77/8	10:12	6:02pm	7:36pm	7:46pm
38	B79/8	10:12	6:04pm	7:42pm	7:52pm
39	B81/8	10:12	6:06pm	7:48pm	7:58pm
40	B83/8	10:12	6:08pm	7:54pm	8:04pm
41	B85/8	10:12	6:10pm	8:00pm	8:10pm
42	B87/8	10:12	6:12pm	8:06pm	8:16pm
43	B89/8	10:12	6:14pm	8:12pm	8:22pm
44	B91/8	10:12	6:16pm	8:18pm	8:28pm
45	B93/8	10:12	6:18pm	8:24pm	8:34pm
46	B95/8	10:12	6:20pm	8:30pm	8:40pm
47	B97/8	10:12	6:22pm	8:36pm	8:46pm
48	B99/8	10:12	6:24pm	8:42pm	8:52pm
49	B101/8	10:12	6:26pm	8:48pm	8:58pm
50	B103/8	10:12	6:28pm	8:54pm	9:04pm
51	B105/8	10:12	6:30pm	9:00pm	9:10pm
52	B107/8	10:12	6:32pm	9:06pm	9:16pm
53	B109/8	10:12	6:34pm	9:12pm	9:22pm
54	B111/8	10:12	6:36pm	9:18pm	9:28pm
55	B113/8	10:12	6:38pm	9:24pm	9:34pm
56	B115/8	10:12	6:40pm	9:30pm	9:40pm
57	B117/8	10:12	6:42pm	9:36pm	9:46pm
58	B119/8	10:12	6:44pm	9:42pm	9:52pm
59	B121/8	10:12	6:46pm	9:48pm	9:58pm
60	B123/8	10:12	6:48pm	9:54pm	10:04pm
61	B125/8	10:12	6:50pm	10:00pm	10:10pm
62	B127/8	10:12	6:52pm	10:06pm	10:16pm
63	B129/8	10:12	6:54pm	10:12pm	10:22pm
64	B131/8	10:12	6:56pm	10:18pm	10:28pm
65	B133/8	10:12	6:58pm	10:24pm	10:34pm
66	B135/8	10:12	7:00pm	10:30pm	10:40pm
67	B137/8	10:12	7:02pm	10:36pm	10:46pm
68	B139/8	10:12	7:04pm	10:42pm	10:52pm
69	B141/8	10:12	7:06pm	10:48pm	10:58pm
70	B143/8	10:12	7:08pm	10:54pm	11:04pm
71	B145/8	10:12	7:10pm	11:00pm	11:10pm
72	B147/8	10:12	7:12pm	11:06pm	11:16pm
73	B149/8	10:12	7:14pm	11:12pm	11:22pm
74	B151/8	10:12	7:16pm	11:18pm	11:28pm
75	B153/8	10:12	7:18pm	11:24pm	11:34pm
76	B155/8	10:12	7:20pm	11:30pm	11:40pm
77	B157/8	10:12	7:22pm	11:36pm	11:46pm
78	B159/8	10:12	7:24pm	11:42pm	11:52pm
79	B161/8	10:12	7:26pm	11:48pm	11:58pm
80	B163/8	10:12	7:28pm	11:54pm	12:04am

