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**USS CLAIRTON WORKS
A DIVISION OF USX CORPORATION
CLAIRTON, PA**

**Report on
COMPLIANCE DEMONSTRATION
1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL**

FEBRUARY 1993

**Prepared By: CHESTER ENVIRONMENTAL
Project No.: 300196-01**

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**ENGINEERING
BUREAU OF
AIR POLLUTION CONTROL**



**CHESTER
ENVIRONMENTAL**

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ABSTRACT

A demonstration of the pushing emissions control system for Batteries 1, 2, and 3 operated at USS Clairton Works was conducted on November 3, 4, and 5, 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 1, 2, or 3.

The results of the testing showed an average particulate matter emissions rate of 0.35 lbs per hour, while the allowable emissions rate is 4.35 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 14 times (all cases occurring on the second day of the test program), while a maximum plume opacity during the travelling operation greater than 10 percent was observed on six of the 60 cases on the first day of the test program, 15 of the 60 cases on the second day of the test program, and none of the 60 cases on the second day of the test program. During the pushing operation, the plume opacity was greater than or equal to 20 percent for an average of 0.5 seconds. During the travelling operation, the plume opacity was greater than 10 percent for an average of 1.4 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 1, 2, and 3 operated at USS Clairton Works was conducted on November 3, 4, and 5, 1992. A baghouse controls the emissions which result from the pushing operations from the ovens of Batteries 1, 2, and 3. 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 1, 2, or 3.

The field work activities were completed by Chester Environmental. The test crew included David Beranek, Richard Casselberry, Mark Grunebach, Bernie May, Darren McKoy, Paul Pastorik, Tim Redenbaugh, John Shimshock, and Patrick Stockton. 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 (CO₂), oxygen (O₂), and nitrogen (N₂, 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 1, 2, and 3 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. The post test calibration of the control box used on Stack 1-4 yielded an average dry gas meter coefficient which was more than five percent lower than the dry gas meter coefficient determined during the initial three point calibration of the control box. Therefore, in accordance with EPA Method 5, the lower coefficient was used in the emissions calculations.

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 2.16 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, 9.63 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:

$$\frac{2.16 \text{ lb}}{\text{hr pushing}} \times \frac{1 \text{ hr pushing}}{60 \text{ min pushing}} \times \frac{1 \text{ min pushing}}{1 \text{ push}} \times \frac{9.63 \text{ pushes}}{\text{hr}} = 0.35 \text{ lbs/hr}$$

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 9.63 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 (9.63 ovens pushed / hour), or

TABLE 3-1

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 1, 2, AND 3
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 1

TEST DATE: 11-3-92

TEST TIME: 9:08 TO 15:11

Stack Number Test Number		1-1 CLR-1-1-1	1-2 CLR-1-2-1	1-3 CLR-1-3-1	1-4 CLR-1-4-1	Total
<u>Mass Emission Rate and Concentration</u>						
Particulate Matter	(lb/hr pushing) (gr/dscf)	0.43 0.0023	0.38 0.0020	0.89 0.0049	0.69 0.0037	2.39
<u>Stack Conditions</u>						
Flow Rate	(acfm)	25807	26687	24216	25123	
	(scfm)	22227	23197	21357	22024	
	(dscfm)	21791	22775	20947	21634	
Temperature	(°F)	142	137	128	132	
Moisture Content	(%)	2.0	1.8	1.9	1.8	
<u>Sampling Conditions</u>						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	34.216	33.665	26.211	25.679	
Isokinetics	(%)	104.7	98.5	108.3	102.7	

TABLE 3-2

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 1, 2, AND 3
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 2