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

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

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

Seq #	Oven	Last Pushed	Earliest	Desired	Latest
1	B6 /7	19:17	7:50pm	8:00am	8:25am
2	B8 /7	19:17	7:57pm	8:06am	8:35am
3	B8 /7	19:17	8:02pm	8:12am	8:40am
4	B10/7	19:17	8:08pm	8:18am	8:45am
5	B10/7	19:17	8:14pm	8:24am	8:51am
6	B12/7	19:17	8:20pm	8:30am	8:57am
7	B12/7	19:17	8:26pm	8:36am	9:03am
8	B14/7	19:17	8:32pm	8:42am	9:09am
9	B14/7	19:17	8:38pm	8:48am	9:15am
10	A15/9	19:17	8:44pm	8:54am	9:21am
11	B15/7	19:17	8:50pm	9:00am	9:27am
12	A16/9	19:17	8:56pm	9:06am	9:33am
13	B16/7	19:17	9:02pm	9:12am	9:39am
14	A18/9	19:17	9:08pm	9:18am	9:45am
15	B18/7	19:17	9:14pm	9:24am	9:51am
16	A20/9	19:17	9:20pm	9:30am	9:57am
17	B20/7	19:17	9:26pm	9:36am	10:03am
18	A22/9	19:17	9:32pm	9:42am	10:09am
19	B22/7	19:17	9:38pm	9:48am	10:15am
20	A24/9	19:17	9:44pm	9:54am	10:21am
21	B24/7	19:17	9:50pm	10:00am	10:27am
22	A26/9	19:17	9:56pm	10:06am	10:33am
23	B26/7	19:17	10:02pm	10:12am	10:39am
24	A28/9	19:17	10:08pm	10:18am	10:45am
25	B28/7	19:17	10:14pm	10:24am	10:51am
26	A30/9	19:17	10:20pm	10:30am	10:57am
27	B30/7	19:17	10:26pm	10:36am	11:03am
28	A1 /9	19:17	10:32pm	10:42am	11:09am
29	B1 /9	19:17	10:38pm	10:48am	11:15am
30	A3 /9	19:17	10:44pm	10:54am	11:21am
31	B3 /9	19:17	10:50pm	11:00am	11:27am
32	A5 /9	19:17	10:56pm	11:06am	11:33am
33	B5 /9	19:17	11:02pm	11:12am	11:39am
34	A7 /9	19:17	11:08pm	11:18am	11:45am
35	B7 /9	19:16	11:14pm	11:24am	11:51am
36	A9 /9	19:17	11:20pm	11:30am	11:57am
37	B9 /9	19:17	11:26pm	11:36am	12:03pm
38	A11/9	19:17	11:32pm	11:42am	12:09pm
39	B11/9	19:17	11:38pm	11:48am	12:15pm
40	A13/9	19:17	11:44pm	11:54am	12:21pm
41	B13/9	19:17	11:50pm	12:00pm	12:27pm
42	A15/9	19:17	11:56pm	12:06pm	12:33pm
43	B15/9	19:18	12:02am	12:12pm	12:39pm
44	A17/9	19:18	12:08am	12:18pm	12:45pm
45	B17/9	19:18	12:14am	12:24pm	12:51pm
46	A19/9	19:18	12:20am	12:30pm	12:57pm
47	B19/9	19:18	12:26am	12:36pm	1:03pm
48	A21/9	19:18	12:32am	12:42pm	1:09pm
49	B21/9	19:18	12:38am	12:48pm	1:15pm
50	A23/9	19:19	12:44am	12:54pm	1:21pm
51	B23/9	19:19	12:50am	1:00pm	1:27pm
52	A25/9	19:19	12:56am	1:06pm	1:33pm
53	B25/9	19:19	1:02am	1:12pm	1:39pm
54	A27/9	19:19	1:08am	1:18pm	1:45pm
55	B27/9	19:19	1:14am	1:24pm	1:51pm
56	A29/9	19:19	1:20am	1:30pm	1:57pm
57	B29/9	19:20	1:26am	1:36pm	2:03pm
58	A31/9	19:20	1:32am	1:42pm	2:09pm
59	B31/9	19:20	1:38am	1:48pm	2:15pm
60	A2 /9	19:20	1:44am	1:54pm	2:21pm
61	B2 /9	19:20	1:50am	2:00pm	2:27pm
62	A4 /7	******	1:56am	2:06pm	2:33pm
63	B4 /9	******	2:02am	2:12pm	2:39pm
64	A6 /7	******	2:08am	2:18pm	2:45pm
65	B6 /9	******	2:14am	2:24pm	2:51pm
66	A8 /7	******	2:20am	2:30pm	2:57pm
67	B8 /9	******	2:26am	2:36pm	3:03pm
68	A10/7	******	2:32am	2:42pm	3:09pm
69	B10/9	******	2:38am	2:48pm	3:15pm
70	A12/7	******	2:44am	2:54pm	3:21pm
71	B12/9	******	2:50am	3:00pm	3:27pm
72	A14/7	******	2:56am	3:06pm	3:33pm
73	B14/9	******	3:02am	3:12pm	3:39pm
74	A16/7	******	3:08am	3:18pm	3:45pm
75	B16/9	******	3:14am	3:24pm	3:51pm
76	A18/7	******	3:20am	3:30pm	3:57pm
77	B18/9	******	3:26am	3:36pm	4:03pm
78	A20/7	******	3:32am	3:42pm	4:09pm
	B20/9	******	3:38am	3:48pm	4:15pm
	A22/7	******	3:44am	3:54pm	4:21pm
	B22/9	******	3:50am	4:00pm	4:27pm
	A24/7	******	3:56am	4:06pm	4:33pm
	B24/9	******	4:02am	4:12pm	4:39pm
	A26/7	******	4:08am	4:18pm	4:45pm
	B26/9	******	4:14am	4:24pm	4:51pm
	A28/7	******	4:20am	4:30pm	4:57pm
	B28/9	******	4:26am	4:36pm	5:03pm
	A30/7	******	4:32am	4:42pm	5:09pm
	B30/9	******	4:38am	4:48pm	5:15pm
	A1 /7	******	4:44am	4:54pm	5:21pm
	B1 /9	******	4:50am	5:00pm	5:27pm
	A3 /7	******	4:56am	5:06pm	5:33pm
	B3 /9	******	5:02am	5:12pm	5:39pm
	A5 /7	******	5:08am	5:18pm	5:45pm
	B5 /9	******	5:14am	5:24pm	5:51pm
	A7 /7	******	5:20am	5:30pm	5:57pm
	B7 /9	******	5:26am	5:36pm	6:03pm
	A9 /7	******	5:32am	5:42pm	6:09pm
	B9 /9	******	5:38am	5:48pm	6:15pm
	A11/7	******	5:44am	5:54pm	6:21pm
	B11/9	******	5:50am	6:00pm	6:27pm
	A13/7	******	5:56am	6:06pm	6:33pm
	B13/9	******	6:02am	6:12pm	6:39pm
	A15/7	******	6:08am	6:18pm	6:45pm
	B15/9	******	6:14am	6:24pm	6:51pm
	A17/7	******	6:20am	6:30pm	6:57pm
	B17/9	******	6:26am	6:36pm	7:03pm
	A19/7	******	6:32am	6:42pm	7:09pm
	B19/9	******	6:38am	6:48pm	7:15pm
	A21/7	******	6:44am	6:54pm	7:21pm
	B21/9	******	6:50am	7:00pm	7:27pm
	A23/7	******	6:56am	7:06pm	7:33pm
	B23/9	******	7:02am	7:12pm	7:39pm
	A25/7	******	7:08am	7:18pm	7:45pm
	B25/9	******	7:14am	7:24pm	7:51pm
	A27/7	******	7:20am	7:30pm	7:57pm
	B27/9	******	7:26am	7:36pm	8:03pm
	A29/7	******	7:32am	7:42pm	8:09pm
	B29/9	******	7:38am	7:48pm	8:15pm
	A31/7	******	7:44am	7:54pm	8:21pm
	B31/9	******	7:50am	8:00pm	8:27pm
	A2 /7	******	7:56am	8:06pm	8:33pm
	B2 /9	******	8:02am	8:12pm	8:39pm
	A4 /7	******	8:08am	8:18pm	8:45pm
	B4 /9	******	8:14am	8:24pm	8:51pm
	A6 /7	******	8:20am	8:30pm	8:57pm
	B6 /9	******	8:26am	8:36pm	9:03pm
	A8 /7	******	8:32am	8:42pm	9:09pm
	B8 /9	******	8:38am	8:48pm	9:15pm
	A10/7	******	8:44am	8:54pm	9:21pm
	B10/9	******	8:50am	9:00pm	9:27pm
	A12/7	******	8:56am	9:06pm	9:33pm
	B12/9	******	9:02am	9:12pm	9:39pm
	A14/7	******	9:08am	9:18pm	9:45pm
	B14/9	******	9:14am	9:24pm	9:51pm
	A16/7	******	9:20am	9:30pm	9:57pm
	B16/9	******	9:26am	9:36pm	10:03pm
	A18/7	******	9:32am	9:42pm	10:09pm
	B18/9	******	9:38am	9:48pm	10:15pm
	A20/7	******	9:44am	9:54pm	10:21pm
	B20/9	******	9:50am	10:00pm	10:27pm
	A22/7	******	9:56am	10:06pm	10:33pm
	B22/9	******	10:02am	10:12pm	10:39pm
	A24/7	******	10:08am	10:18pm	10:45pm
	B24/9	******	10:14am	10:24pm	10:51pm
	A26/7	******	10:20am	10:30pm	10:57pm
	B26/9	******	10:26am	10:36pm	11:03pm
	A28/7	******	10:32am	10:42pm	11:09pm
	B28/9	******	10:38am	10:48pm	11:15pm
	A30/7	******	10:44am	10:54pm	11:21pm
	B30/9	******	10:50am	11:00pm	11:27pm
	A1 /7	******	10:56am	11:06pm	11:33pm
	B1 /9	******	11:02am	11:12pm	11:39pm
	A3 /7	******	11:08am	11:18pm	11:45pm
	B3 /9	******	11:14am	11:24pm	11:51pm
	A5 /7	******	11:20am	11:30pm	11:57pm
	B5 /9	******	11:26am	11:36pm	12:03am
	A7 /7	******	11:32am	11:42pm	12:09am
	B7 /9	******	11:38am	11:48pm	12:15am
	A9 /7	******	11:44am	11:54pm	12:21am
	B9 /9	******	11:50am	12:00am	12:27am
	A11/7	******	11:56am	12:06am	12:33am
	B11/9	******	12:02pm	12:12am	12:39am
	A13/7	******	12:08pm	12:18am	12:45am
	B13/9	******	12:14pm	12:24am	12:51am
	A15/7	******	12:20pm	12:30am	12:57am
	B15/9	******	12:26pm	12:36am	1:03am
	A17/7	******	12:32pm	12:42am	1:09am
	B17/9	******	12:38pm	12:48am	1:15am
	A19/7	******	12:44pm	12:54am	1:21am
	B19/9	******	12:50pm	1:00am	1:27am
	A21/7	******	12:56pm	1:06am	1:33am
	B21/9	******	1:02pm	1:12am	1:39am
	A23/7	******	1:08pm	1:18am	1:45am
	B23/9	******	1:14pm	1:24am	1:51am
	A25/7	******	1:20pm	1:30am	1:57am
	B25/9	******	1:26pm	1:36am	2:03am
	A27/7	******	1:32pm	1:42am	2:09am
	B27/9	******	1:38pm	1:48am	2:15am
	A29/7	******	1:44pm	1:54am	2:21am
	B29/9	******	1:50pm	2:00am	2:27am
	A31/7	******	1:56pm	2:06am	2:33am
	B31/9	******	2:02pm	2:12am	2:39am
	A2 /7	******	2:08pm	2:18am	2:45am
	B2 /9	******	2:14pm	2:24am	2:51am
	A4 /7	******	2:20pm	2:30am	2:57am
	B4 /9	******	2:26pm	2:36am	3:03am
	A6 /7	******	2:32pm	2:42am	3:09am
	B6 /9	******	2:38pm	2:48am	3:15am
	A8 /7	******	2:44pm	2:54am	3:21am
	B8 /9	******	2:50pm	3:00am	3:27am
	A10/7	******	2:56pm	3:06am	3:33am
	B10/9	******	3:02pm	3:12am	3:39am
	A12/7	******	3:08pm	3:18am	3:45am
	B12/9	******	3:14pm	3:24am	3:51am
	A14/7	******	3:20pm	3:30am	3:57am
	B14/9	******	3:26pm	3:36am	4:03am
	A16/7	******	3:32pm	3:42am	4:09am
	B16/9	******	3:38pm	3:48am	4:15am
	A18/7	******	3:44pm	3:54am	4:21am
	B18/9	******	3:50pm	4:00am	4:27am
	A20/7	******	3:56pm	4:06am	4:33am
	B20/9	******	4:02pm	4:12am	4:39am
	A22/7	******	4:08pm	4:18am	4:45am
	B22/9	******	4:14pm	4:24am	4:51am
	A24/7	******	4:20pm	4:30am	4:57am
	B24/9	******	4:26pm	4:36am	5:03am
	A26/7	******	4:32pm	4:42am	5:09am
	B26/9	******	4:38pm	4:48am	5:15am
	A28/7	******	4:44pm	4:54am	5:21am
	B28/9	******	4:50pm	5:00am	5:27am
	A30/7	******	4:56pm	5:06am	5:33am
	B30/9	******	5:02pm	5:12am	5:39am
	A1 /7	******	5:08pm	5:18am	5:45am
	B1 /9	******	5:14pm	5:24am	5:51am
	A3 /7	******	5:20pm	5:30am	5:57am
	B3 /9	******	5:26pm	5:36am	6:03am
	A5 /7	******	5:32pm	5:42am	6:09am
	B5 /9	******	5:38pm	5:48am	6:15am
	A7 /7	******	5:44pm	5:54am	6:21am
	B7 /9	******	5:50pm	6:00am	6:27am
	A9 /7	******	5:56pm	6:06am	6:33am
	B9 /9	******	6:02pm	6:12am	6:39am
	A11/7	******	6:08pm	6:18am	6:45am
	B11/9	******	6:14pm	6:24am	6:51am
	A13/7	******	6:20pm	6:30am	6:57am
	B13/9	******	6:26pm	6:36am	7:03am
	A15/7	******	6:32pm	6:42am	7:09am
	B15/9	******	6:38pm	6:48am	7:15am
	A17/7	******	6:44pm	6:54am	7:21am
	B17/9	******	6:50pm	7:00am	7:27am
	A19/7	******	6:56pm	7:06am	7:33am
	B19/9	******	7:02pm	7:12am	7:39am
	A21/7	******	7:08pm	7:18am	7:45am
	B21/9	******	7:14pm	7:24am	7:51am
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	B23/9	******	7:26pm	7:36am	8:03am
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	B25/9	******	7:38pm	7:48am	8:15am
	A27/7	******	7:44pm	7:54am	8:21am
	B27/9	******	7:50pm	8:00am	8:27am
	A29/7	******	7:56pm	8:06am	8:33am
	B29/9	******	8:02pm	8:12am	8:39am
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	B31/9	******	8:14pm	8:24am	8:51am
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	B2 /9	******	8:26pm	8:36am	9:03am
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	B6 /9	******	8:50pm	9:00am	9:27am
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	A22/7	******	10:20pm	10:30am	10:57am
	B22/9	******	10:26pm	10:36am	11:03am
	A24/7	******	10:32pm	10:42am	11:09am
	B24/9	******	10:38pm	10:48am	11:15am
	A26/7	******	10:44pm	10:54am	11:21am
	B26/9	******	10:50pm	11:00am	11:27am
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	B28/9	******	11:02pm	11:12am	11:39am
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	A3 /7	******	11:32pm	11:42am	12:09pm
	B3 /9	******	11:38pm	11:48am	12:15pm
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	B13/9	******	12:38am	12:48pm	1:15pm
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	B15/9	******	12:50am	1:00pm	1:27pm
	A17/7	******	12:56am	1:06pm	1:33pm
	B17/9	******	1:02am	1:12pm	1:39pm
	A19/7	******	1:08am	1:18pm	1:45pm
	B19/9	******	1:14am	1:24pm	1:51pm
	A21/7	******	1:20am	1:30pm	1:57pm
	B21/9	******	1:26am	1:36pm	2:03pm
	A23/7	******	1:32am	1:42pm	2:09pm
	B23/9	******	1:38am	1:48pm	2:15pm
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	B25/9	******	1:50am	2:00pm	2:27pm
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	A29/7	******	2:08am	2:18pm	2:45pm
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	A31/7	******	2:20am	2:30pm	2:57pm
	B31/9	******	2:26am	2:36pm	3:03pm
	A2 /7	******	2:32am	2:42pm	3:09pm
	B2 /9	******	2:38am	2:48pm	3:15pm
	A4 /7	******	2:44am	2:54pm	3:21pm
	B4 /9	******	2:50am	3:00pm	3:27pm
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	A10/7	******	3:20am	3:30pm	3:57pm
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	A12/7	******	3:32am	3:42pm	4:09pm
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	A14/7	******	3:44am	3:54pm	4:21pm
	B14/9	******	3:50am	4:00pm	4:27pm
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	B16/9	******	4:02am	4:12pm	4:39pm
	A18/7	******	4:08am	4:18pm	4:45pm
	B18/9	******	4:14am	4:24pm	4:51pm
	A20/7	******	4:20am	4:30pm	4:57pm
	B20/9	******	4:26am	4:36pm	5:03pm
	A22/7	******	4:32am	4:42pm	5:09pm
	B22/9	******	4:38am	4:48pm	5:15pm
	A24/7	******	4:44am	4:54pm	5:21pm
	B24/9	******	4:50am	5:00pm	5:27pm
	A26/7	******	4:56am	5:06pm	5:33pm
	B26/9	******	5:02am	5:12pm	5:39pm
	A28/7	******	5:08am	5:18pm	5:45pm
	B28/9	******	5:14am	5:24pm	5:51pm
	A30/7	******	5:20am	5:30pm	5:57pm
	B30/9	******	5:26am	5:36pm	6:03pm
	A1 /7	******	5:32am	5:42pm	6:09pm
	B1 /9	******	5:38am	5:48pm	6:15pm
	A3 /7	******	5:44am	5:54pm	6:21pm
	B3 /9	******	5:50am	6:00pm	6:27pm
	A5 /7	******	5:56am	6:06pm	6:33pm
	B5 /9	******	6:02am	6:12pm	6:39pm
	A7 /7	******	6:08am	6:18pm	6:45pm
	B7 /9	******	6:14am	6:24pm	6:51pm
	A9 /7	******	6:20am	6:30pm	6:57pm
	B9 /9	******	6:26am	6:36pm	7:03pm
	A11/7	******	6:32am	6:42pm	7:09pm
	B11/9	******	6:38am	6:48pm	7:15pm
	A13/7	******	6:44am	6:54pm	7:21pm
	B13/9	******	6:50am	7:00pm	7:27pm
	A15/7	******	6:56am	7:06pm	7:33pm
	B15/9	******	7:02am	7:12pm	7:39pm
	A17/7	******	7:08am	7:18pm	7:45pm
	B17/9	******	7:14am	7:24pm	7:51pm
	A19/7	******	7:20am	7:30pm	7:57pm
	B19/9	******	7:26am	7:36pm	8:03pm
	A21/7	******	7:32am	7:42pm	8:09pm
	B21/9	******	7:38am	7:48pm	8:15pm
	A23/7	******	7:44am	7:54pm	8:21pm
	B23/9	******	7:50am	8:00pm	8:27pm
	A25/7	******	7:56am	8:06pm	8:33pm
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	A27/7	******	8:08am	8:18pm	8:45pm
	B27/9	******	8:14am	8:24pm	8:51pm
	A29/7	******	8:20am	8:30pm	8:57pm
	B29/9	******	8:26am	8:36pm	9:03pm
	A31/7	******	8:32am	8:42pm	9:09pm
	B31/9	******	8:38am	8:48pm	9:15pm
	A2 /7	******	8:44am	8:54pm	9:21pm
	B2 /9	******	8:50am	9:00pm	9:27pm
	A4 /7	******	8:56am	9:06pm	9:33pm
	B4 /9	******	9:02am	9:12pm	9:39pm
	A6 /7	******	9:08am	9:18pm	9:45pm
	B6 /9	******	9:14am	9:24pm	9:51pm
	A8 /7	******	9:20am	9:30pm	9:57pm
	B8 /9	******	9:26am	9:36pm	10:03pm
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	A12/7	******	9:44am	9:54pm	10:21pm
	B12/9	******	9:50am	10:00pm	10:27pm
	A14/7	******	9:56am	10:06pm	10:33pm
	B14/9	******	10:02am	10:12pm	10:39pm
	A16/7	******	10:08am	10:18pm	10:45pm
	B16/9	******	10:14am	10:24pm	10:51pm
	A18/7	******	10:20am	10:30pm	10:57pm
	B18/9	******	10:26am	10:36pm	11:03pm
	A20/7	******	10:32am	10:42pm	11:09pm
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	B22/9	******	10:50am	11:00pm	11:27pm
	A24/7	******	10:56am	11:06pm	11:33pm
	B24/9	******	11:02am	11:12pm	11:39pm
	A26/7	******	11:08am	11:18pm	11:45pm
	B26/9	******	11:14am	11:24pm	11:51pm
	A28/7	******	11:20am	11:30pm	11:57pm
	B28/9	******	11:26am	11:36pm	12:03am
	A30/7	******	11:32am	11:42pm	12:09am
	B30/9	******	11:38am	11:48pm	12:15am
	A1 /7	******	11:44am	11:54pm	12:21am
	B1 /9	******	11:50am	12:00am	12:27am
	A3 /7	******	11:56am	12:06am	12:33am
	B3 /9	******	12:02pm	12:12am	12:39am
	A5 /7	******	12:08pm	12:18am	12:45am
	B5 /9	******	12:14pm	12:24am	12:51am
	A7 /7	******	12:20pm	12:30am	12:57am
	B7 /9	******	12:26pm	12:36am	1:03am
	A9 /7	******	12:32pm	12:42am	1:09am
	B9 /9	******	12:38pm	12:48am	1:15am
	A11/7	******	12:44pm	12:54am	1:21am
	B11/9	******	12:50pm	1:00am	1:27am
	A13/7	******	12:56pm	1:06am	1:33am
	B13/9	******	1:02pm	1:12am	1:39am
	A15/7	******	1:08pm	1:18am	1:45am
	B15/9	******	1:14pm	1:24am	1:51am
	A17/7	******	1:20pm	1:30am	1:57am
	B17/9	******	1:26pm	1:36am	2:03am
	A19/7	******	1:32pm	1:42am	2:09am
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	B23/9	******	2:02pm	2:12am	2:39am
	A25/7	******	2:08pm	2:18am	2:45am
	B25/9	******	2:14pm	2:24am	2:51am
	A27/7	******	2:20pm	2:30am	2:57am
	B27/9	******	2:26pm	2:36am	3:03am
	A29/7	******	2:32pm	2:42am	3:09am
	B29/9	******	2:38pm	2:48am	3:15am
	A31/7	******	2:44pm	2:54am	3:21am
	B31/9	******	2:50pm	3:00am	3:27am
	A2 /7	******	2:56pm	3:06am	3:33am
	B2 /9	******	3:02pm	3:12am	3:39am
	A4 /7	******	3:08pm	3:18am	3:45am
	B4 /9	******	3:14pm	3:24am	3:51am
	A6 /7	******	3:20pm	3:30am	3:57am
	B6 /9	******	3:26pm	3:36am	4:03am
	A8 /7	******	3:32pm	3:42am	4:09am
	B8 /9	******	3:38pm	3:48am	4:15am
	A10/7	******	3:44pm	3:54am	4:21am
	B10/9	******	3:50pm	4:00am	4:27am
	A12/7	******	3:56pm	4:06am	4:33am
	B12/9	******	4:02pm	4:12am	4:39am
	A14/7	******	4:08pm	4:18am	4:45am
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	B16/9	******	4:26pm	4:36am	5:03am
	A18/7	******	4:32pm	4:42am	5:09am
	B18/9	******	4:38pm	4:48am	5:15am
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	B24/9	******	5:14pm	5:24am	5:51am
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	A30/7	******	5:44pm	5:54am	6:21am
	B30/9	******	5:50pm	6:00am	6:27am
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	B7 /9	******	6:38pm	6:48am	7:15am
	A9 /7	******	6:44pm	6:54am	7:21am
	B9 /9	******	6:50pm	7:00am	7:27am
	A11/7	******	6:56pm	7:06am	7:33am
	B11/9	******	7:02pm	7:12am	7:39am
	A13/7	******	7:08pm	7:18am	7:45am
	B13/9

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

Seq	#	Oven	Last Pushed	Earliest	Desired	Latest
1		B22/9	***:51	[illegible]	4:00pm	[illegible]
[illegible]		A22/7	***:06	[illegible]	4:06pm	[illegible]
[illegible]		B24/9	***:58	[illegible]	4:12pm	[illegible]
[illegible]		A24/7	***:14	[illegible]	4:18pm	[illegible]
[illegible]		B26/9	***:46	[illegible]	4:24pm	[illegible]
[illegible]		A26/7	***:02	[illegible]	[illegible]	[illegible]
[illegible]		B28/9	***:54	[illegible]	[illegible]	[illegible]
[illegible]		A28/7	***:06	[illegible]	4:36pm	[illegible]
[illegible]		B30/9	***:41	[illegible]	[illegible]	[illegible]
[illegible]		C1 /8	***:42	[illegible]	4:48pm	[illegible]
[illegible]		A30/7	***:03	[illegible]	[illegible]	[illegible]
[illegible]		A1 /8	***:50	[illegible]	[illegible]	[illegible]
[illegible]		A1 /7	***:10	[illegible]	[illegible]	[illegible]
[illegible]		B1 /8	***:57	[illegible]	[illegible]	[illegible]
[illegible]		B1 /7	***:58	[illegible]	[illegible]	[illegible]
[illegible]		A5 /8	***:46	[illegible]	[illegible]	[illegible]
[illegible]		B5 /7	***:05	[illegible]	[illegible]	[illegible]
[illegible]		A7 /8	***:[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		B7 /7	***:50	[illegible]	[illegible]	[illegible]
[illegible]		A9 /8	***:40	[illegible]	[illegible]	[illegible]
[illegible]		B9 /7	***:00	[illegible]	[illegible]	[illegible]
[illegible]		A11/8	***:47	[illegible]	[illegible]	[illegible]
[illegible]		B11/7	***:48	[illegible]	[illegible]	[illegible]
[illegible]		A13/8	***:[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		B13/7	***:56	[illegible]	[illegible]	[illegible]
[illegible]		A15/8	***:46	[illegible]	[illegible]	[illegible]
[illegible]		B15/7	***:44	[illegible]	[illegible]	[illegible]
[illegible]		A17/8	***:41	[illegible]	[illegible]	[illegible]
[illegible]		B17/7	***:51	[illegible]	[illegible]	[illegible]
[illegible]		A19/8	***:38	[illegible]	[illegible]	[illegible]
[illegible]		B19/7	***:29	[illegible]	[illegible]	[illegible]
[illegible]		A21/8	***:26	[illegible]	[illegible]	[illegible]
[illegible]		B21/7	***:46	[illegible]	[illegible]	[illegible]
[illegible]		A23/8	***:44	[illegible]	[illegible]	[illegible]
[illegible]		B23/7	***:34	[illegible]	[illegible]	[illegible]
[illegible]		A25/8	***:21	[illegible]	[illegible]	[illegible]
[illegible]		B25/7	***:41	[illegible]	[illegible]	[illegible]
[illegible]		A27/8	***:28	[illegible]	[illegible]	[illegible]
[illegible]		B27/7	***:29	[illegible]	[illegible]	[illegible]
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-B-31-7

6 P.M.
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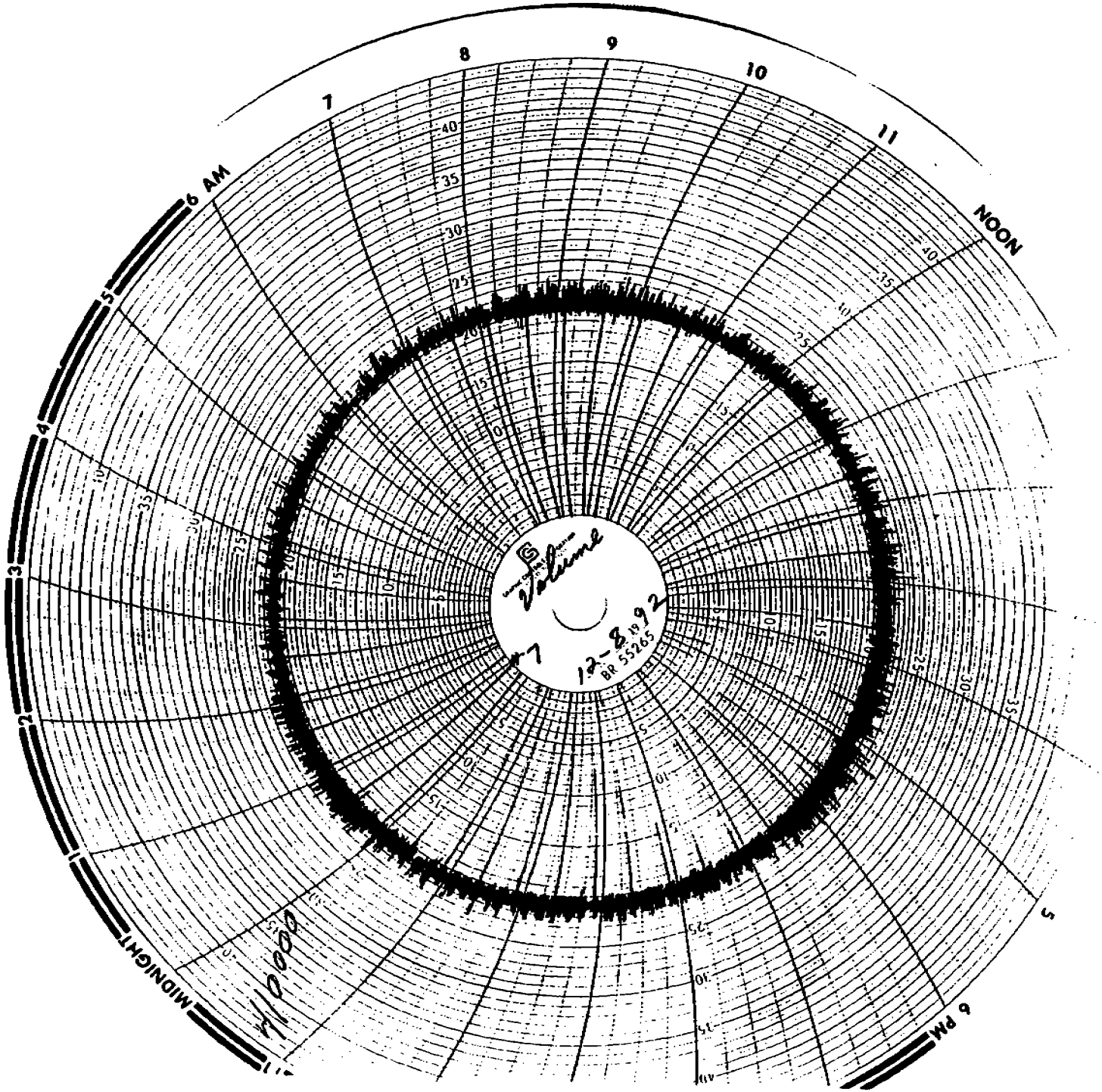
12-8-92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6 AM
NOON
6 PM
1
2
3
4
5
7
8
9
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11
Volume
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BR 55265

NOON
1
2
3
4
5
6 AM
7
8
9
10
11
50
100
150
200
250
300
350
12-8-1992
BR 3200R

NOON
6 PM
6 AM
12-8-92
BR 55005

NOON
1
2
3
4
5
6 AM
7
8
9
10
11
12-8-92
BR 55265

NOON
6 AM
EP 32008

MIDNIGHT
6 PM
NOON
1
2
3
4
5
7
8
9
10
11
12
1
2
3
4
5
6
7
8
9
10
11
NOON
5
10
15
20
25
30
35
40
45

MIDNIGHT
6 AM
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6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715
12-8
1972
39/000
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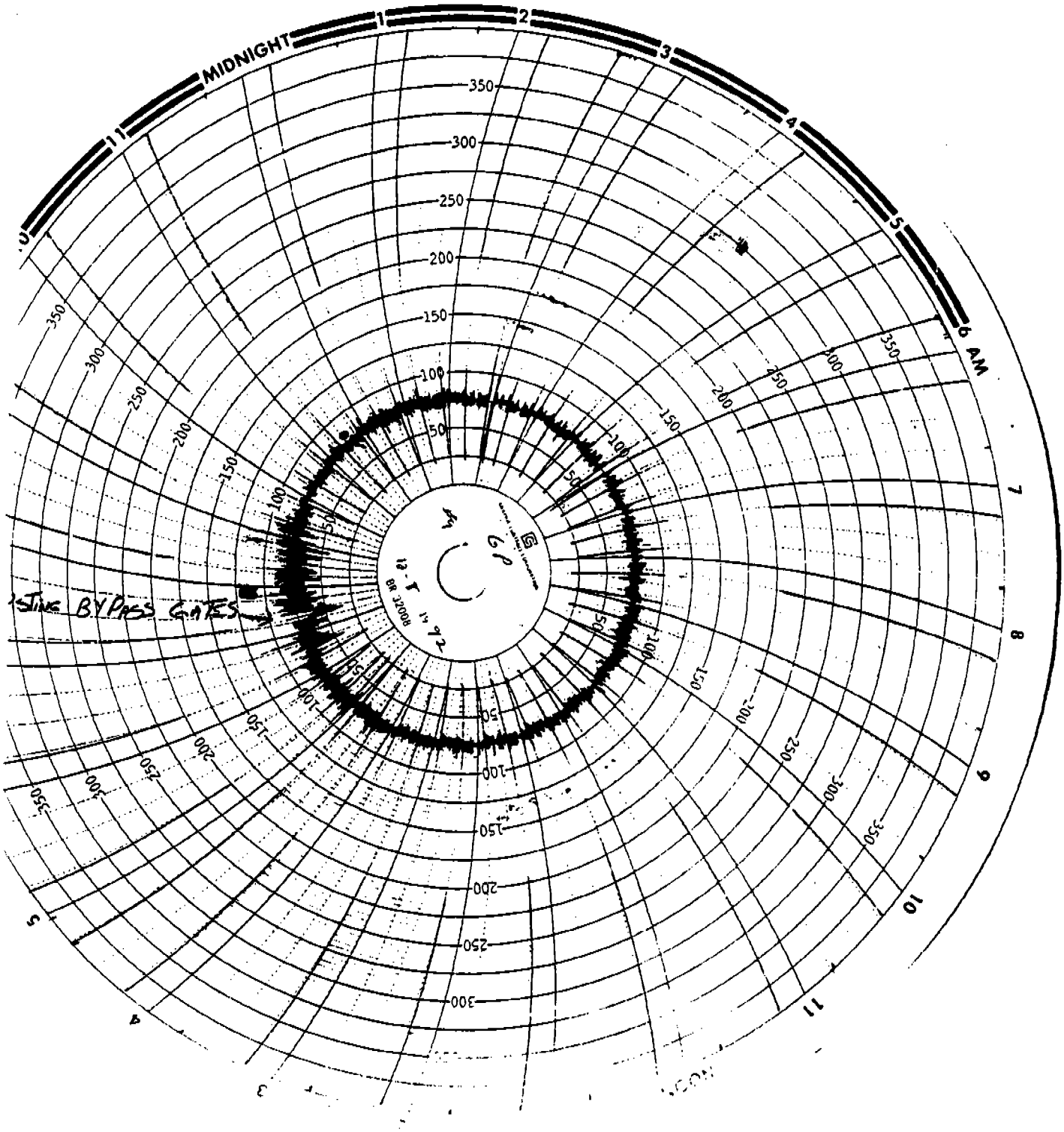
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1
2
3
4
5
6 AM
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9
10
11
350
300
250
200
150
100
50
STING BYPASS GATES