TEST DATE: 11-4-92

TEST TIME: 8:29 TO 15:08

Stack Number Test Number		1-1 CLR-1-1-2	1-2 CLR-1-2-2	1-3 CLR-1-3-2	1-4 CLR-1-4-2	Total
<u>Mass Emission Rate and Concentration</u>						
Particulate Matter	(lb/hr pushing)	0.72	0.47	0.84	0.79	2.81
	(gr/dscf)	0.0035	0.0022	0.0041	0.0036	
<u>Stack Conditions</u>						
Flow Rate	(acfm)	28656	29354	28359	29564	
	(scfm)	24398	25293	24793	26012	
	(dscfm)	23859	24691	24265	25450	
Temperature	(°F)	144	137	128	125	
Moisture Content	(%)	2.2	2.4	2.1	2.2	
<u>Sampling Conditions</u>						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	36.051	37.565	29.641	28.251	
Isokinetics	(%)	100.8	101.4	105.7	96.0	



TABLE 3-3

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 1, 2, AND 3
PUSHING EMISSIONS CONTROL SYSTEM
PARTICULATE MATTER EMISSIONS DATA

DAY 3

TEST DATE: 11-5-92

TEST TIME: 8:18 TO 14:23

Stack Number Test Number		1-1 CLR-1-1-3	1-2 CLR-1-2-3	1-3 CLR-1-3-3	1-4 CLR-1-4-3	Total
<u>Mass Emission Rate and Concentration</u>						
Particulate Matter	(lb/hr pushing)	0.27	0.19	0.42	0.41	1.29
	(gr/dscf)	0.0013	0.0008	0.0019	0.0018	
<u>Stack Conditions</u>						
Flow Rate	(acfm)	28269	29316	27958	29036	
	(scfm)	25116	26387	25569	26604	
	(dscfm)	24702	25999	25109	26157	
Temperature	(°F)	121	113	104	103	
Moisture Content	(%)	1.7	1.5	1.8	1.7	
<u>Sampling Conditions</u>						
Sampling Time	(minutes)	60	60	60	60	
Sample Volume	(dscf)	37.973	40.115	32.683	30.884	
Isokinetics	(%)	102.5	102.9	112.6	102.2	

TABLE 3-4

USS CLAIRTON WORKS
CLAIRTON, PA

BATTERIES 1, 2, AND 3
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	11-3-92	2.39
2	11-4-92	2.81
3	11-5-92	1.29
Average		2.16

4.35 lbs per hour. The average particulate matter emissions rate determined in the test program is less than the allowable emissions rate.

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 25 dscf per test. One of the twelve isokinetics values was slightly above 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 14 times, with all cases occurring on the second day of the test program. For these particular cases, a maximum plume opacity during the travelling operation greater than 10 percent was observed 12 times.

Over the three day test program, a maximum plume opacity during the travelling operation greater than 10 percent was observed on six of the 60 cases on the first day of the test program, 15 of the 60 cases on the second day of the test program, and none 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.

TABLE 3-5

**USS CLAIRTON WORKS
CLAIRTON, PA**

**1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL
VISIBLE EMISSIONS DATA SUMMARY**

Baghouse Stacks

Observation Date	Number of Observations	Greatest Opacity (%)
11-3-92	240	0
11-4-92	240	0
11-5-92	240	0

Pushing Operation

Observation Date	Number of Observations	Number of Observations with Opacity ≥20%	Pushing Performance (%)	Average Time with Opacity > 20% (sec)
11-3-92	60	0	100	0
11-4-92	60	14	76.7	1.6
11-5-92	60	0	100	0
Average			92.2	0.5

Travelling Operation

Observation Date	Number of Observations	Number of Observations with Opacity >10%	Travelling Performance (%)	Average Time with Opacity ≥10% (sec)
11-3-92	60	6	90.0	1.1
11-4-92	60	15	75.0	3.2
11-5-92	60	0	100.0	0.0
Average			88.3	1.4



The average pushing performance for test program was 92.2 percent, while the average travel performance was 88.3 percent. During the pushing operation, the plume opacity was greater than or equal to 20 percent for an average of 0.5 seconds. During the travelling operation, the plume opacity was greater than 10 percent for an average of 1.4 seconds.