NOON
6 AM
SD
#7
12-8 1972
BR 55005

6 P.M.
NOON
BR-55003
#7
12-9-92

6 PM
MIDNIGHT
6 AM
NOON
1
2
3
4
5
7
8
9
10
11
12-9-92
BR 55265

MIDNIGHT
6 PM
NOON
1
2
3
4
5
6
7
8
9
10
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12
50
100
150
200
250
300
350

12-9 1992
BR 55005
#7
Smith
NOON
6 PM

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

MIDNIGHT
6 AM
NOON
6 PM
0
1
2
3
4
5
6
7
8
9
10
11
12
50
100
150
200
250
300
350

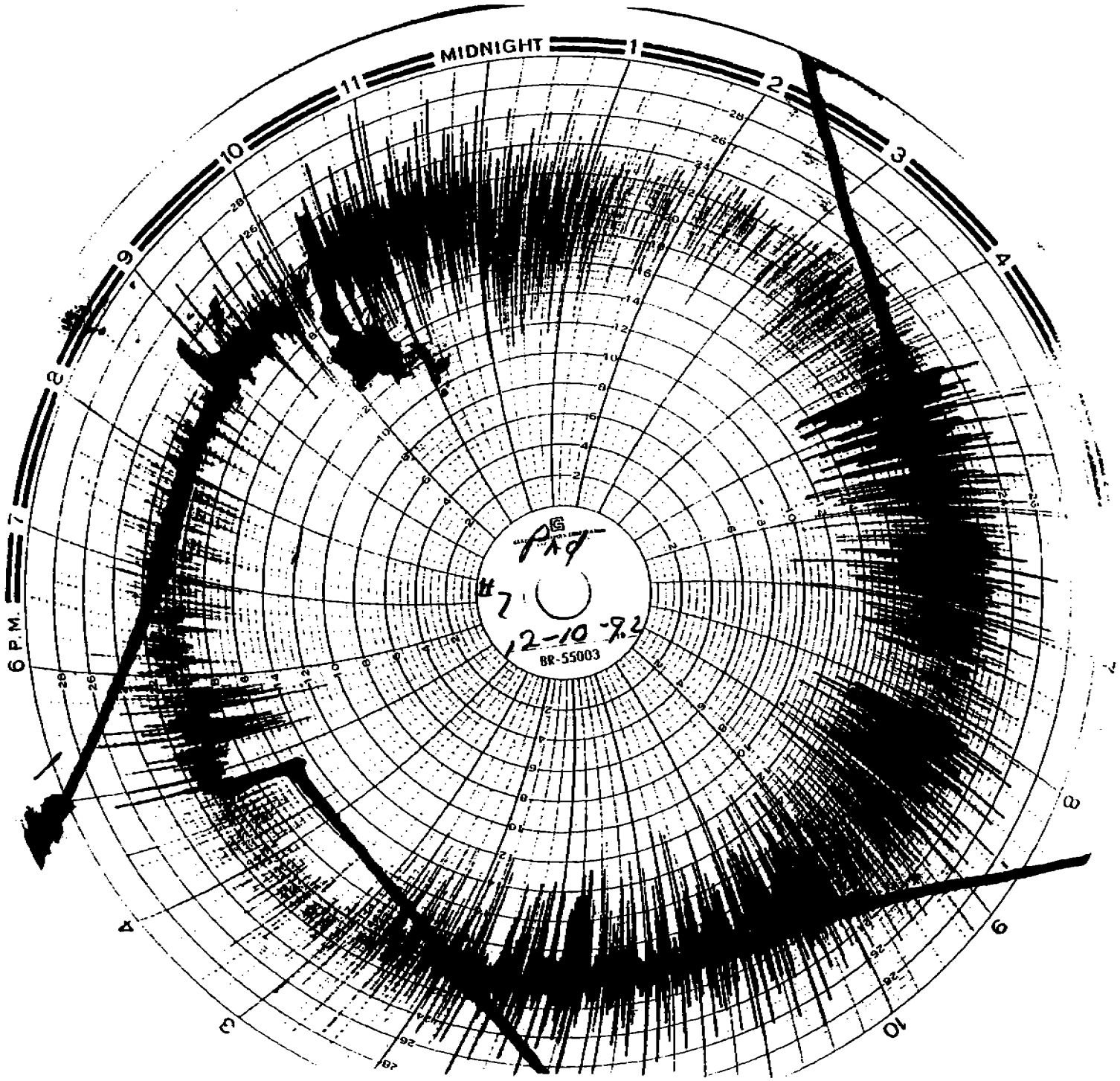
6 AM
7
8
9
10
6 PM
MIDNIGHT
12-9 1992
BR 55005

NOON
1
2
10
11
9
8
7
6 AM
5
4
3
2
1
MIDNIGHT
11
10
9
8
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 727
#9
12-9-92

MIDNIGHT
NOON
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715

MIDNIGHT
6 PM
12-7 1992
BR 32008

MIDNIGHT
6 PM
50
#9
12-9-1992
BR 55005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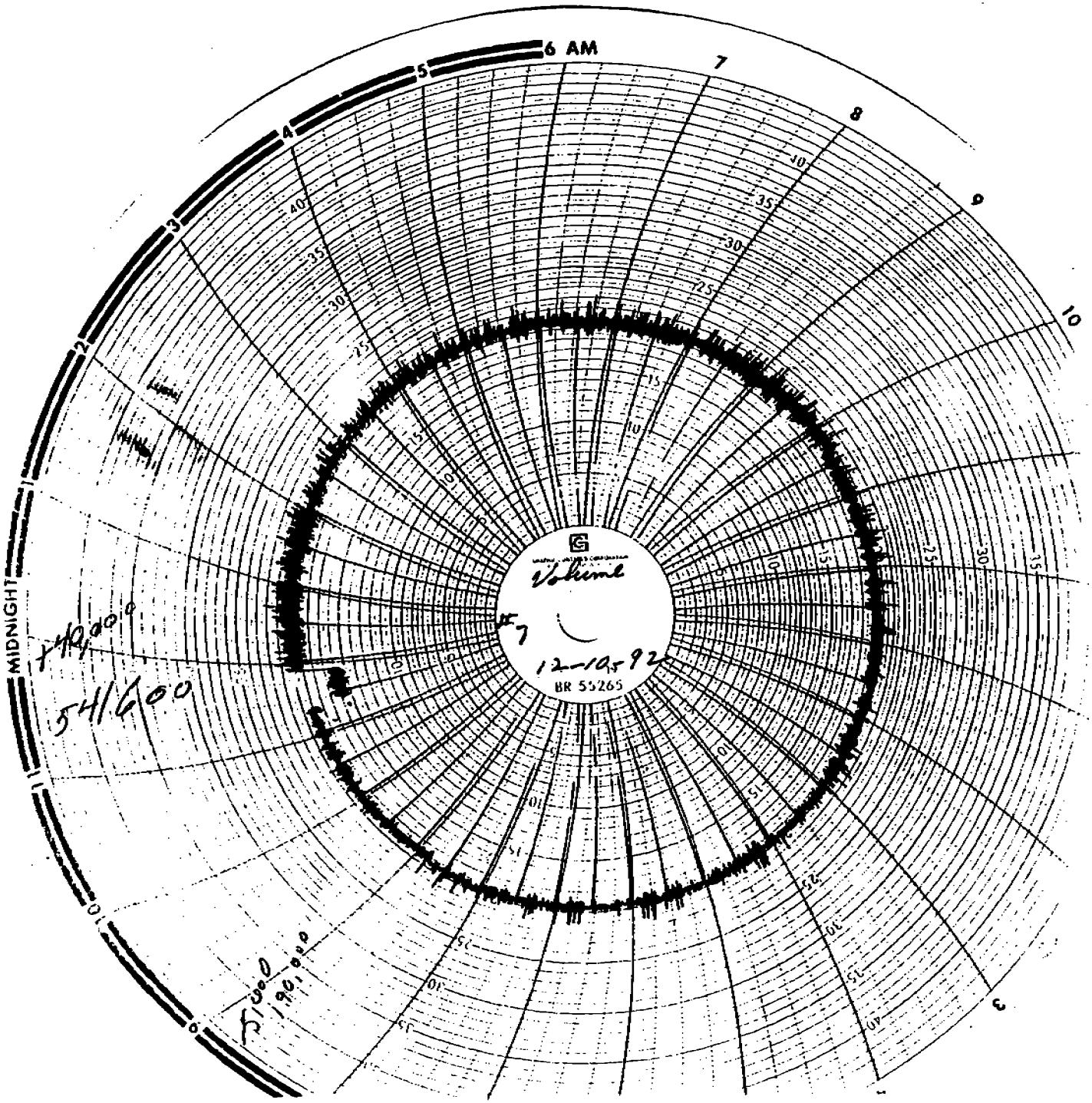
11
6 P.M.
BR-55003
12-10-72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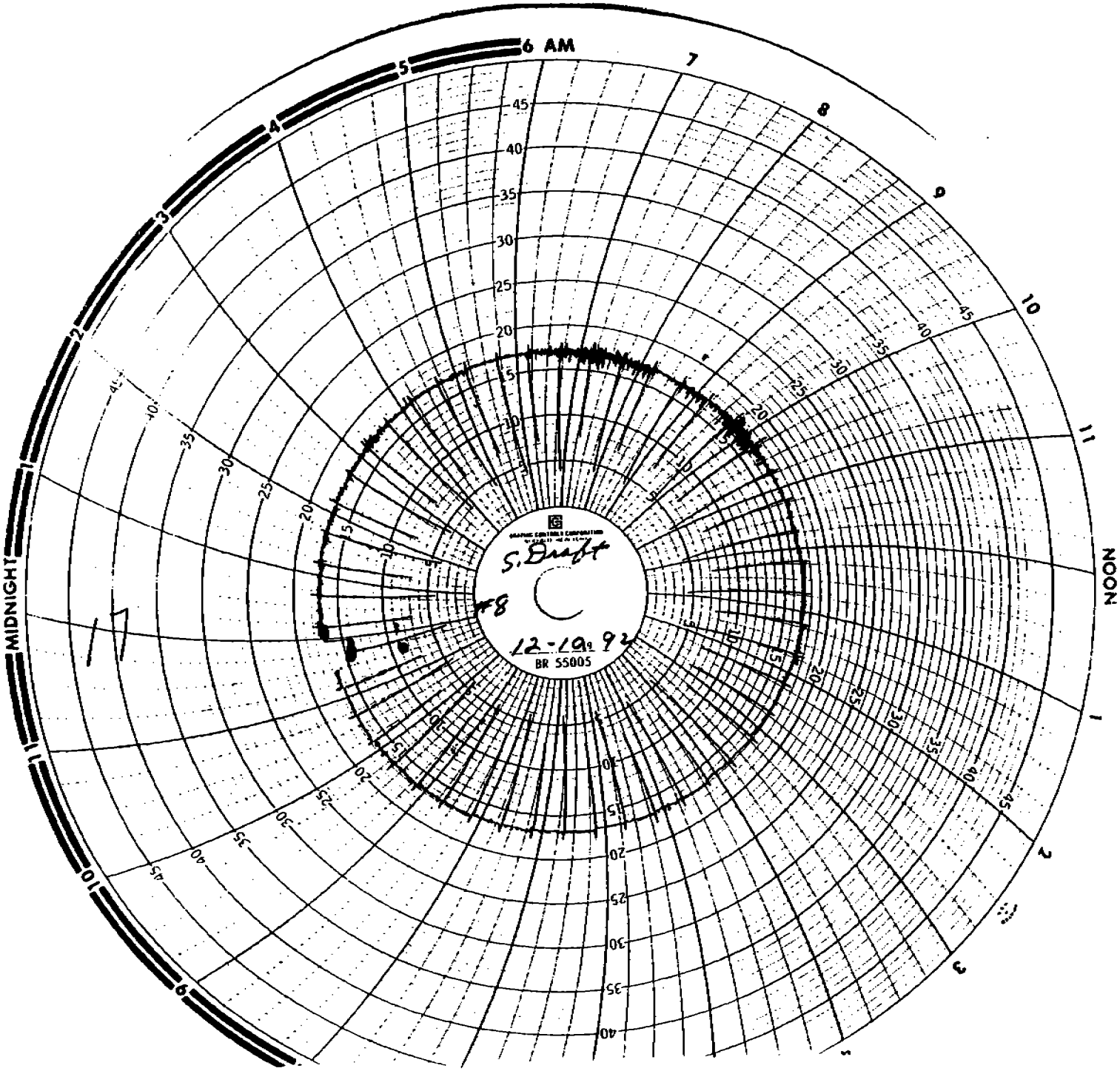
3
4
5
6 AM
7
8
9
10
3
Volume
12-10-92
BR 55265
+40,000
541600
5100
190,000

NOON
MIDNIGHT
AM
BR 32008

NOON
6 PM
MIDNIGHT
6 AM
12-10-92
BR 55005

NOON
6 AM
6 PM
MIDNIGHT
Volume
12-10-92
BR 5565

MIDNIGHT
6 PM
#8
12-10-92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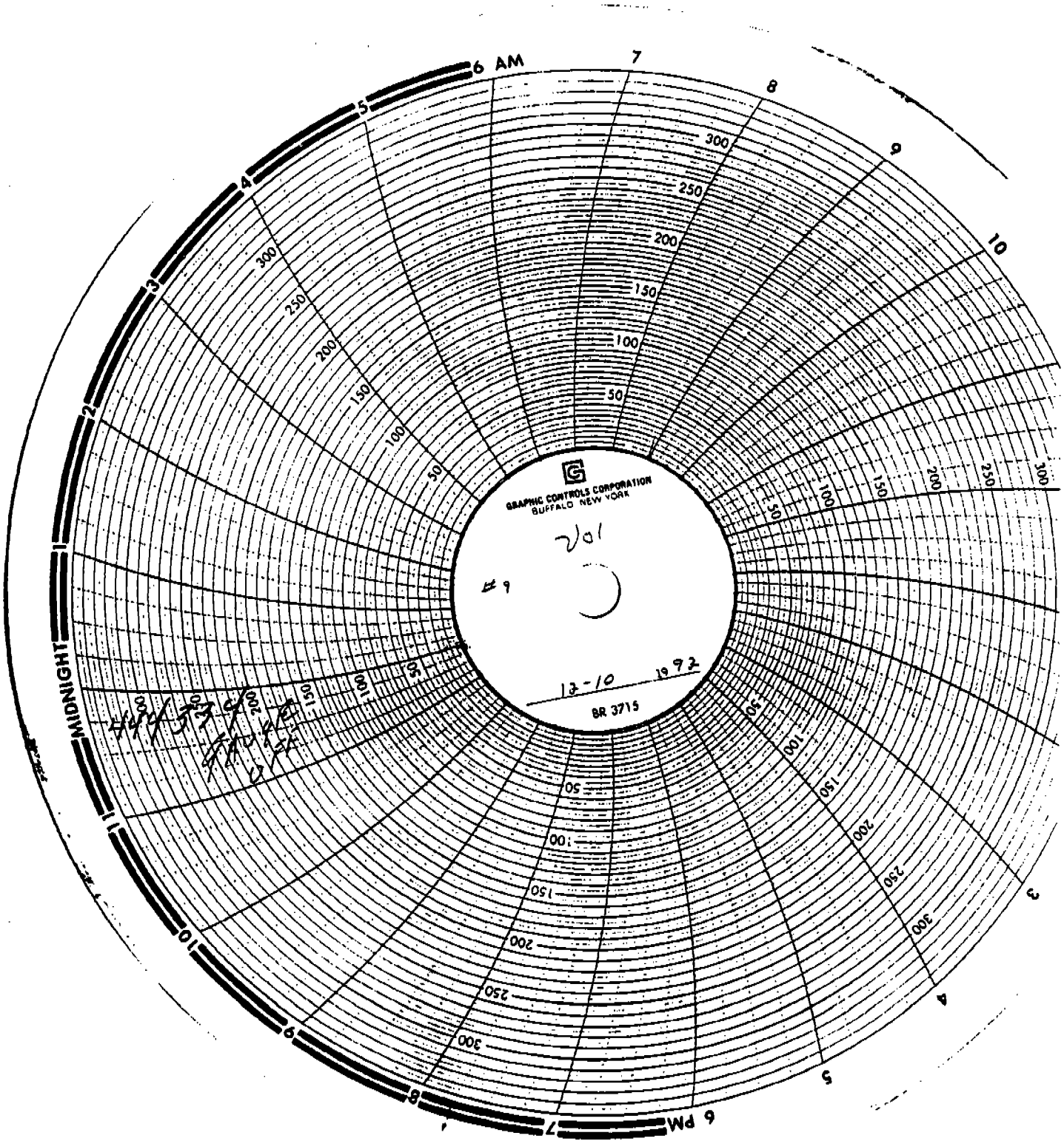
6 AM
S. Draft
12-19-92
BR SS005

NOON
MIDNIGHT
6 AM
6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK USA
BR 721


6 PM
7
8
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3
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6 AM
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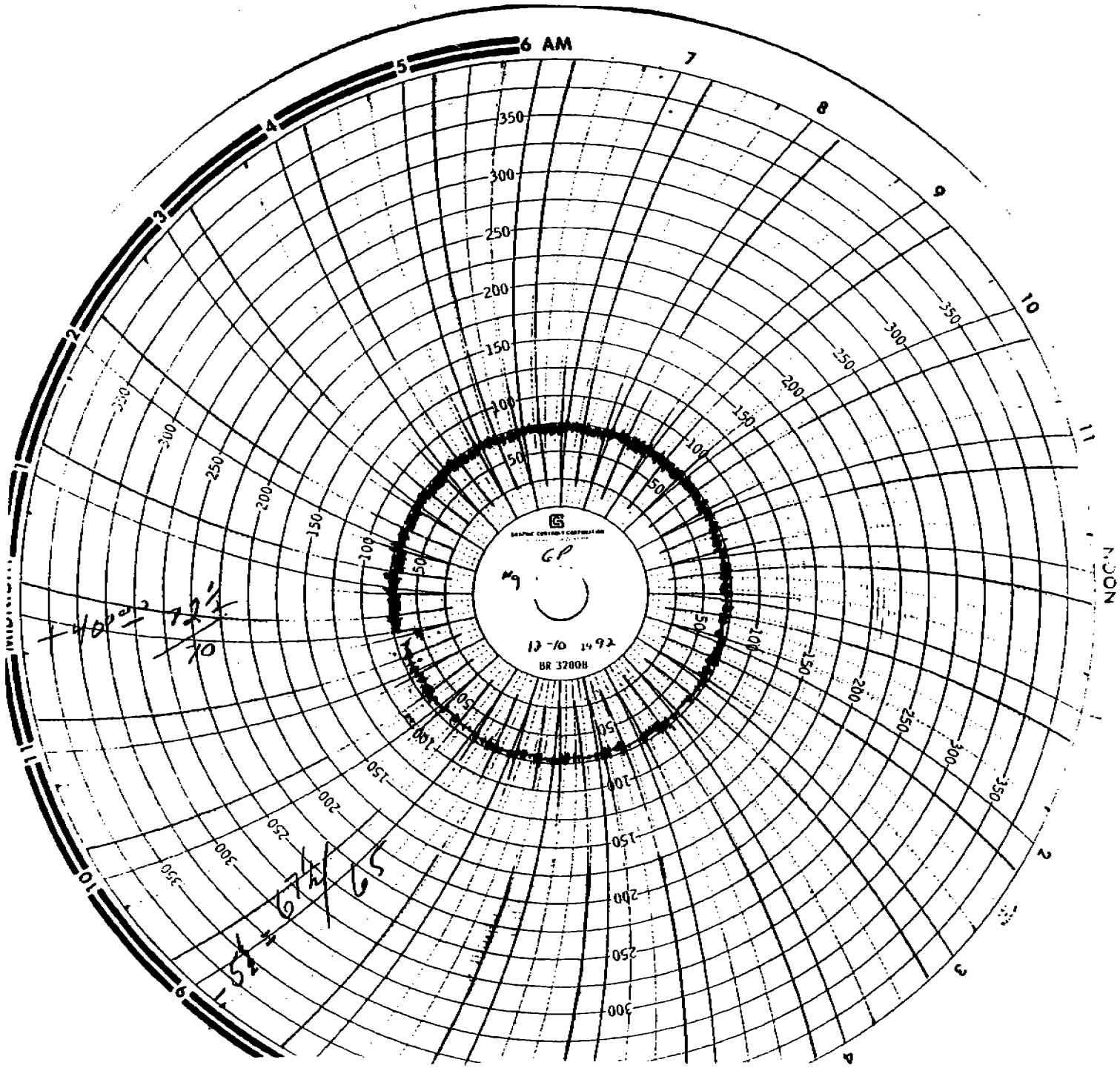
8
9
10
MIDNIGHT
1
2
3
4
5
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 3715
12-10
1972
#9
101


6 AM
7
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9
10
11
NOON
1
2
3
4
5
6
BR 3200B

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 ΔH	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	
	N 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					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				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 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 Y	ORIFICE COEFFICIENT ▲H@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD		
START			0.000	29.20				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
DATE 11-2-92

BP 28.65 in. Hg
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	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

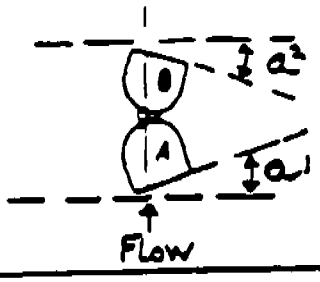
VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	70.0
1.29	90	90.0
1.74	110	110.0
2.66	150	151.0
3.82	200	200.0
6.09	300	300.0
8.31	400	402.0
10.57	500	502.0

GEOMETRIC PITOT CALIBRATION

Caliper # XCF-59
Precheck ✓
Post Check

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

①

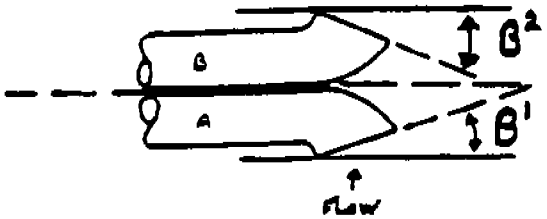


a¹ = 3.0°
a² = 4.0°
a¹, a² = <10°

B¹ = 2.5°
B² = 3.0°
B¹, B², = <5°

F = 1.025 "

②



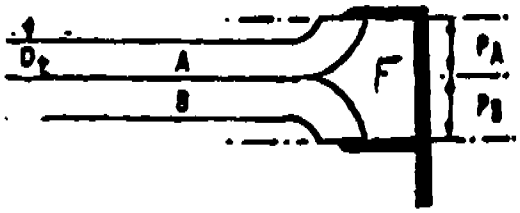
μ = 0.0241 — μ = ≤ 0.1250" (μ = F TAN γ)