**COMPLIANCE DEMONSTRATION
1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL**

**USS CLAIRTON WORKS
CLAIRTON, PA**

APPENDIX A

TEST PROTOCOL, FIELD DATA SHEETS

**COMPLIANCE TEST PROTOCOL
BATTERIES 1, 2, & 3
PUSHING EMISSIONS CONTROL SYSTEM**

Prepared for:

**USS CLAIRTON WORKS
CLAIRTON, PA**

Prepared by:

**KEYSTONE ENVIRONMENTAL RESOURCES
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PROJECT NUMBER: 300196-01

OCTOBER 1992



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 1, 2, and 3 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 be 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 (CO₂), oxygen (O₂), and nitrogen (N₂, 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 be determined by measuring the weight gain of the four sample train impingers in accordance with EPA Method 4.

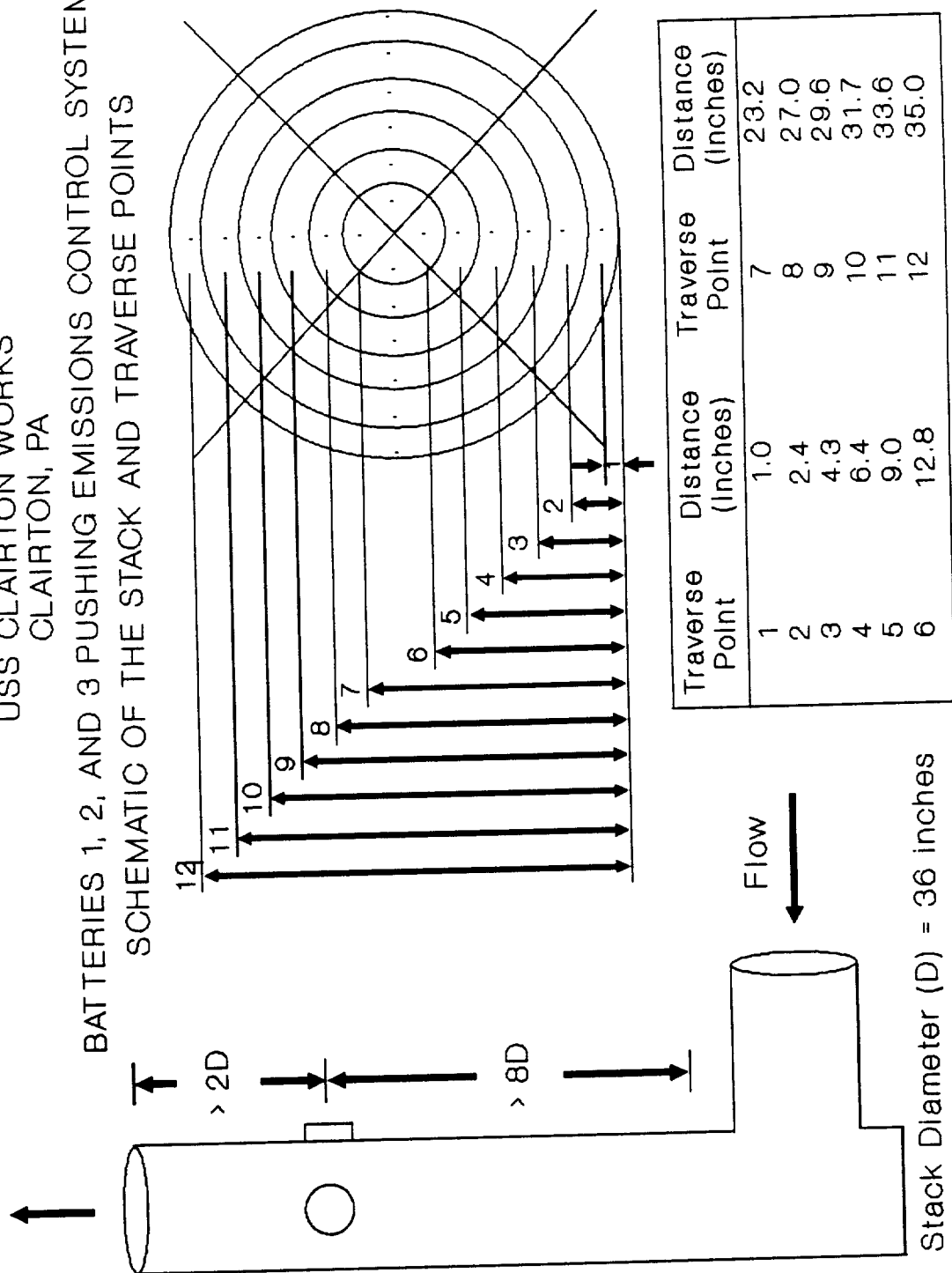
As specified by EPA Method 5, each sample train will be assembled as required by the method, leak-checked on site at the beginning and end of each test run, and operated so that isokinetic conditions are maintained. Clean up of the sampling train will include a water rinse followed by an acetone rinse 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 pre-weighed 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 be 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 1, 2, AND 3 PUSHING EMISSIONS CONTROL SYSTEM
 SCHEMATIC OF THE STACK AND TRAVERSE POINTS



1,2,3 PEC

11-03-92

RPC

#	OVER	BATTERY	TIME
①	B-25	2	9:08
②	A-25	3	9:14
③	B-27	2	9:19
④	A-27	3	9:25
⑤	B-29	2	9:31
⑥	A-29	3	9:36
⑦	B-31	2	9:42
⑧	A-31	3	9:47
⑨	C-2	2	9:53
⑩	B-2	3	10:01
⑪	A-2	1	10:07
⑫	B-4	3	10:12
⑬	A-4	1	10:18
⑭	B-3	3	10:25
⑮	A-6	1	10:31
⑯	B-8	3	10:36
⑰	A-8	1	10:43
⑱	B-10	3	10:48
⑲	A-10	1	10:54
⑳	B-12	3	10:59
㉑	A-12	1	11:05
㉒	B-14	3	11:11
㉓	A-14	1	11:17
㉔	B-16	3	11:23
㉕	A-16	1	11:29
㉖	B-18	3	11:34
㉗	A-18	1	11:40
㉘	B-20	3	11:46
㉙	A-20	1	11:51
㉚	B-22	3	11:58

9.94/pushes
hr

#	OVER	BATTERY	TIME
③①	A-22	1	12:34
③②	B-24	3	12:39
③③	A-24	1	12:45
③④	B-26	3	12:50
③⑤	A-26	1	12:56
③⑥	B-28	3	13:01
③⑦	A-28	1	13:07
③⑧	B-30	3	13:12
③⑨	A-30	1	13:18
④⑩	C-2	3	13:23
④⑪	B-1	1	13:29
④⑫	A-1	2	13:33
④⑬	B-3	1	13:39
④⑭	A-3	2	13:44
④⑮	B-5	1	13:50
④⑯	A-5	2	13:55
④⑰	B-7	1	14:01
④⑱	A-7	2	14:06
④⑲	B-9	1	14:11
⑤①	A-9	2	14:16
⑤②	B-11	1	14:22
⑤③	A-11	2	14:27
⑤④	B-13	1	14:33
⑤⑤	A-13	2	14:38
⑤⑥	B-15	1	14:44
⑤⑦	A-15	2	14:49
⑤⑧	B-17	1	14:54
⑤⑨	A-17	2	14:59
⑥①	B-19	1	15:05
⑥②	A-19	2	15:10