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



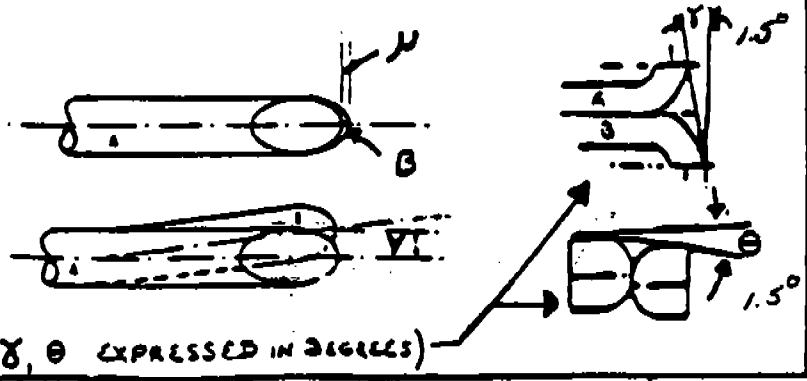
1.05 Dt < d < 1.50 Dt
PA = PB
2.10 Dt < d < 3.00 Dt

Y = 5.946 — Y ≥ 3.0"

Z = 3.372 — Z > 2.0"

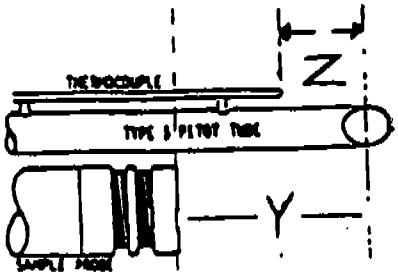
Dt = 0.375 — Dt > .1875" to .375" (3/16" to 3/8")

④

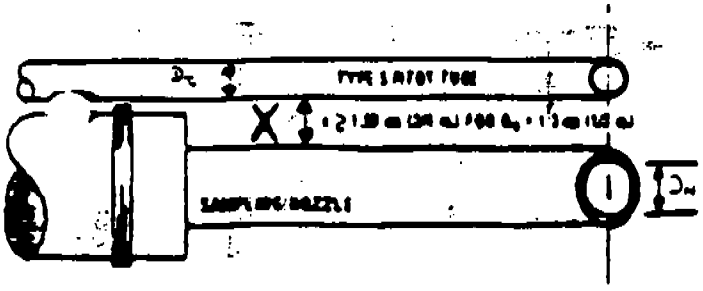


(γ, θ EXPRESSED IN DEGREES)

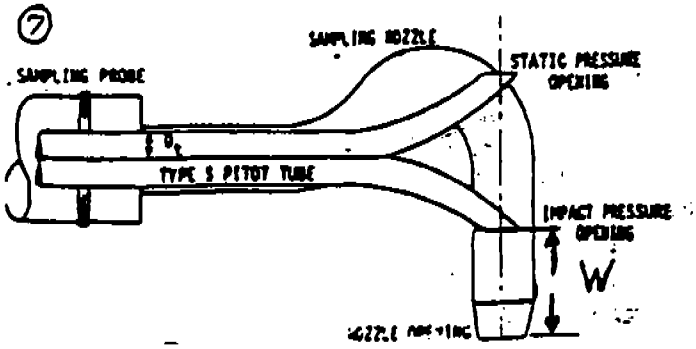
⑥



⑤



⑦

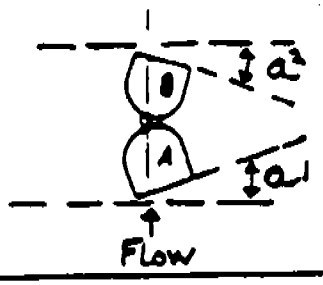


GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68
Precheck
Post Check ✓

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

①

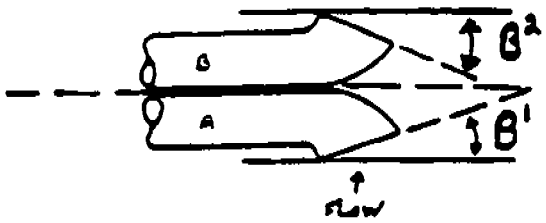


a^1 = 2.0
a^2 = 4.0
$a^1, a^2 = <10°$

B^1 = 3.0
B^2 = 3.0
$B^1, B^2, = <5°$

F = 1.028"

②



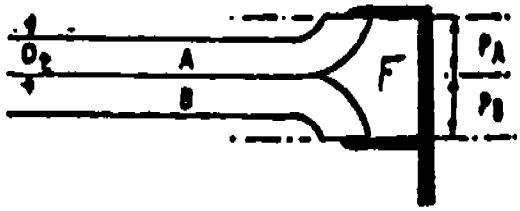
μ = 0.0179 — $\mu = \leq 0.1250"$ ($\mu = F \tan \gamma$)

V = 0.0179 — $V = \leq 0.03125"$ ($V = F \tan \theta$)

W = 0.361 — $W \geq 0"$

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

③



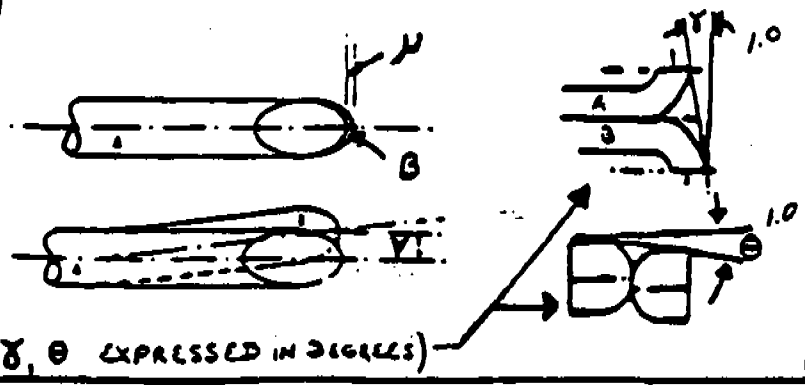
$1.05\ D_t < d < 1.50\ D_t$
$P_A = P_B$
$2.10\ D_t < A < 3.00\ D_t$

Y = 6.184 — $Y \geq 3.0"$

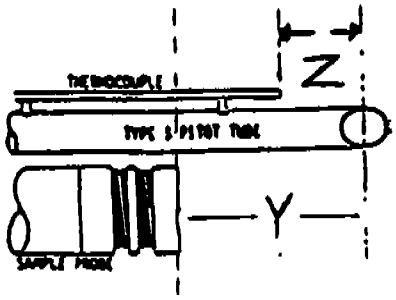
Z = 3.168 — $Z > 2.0"$

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

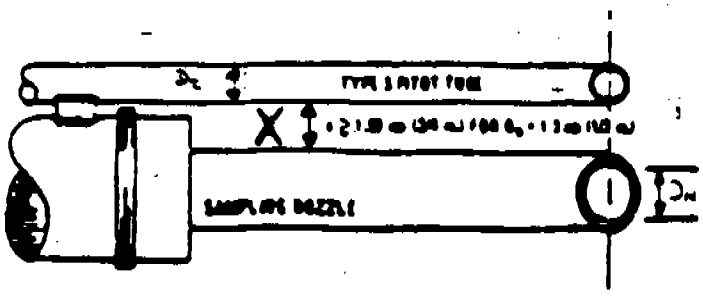
④



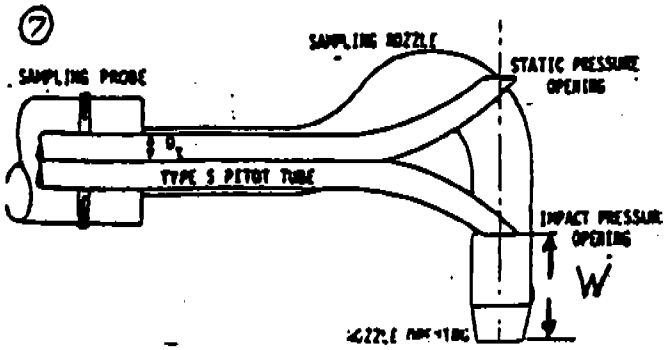
⑥



⑤



⑦

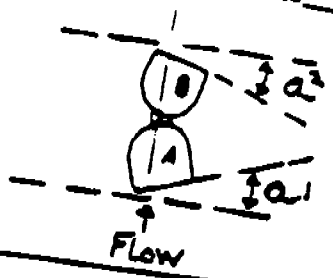


GEOMETRIC PITOT CALIBRATION

Caliper # XF565
Precheck
Post Check

Probe #: 5.2
Date: 11.2.92
Initials:

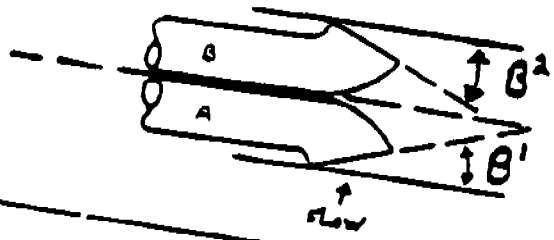
①



a1 = 4.0°
a2 = 3.0°
a1, a2 = <10°

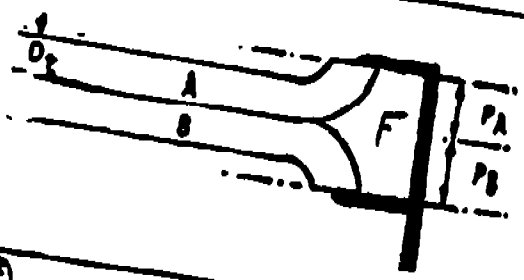
B1 = 0
B2 = 4.0°
B1, B2, = <5°

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 Dt < P < 1.50 Dt
PA = PB
2.10 Dt < A < 3.00 Dt

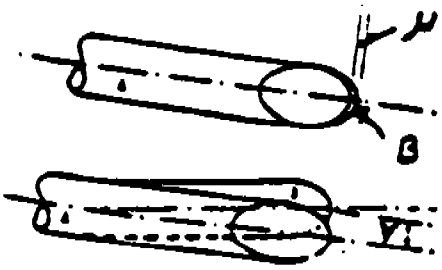
X = 0.281
X ≥ 0.750"
(3/4" using 1/2" nozzle)

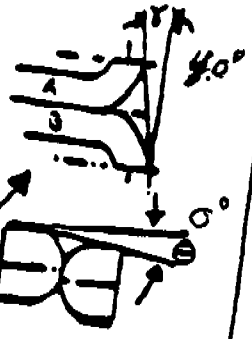
Y = 5.844
Y ≥ 3.0"

Z = 2.265
Z > 2.0"

Dt = 0.377
Dt > .1875" to .375"
(3/16" to 3/8")

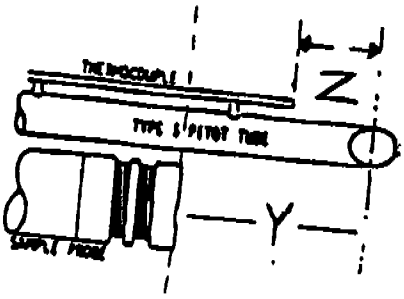
④



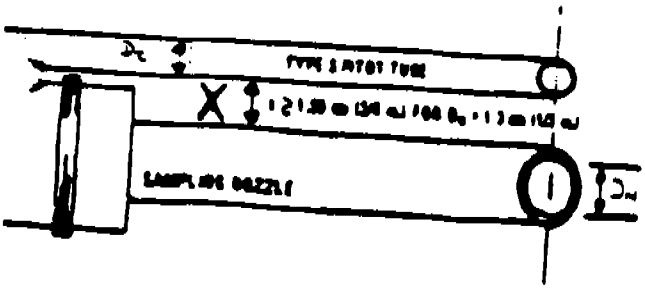


γ, θ EXPRESSED IN DEGREES

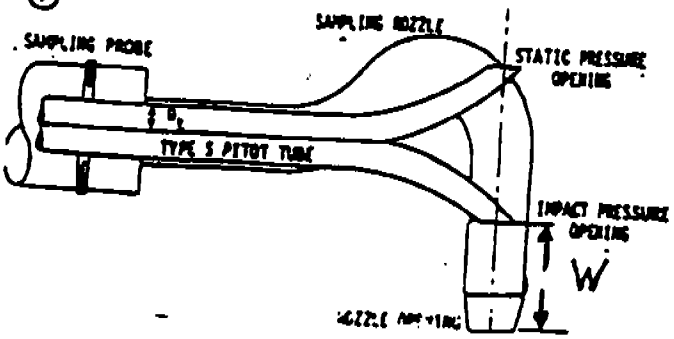
⑥



⑤



⑦

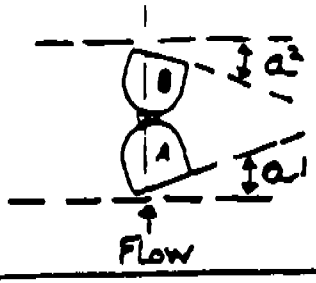


GEOMETRIC PITOT CALIBRATION

Caliper # YES-68
Precheck
Post Check VK

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

①

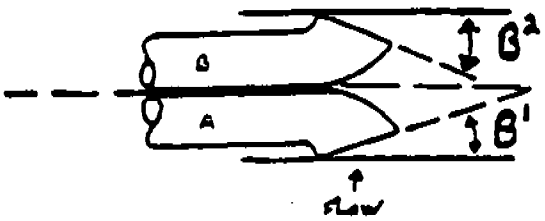


a¹ = 2.0
a² = 2.5
a¹, a² = <10°

B¹ = 3.0
B² = 0
B¹, B², = <5°

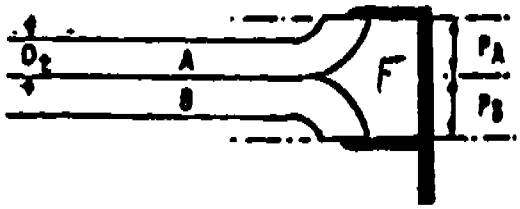
F = 0.996"