1, 2, 3 REC

11-04-92

R/P

9.05 pushes
hr

#	ORIG	BATTERY	TIME
①	C-1	3	08:29
②	B-1	1	08:35
③	A-1	2	08:40
④	B-3	1	08:46
⑤	A-3	2	08:51
⑥	B-5	1	08:57
⑦	A-5	2	09:01
⑧	B-7	1	09:10
A-7 ⑨	A-7	2	09:15
⑩	B-9	1	09:21
A-9 ⑪	A-9	2	09:26
⑫	B-11	1	09:32
A-11 ⑬	A-11	2	09:38
⑭	B-13	1	09:44
A-13 ⑮	A-13	2	09:49
⑯	B-15	1	09:56
A-15 ⑰	A-15	2	10:01
⑱	B-17	1	10:07
A-17 ⑲	A-17	2	10:12
B-19 ⑳	B-19	1	10:18
A-19 ㉑	A-19	2	10:23
B-21 ㉒	B-21	1	10:29
A-21 ㉓	A-21	2	10:34
㉔	B-23	1	10:40
㉕	B-25	2	10:44
㉖	B-25	1	10:50
㉗	B-25	2	10:55
㉘	B-27	1	11:01
㉙	A-27	2	12:08
㉚	B-29	1	12:14

#	ORIG	BATTERY	TIME
③①	A-29	2	12:19
③②	B-31	1	12:25
③③	A-31	2	12:29
③④	C-1	1	12:35
③⑤	A-2	3	12:42
③⑥	B-2	2	12:54
③⑦	B-4	2	13:01
③⑧	A-4	3	13:05
③⑨	B-6	2	13:11
④⑩	A-6	3	13:16
④⑪	B-8	2	13:22
④⑫	A-8	3	13:27
④⑬	B-10	2	13:33
④⑭	A-10	3	13:38
④⑮	B-12	2	13:44
④⑯	A-12	3	13:49
④⑰	B-14	2	13:55
④⑱	A-14	3	14:00
④⑲	B-16	2	14:06
⑤⑩	A-16	3	14:12
⑤⑪	B-18	2	14:17
⑤⑫	A-18	3	14:23
⑤⑬	B-20	2	14:29
⑤⑭	A-20	3	14:34
⑤⑮	B-22	2	14:39
⑤⑯	A-22	3	14:45
⑤⑰	B-24	2	14:51
⑤⑱	A-24	3	14:56
⑥⑩	B-26	2	15:02
⑥⑪	A-26	3	15:07

1,2,3 PEC

11-05-92

RPC

#	OVEN	BATTERY	TIME
①	A-4	3	08:18
②	B-6	2	08:25
③	A-6	3	08:31
④	B-8	2	08:37
⑤	A-8	3	08:45
⑥	B-10	2	08:51
⑦	A-10	3	08:56
⑧	B-12	2	09:02
⑨	A-12	3	09:08
⑩	B-14	2	09:14
⑪	A-14	3	09:19
⑫	B-16	2	09:25
⑬	A-16	3	09:30
⑭	B-18	2	09:36
⑮	A-18	3	09:41
⑯	B-20	2	09:46
⑰	A-20	3	09:54
⑱	B-22	2	10:00
⑲	A-22	3	10:05
⑳	B-24	2	10:11
㉑	A-24	3	10:16
㉒	B-26	2	10:22
㉓	A-26	3	10:27
㉔	B-28	2	10:33
㉕	A-28	3	10:38
㉖	B-30	2	10:44
㉗	A-30	3	10:49
㉘	C-1	2	10:55
㉙	B-1	3	11:01
㉚	A-1	1	11:07