②



μ = 0 — μ = ≤ 0.1250" (μ = F TAN γ
V = 0 — V = ≤0.03125" (V = F TAN
W = 0.231 — W ≥ 0"
X = 0.789 — X ≥ 0.750" (3/4" using 1/2" nozzle)

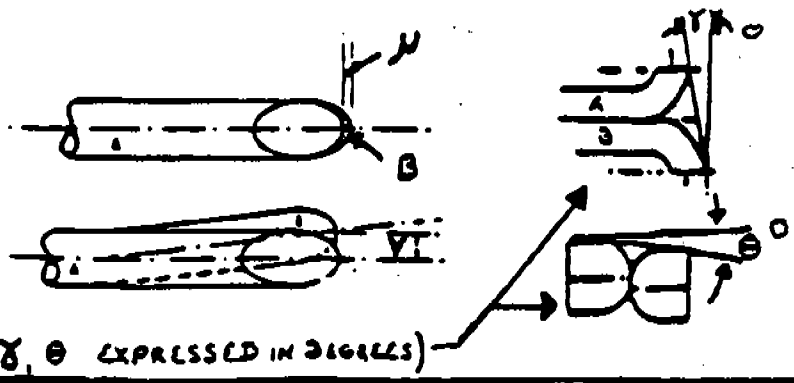
③



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

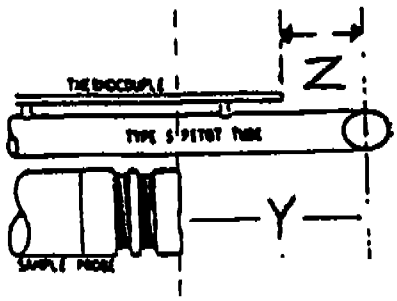
Y = 6.029 — Y ≥ 3.0"
Z = 3.502 — Z > 2.0"
D_t = 0.374 — D_t > .1875" to .375" (3/16" to 3/8")

④

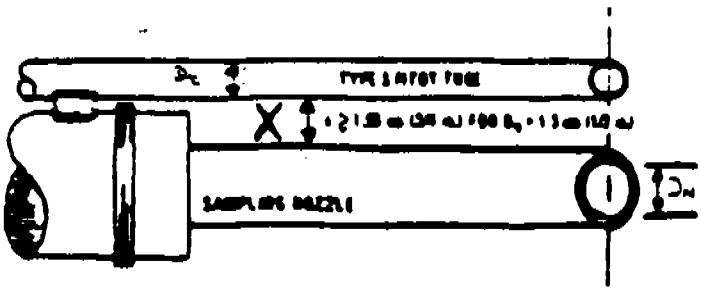


(γ, θ EXPRESSED IN DEGREES)

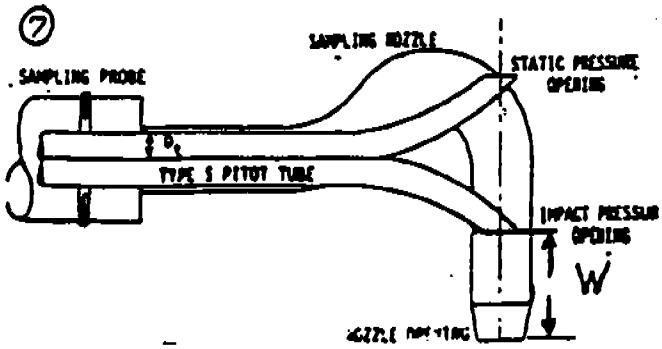
⑥



⑤



⑦

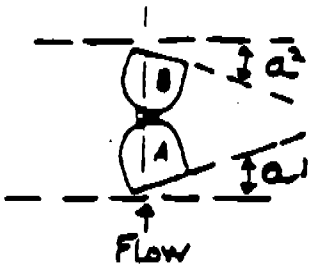


GEOMETRIC PITOT CALIBRATION

Caliper # XCF-59
Precheck ✓
Post Check

Probe #: 5-3
Date: 2-27-92
Initials: EM

①

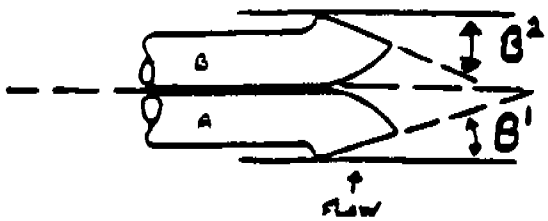


a¹ = 1.0°
a² = 1.5°
a¹, a² = <10°

B¹ = 0°
B² = 1.5°
B¹, B², = <5°

F = 0.869"

②



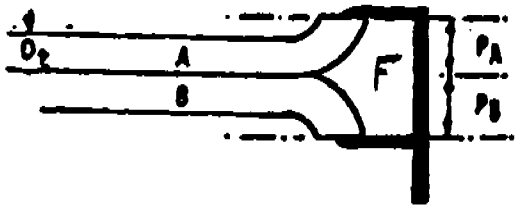
μ = 0 — μ = ≤ 0.1250" (μ = F TAN γ)

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



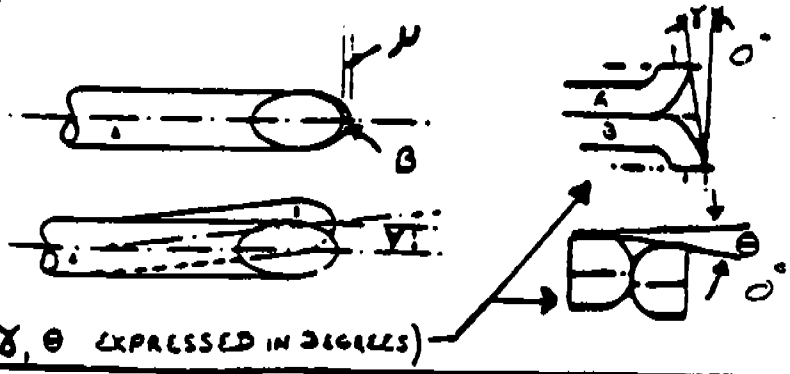
1.05 D_t < A < 1.50 D_t
$P_A = P_B$
2.10 D_t < A < 3.00 D_t

Y = 5.678 — Y ≥ 3.0"

Z = 2.120 — Z > 2.0"

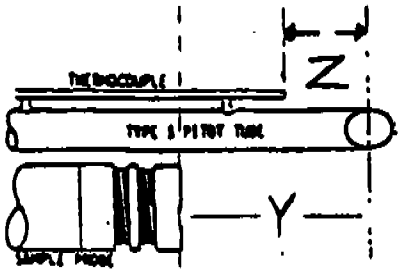
D_t = 0.375 — D_t > .1875" to .375" (3/16" to 3/8")

④

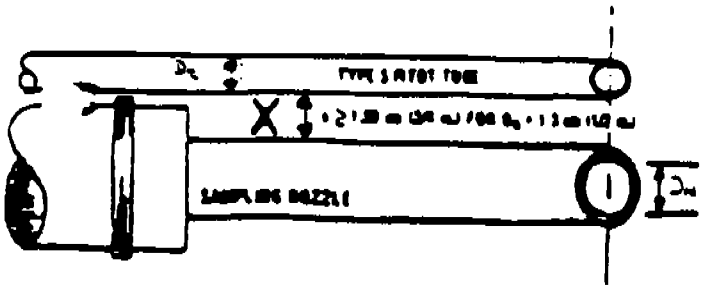


(γ, θ EXPRESSED IN DEGREES)

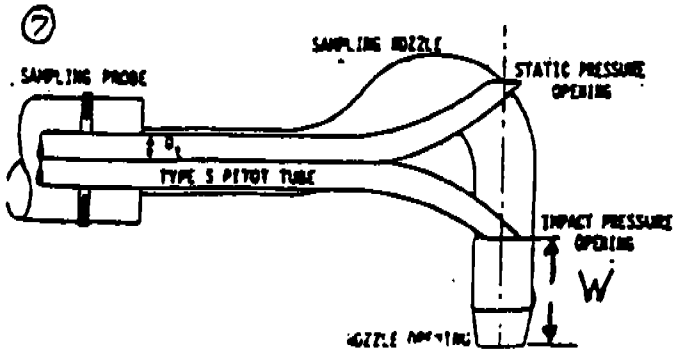
⑥



⑤



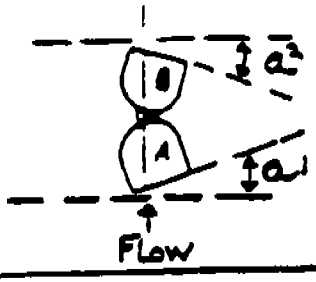
⑦



GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68 | Probe #: 5-3
Precheck | Date: 12-11-93
Post Check | Initials: [illegible]

①

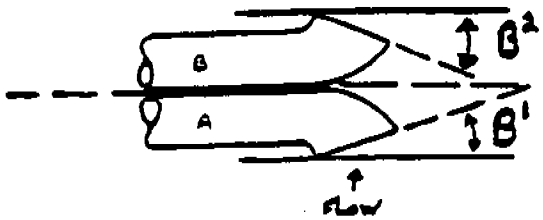


a¹ = 0
a² = 3.0
a¹, a² = <10°

B¹ = 1.0
B² = 1.0
B¹, B², = <5°

F = 0.875"

②



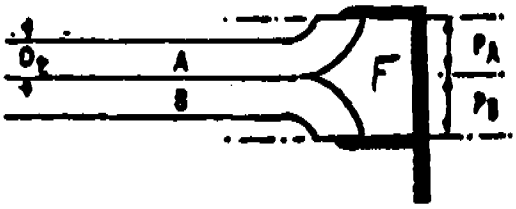
μ = 0.0152 — μ = ≤ 0.1250" (μ = F TAN γ)

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



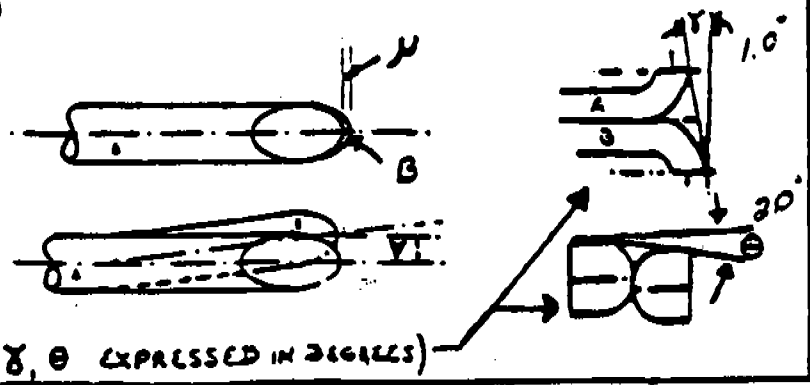
1.05 D_t < A < 1.50 D_t
P_A = P_B
2.10 D_t < A < 3.00 D_t

Y = 5.656 — Y ≥ 3.0"

Z = 2.051 — Z > 2.0"

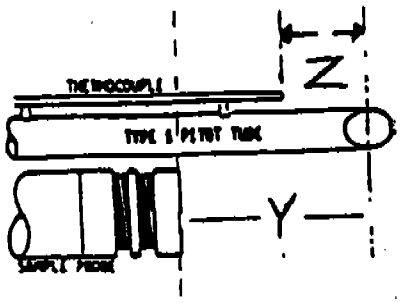
D_t = 0.376 — D_t > .1875" to .375" (3/16" to 3/8")