9.89 pushes
hr

A-23

B-29

A-29

B-31

A-31

#	OVEN	BATTERY	TIME
③①	B-3	3	11:12
③②	A-3	1	11:18
③③	B-5	3	11:24
③④	A-5	1	11:29
③⑤	B-7	3	11:35
③⑥	A-7	1	11:41
③⑦	B-9	3	11:46
③⑧	A-9	1	11:52
③⑨	B-11	3	11:57
④⑩	A-11	1	12:33
④⑪	B-13	3	12:38
④⑫	A-13	1	12:44
④⑬	B-15	3	12:48
④⑭	A-15	1	12:54
④⑮	B-17	3	12:59
④⑯	A-17	1	13:04
④⑰	B-19	3	13:09
④⑱	A-19	1	13:18
④⑲	B-21	3	13:22
⑤①	A-21	1	13:28
⑤②	B-23	3	13:33
⑤③	A-23	1	13:38
⑤④	B-25	3	13:43
⑤⑤	A-25	1	13:49
⑤⑥	B-27	3	13:53
⑤⑦	A-27	1	13:59
⑤⑧	B-29	3	14:03
⑤⑨	A-29	1	14:11
⑤⑩	B-31	3	14:16
⑥①	A-31	1	14:22

3

CLIENT USS Clayton Works

TEST DATE 11-3-97

HOT BOX NO 7

HOT BOX NO 7

COLD BOX NO.

PROBE NO. 6-7

FILTER NO. 137

STACK DIA 3/1

LEAK CHECK

12

Impinger No.	Impinger Contents
1	Water
2	Water
3	Water
4	Water
5	Water
6	Water
7	Water
8	Water
9	Water
10	Water
11	Water
12	Water
13	Water
14	Water
15	Water
16	Water
17	Water
18	Water
19	Water
20	Water
21	Water
22	Water
23	Water
24	Water
25	Water
26	Water
27	Water
28	Water
29	Water
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38	Water
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68	Water
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76	Water
77	Water
78	Water
79	Water
80	Water
81	Water
82	Water
83	Water
84	Water
85	Water
86	Water
87	Water
88	Water
89	Water
90	Water
91	Water
92	Water
93	Water
94	Water
95	Water
96	Water
97	Water
98	Water
99	Water
100	Water

no.	Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

PITOT LEAK CHECK

POS.	NEG.

CLIENT	JSS Clanton Works	TEST DATE	11-3-92	ORIFICE CORRECTION	1.756	HOT BOX NO.	7
TEST UNIT	1-3 Battery Pcc	TEST NO.	022-1-1-1	METER CORRECTION	0.9721	COLD BOX NO.	7
PROJECT NO.	30096 F01	NOZZLE (SIZE, #)	0.180 #22	CALIBRATION DATE	6-3-92	PROBE NO.	5-1
CONTROL BOX OPERATOR	MG	STATIC PRESSURE	0.80	PITOT CORRECTION	0.84	FILTER NO.	137 Q12
BAROMETRIC PRESSURE	29.32	PORT DIRECTION	SOUT H	CONTROL BOX NO.	4	STACK DIA.	36

LEAK CHECK		
	in. Hg	Rate (cfm)
Before		
After		

PTOT LEAK CHECK		
	POS	NEG

	1	2
CO2		
O2		
CO		
N2		

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

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

②

STACK 1-2-

CLIENT USS Clayton works

TEST DATE 11-3-92

TEST NO. C1P-1-3

PROJECT NO. 30056601
CONTROL BOX OFFICE

CONTROL BOX OPERATOR JPS

BAROMETRIC PRESSURE 29.32

Traverse	Time	Dry Gas	D.B. A
----------	------	---------	--------

ORIFICE CORRECTION 1.618

METER CORRECTION 0.9915

CALIBRATION DATE 5-5-92

PITOT CORRECTION 0.84

CONTROL BOX NO. 3

HOT BOX NO. 5

COLD BOX NO. 5

PROBE NO. 5-4

FILTER NO. 134

STACK DIA. 36"

[illegible]

LEAK CHECK

	in. Hg	Rate (cfm)
Before		
After		

PITOT LEAK CHECK

POS.	NEG.

	1	2
CO2		
O2		
CO		
N2		

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

④

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KEYSTONE
ENVIRONMENTAL SERVICES, INC.

STACK SAMPLING DATA SHEET

CLIENT	USS Chantrelle Works	TEST DATE	11-3-92	ORIFICE CORRECTION	1.748	HOT BOX NO.	8	Page	1 of 5
TEST UNIT	1-3 Battery P12	TEST NO.	CLP-1-3-1	METER CORRECTION	1.0295	COLD BOX NO.	8		
PROJECT NO.	30096-101	NOZZLE (SIZE, #)	#16, .158	CALIBRATION DATE	10-16-92	PROBE NO.	5-3		
CONTROL BOX OPERATOR	P12	STATIC PRESSURE	41.0	PITOT CORRECTION	0.84	FILTER NO.	136		Q72
BAROMETRIC PRESSURE	27.32	PORT DIRECTION	EAST	CONTROL BOX NO.	1	STACK DIA	24"		

[illegible]

SYSTEM LEAK CHECK			PITOT LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)		Positive	Negative
Before	5.0	0.002	Before	OK 15 sec.	OK 15 sec.
After	5.5	0.003	After	OK 15 sec.	OK 15 sec.

1

2

CO2	0	
O2	20.5	
CO	0	
N2	79.5	

AOE 2/92



STACK SAMPLING DATA SHEET

Traverse	Time	Dry Gas	Port A.D.	Orifice	Control Box No.	Control Box No.	Filter No.	Stack Dia.
CLIENT	USS - (Integrated) Works							
TEST UNIT	1-3 Battery PC							
PROJECT NO.	300196-01							
CONTROL BOX OPERATOR	113							
BAROMETRIC PRESSURE	29.32							
TEST DATE	11-3-92							
TEST NO.	CL2-1-3-1							
NOZZLE (SIZE, #)	#16, 158							
STATIC PRESSURE	+1.0							
PORT DIRECTION	EAST							
ORIFICE CORRECTION								
METER CORRECTION								
CALIBRATION DATE	10-16-92							
PITOT CORRECTION	0.84							
CONTROL BOX NO.	1							
HOT BOX NO.	8							
COLD BOX NO.	8							
PROBE NO.	5-3							
FILTER NO.	136							
STACK DIA.	24"							

CLIENT USS - Clinton block.

TEST UNIT	1-3 battery PC	TEST DATE	11-3-52	ORIFICE CORRECTION		HOT BOX NO.	8
PROJECT NO.	300196-01	TEST NO.	CL2-1-3-1	METER CORRECTION		COLD BOX NO.	8
CONTROL BOX OPERATOR	113	NOZZLE (SIZE, #)	#16, 158	CALIBRATION DATE	10-2-5	PROBE NO.	5-3
BAROMETRIC PRESSURE	29.32	STATIC PRESSURE	+1.0	PITOT CORRECTION		FILTER NO.	136 972
		PORT DIRECTION	East	CONTROL BOX NO.	1	STACK DIA.	24"

[illegible]

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

	Positive	Negative
Before		
After		

CO2		
O2		
CO		
N2		

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

STACK SAMPLING DATA SHEET

CLIENT	USS-C / Airtex Works	TEST DATE	11/3/72	ORIFICE CORRECTION	1.768	HOT BOX NO.	8
TEST UNIT	1-3 BATTERY PCC	TEST NO.	CLR-1-3-1	METER CORRECTION	1.0245	COLD BOX NO.	8
PROJECT NO.	300176-01	NOZZLE (SIZE, #)	#16 - 158	CALIBRATION DATE	10-16-72	PROBE NO.	5-3
CONTROL BOX OPERATOR	112	STATIC PRESSURE	71.0	PITOT CORRECTION	0.84	FILTER NO.	136 QTE.
BAROMETRIC PRESSURE	29.32	PORT DIRECTION	EAST	CONTROL BOX NO.	1	STACK DIA.	36" ^{36"}

[illegible]

SYSTEM LEAK CHECK		PITOT LEAK CHECK	
	Vacuum (in. Hg)	DGM Rate (cfm)	
Before			Positive
			Negative
			Before
			After