④

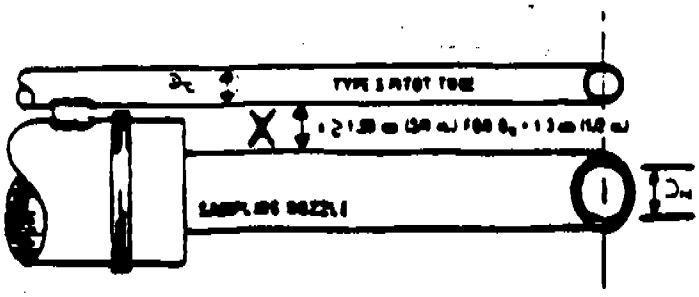


(γ, θ EXPRESSED IN DEGREES)

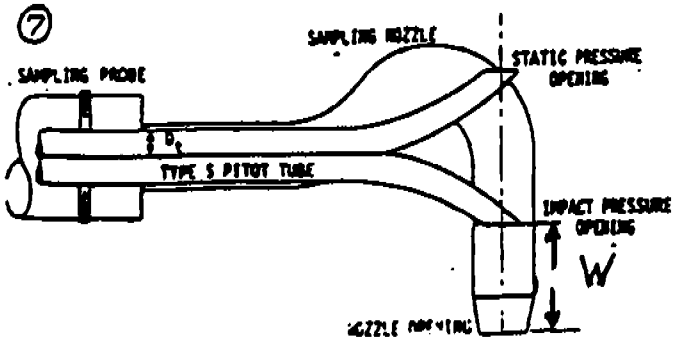
⑥



⑤



⑦

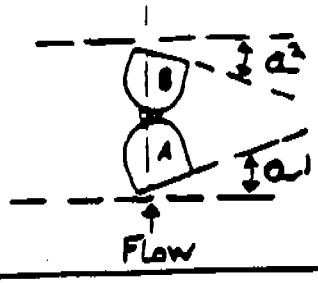


GEOMETRIC PITOT CALIBRATION

Caliper # XCF.59
Precheck ✓
Post Check

Probe #: 5-4
Date: 7-27-92
Initials: TAM

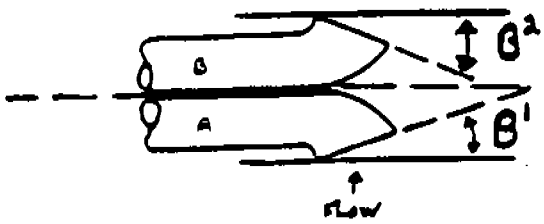
①



a¹ = 1.0°
a² = 2.5°
a¹, a² = <10°

B¹ = 1.5°
B² = 0.5°
B¹, B², = <5°

②



F = 0.854"

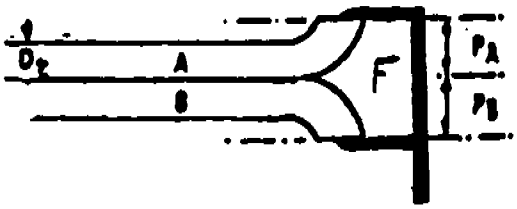
μ = 0.0149 — μ = ≤ 0.1250" (μ = F TAN γ)

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



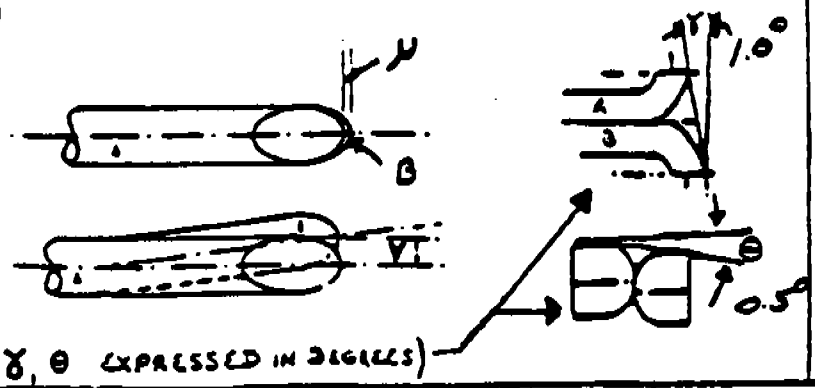
1.05 D_t < d < 1.50 D_t
P_A = P_B
2.10 D_t < d < 3.00 D_t

Y = 5.826 — Y ≥ 3.0"

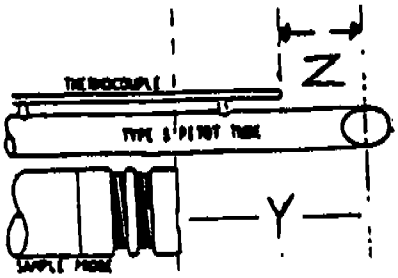
Z = 2.831 — Z > 2.0"

D_t = 0.376 — D_t > .1875" to .375" (3/16" to 3/8")

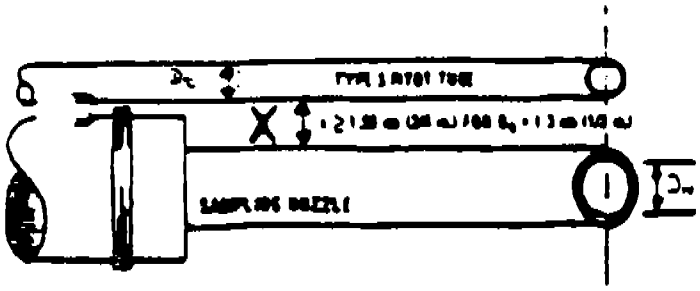
④



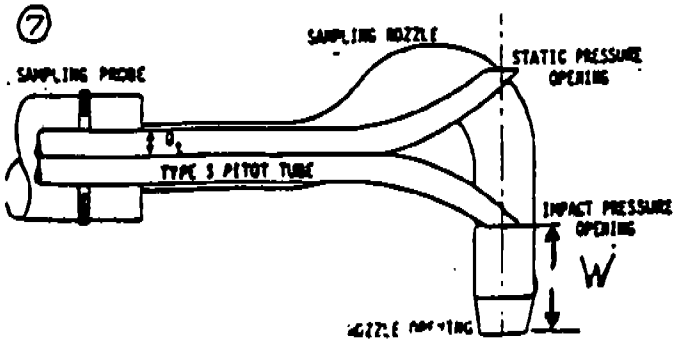
⑥



⑤



⑦

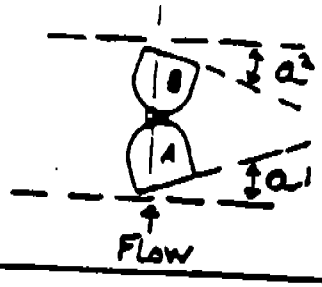


GEOMETRIC PITOT CALIBRATION

Caliper # XPS-605
Precheck
Post Check UK

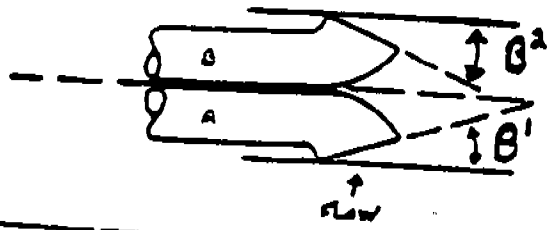
Probe #: 5.4
Date: 12-11-92
Initials: EM

①



a¹ = 1.0
a² = 3.0 — a¹, a² = <10°
B¹ = 2.0
B² = 1.0 — B¹, B², = <5°

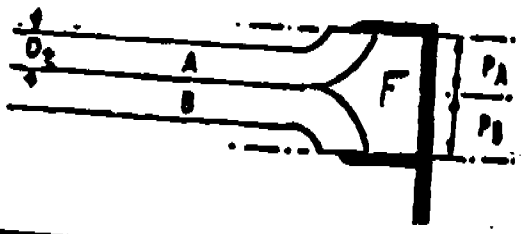
②



F = 0.869 "

μ = 0.0131 — μ = ≤ 0.1250" (μ = F TAN γ)
V = 0.0131 — V = ≤0.03125" (V = F TAN θ
W = 0.464 — W ≥ 0 "

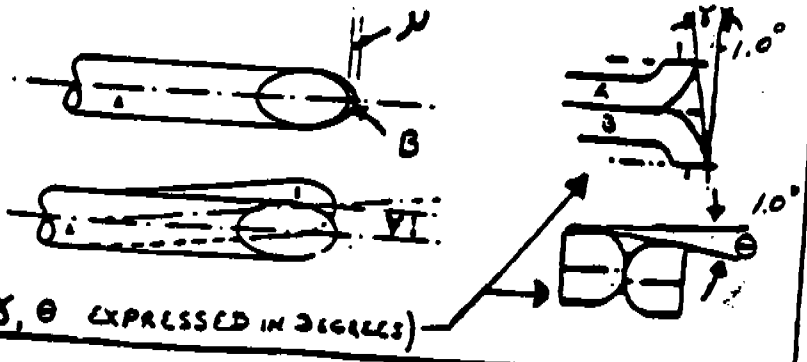
③



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

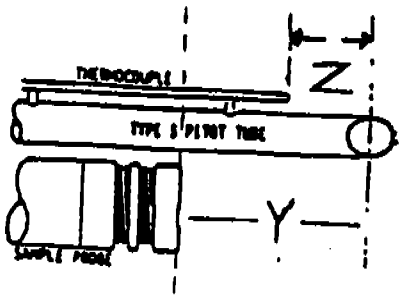
X = 0.791 — X ≥ 0.750" (3/4" using 1/2" nozzle)
Y = 5.671 — Y ≥ 3.0"
Z = 2.104 — Z > 2.0"
D_t = 0.371 — D_t > .1875" to .375" (3/16" to 3/8")

④

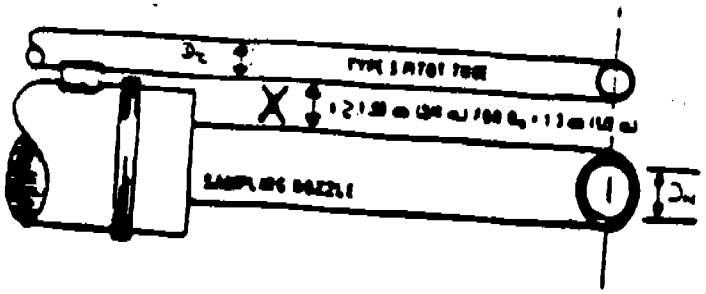


(γ, θ EXPRESSED IN DEGREES)

⑥



⑤



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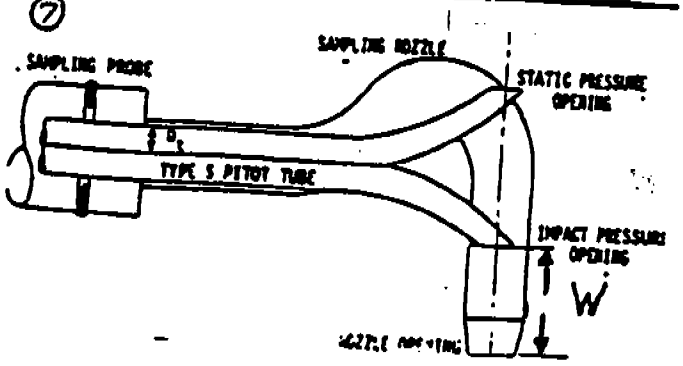

COMPLIANCE DEMONSTRATION
7, 8, AND 9 BATTERY PUSHING EMISSIONS CONTROL

USS CLAIRTON WORKS
CLAIRTON, PA

APPENDIX D

ANALYTICAL RESULTS, EMISSIONS CALCULATIONS

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

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	2.45	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			1.100	2.24	2.24	52.	53.	8.0	84.	60.0
1.0W			1.100	2.24	2.24	52.	52.	8.0	84.	60.0
35.0S			1.200	2.45	2.45	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
O2	20.5
CO	.0
N	79.5

IMPINGER NO.	1	6.0
	2	-1.6
	3	.1
	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
CLR-2-3-1

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	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

2. STACK CONDITIONS

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

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 FFT/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) [85.49*W*SQRT((J*DELTA P)/(V*F))]	71.86
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 (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	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

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 FFT/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
CLR-2-1-2

7,8,9 BATTERY PEC
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

2. STACK CONDITIONS

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

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 F	CORRECTE VELOCITY FT/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).....	67.51
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
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.....	102.70
	(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-2-2-2 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

2. STACK CONDITIONS

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

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 FFT/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	IMPINGER NO. 1	.8
O2	20.5	2	-.4
CO	.0	3	.0
N	79.5	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) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	71.80
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 (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	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

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 — 7,8,9 BATTERY PEC
CLR-2-3-3 — 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	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) [85.49*W*SQRT{(J*DELTA P)/(V*F)}]	69.63
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 (J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	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

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

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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

AQE 10/92