CO2		
O2		
CO		
N2		

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

26/7 304 AQE 2/92

STACK SAMPLING DATA SHEET

CLIENT	USS - (Airtac) Works	TEST DATE	11/3/92	ORIFICE CORRECTION	1.768	HOT BOX NO.	8
TEST UNIT	1-3 BATTERY PCU	TEST NO.	C-12-1-3-1	METER CORRECTION	1.0235	COLD BOX NO.	8
PROJECT NO.	30196-01	NOZZLE (SIZE, #)	#16, .158	CALIBRATION DATE	10-16-72	PROBE NO.	5-3
CONTROL BOX OPERATOR	118	STATIC PRESSURE	4.0	PITOT CORRECTION	0.84	FILTER NO.	136472
BAROMETRIC PRESSURE	29.32	PORT DIRECTION	EAST	CONTROL BOX NO.	1	STACK DIA.	36"

[illegible]

SYSTEM LEAK CHECK		
	Vacuum (in. Hg.)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK	
	Positive
Before	
After	

CO2		
O2		
CO		
N2		

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

STACK SAMPLING DATA SHEET

Page / of 5

[illegible]

SYSTEM LEAK CHECK			PITOT LEAK CHECK		Impinger		Impinger		Difference	
	Vacuum (in. Hg)	DGM Rate (cfm)		Positive	Negative	No.	Contents	Final	Initial	
Before	5.0	0.004	Before	OK 15 SEC	OK 15 SEC	1.	100 mL H ₂ O	624.8	565.8	59.0
After	5.5	0.014	After	OK 15 SEC	OK 15 SEC	2.	100 mL H ₂ O	514.5	567.9	-53.4
						3.	empty	380.6	379.83	0.8
						4.	Silica Gel	654.8	651.4	3.4
						5.				

9.8
KEYSTONE
PUBLISHING & DESIGN, INC.

STACK 1-4

STACK SAMPLING DATA SHEET

CLIENT USS Clenden Works TEST DATE 11-3-92 ORIFICE CORRECTION 1.535 HOT BOX NO. 4
TEST UNIT 1238C Baghouse TEST NO. CLR-1-4-1 METER CORRECTION 0.9916 COLD BOX NO. 4
PROJECT NO. 300196-019 NOZZLE (SIZE, #) 0.168 CALIBRATION DATE 9-14-92 PROBE NO. 5-5
CONTROL BOX OPERATOR JB STATIC PRESSURE +1.0 PITOT CORRECTION 0.84 FILTER NO. 135 Q12
BAROMETRIC PRESSURE 29.32 PORT DIRECTION East CONTROL BOX NO. 7 STACK DIA. 36"

Traverse Point (inches)	Time	Dry Gas Meter Reading (dcf)	Pilot Δ P (in. H2O)	Orifice Δ H		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°C/°F)	Hot Box Temp. (°F)	Comments
				Req'd. (in. H2O)	Act. (in. H2O)	In (°F)	Out (°F)						
35.0	10	906.357	1.1	0.57	0.55	88	80	2.5	132				
336	24	906.809	0.9	0.46	0.45	86	79	2.0	132				
31.7	43	907.249	0.9	0.46	0.45	85	80	2.0	133				
29.6	64	907.676	0.7	0.36	0.35	87	81	2.0	133				
27.0	90	908.077	0.8	0.41	0.40	87	81	2.0	134				
23.2	128	908.485	0.9	0.46	0.45	86	81	2.2	138				
	12.8	908.928	1.0	0.51	0.50	86	82	2.5	136				
	9.0	909.406	1.0	0.51	0.50	87	82	2.5	132				
	6.4	909.854	1.0	0.51	0.50	88	83	2.5	134				
	4.3	910.305	1.0	0.51	0.50	88	82	2.5	134				
	2.4	910.782	0.9	0.46	0.45	90	82	2.0	132				
	1.0	911.255	0.8	0.41	0.40	90	83	2.0	129				
		911.676											
			0.92	0.47			84.3		133.3				

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

	Positive	Negative
Before		
After		

Impinger

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

	1	2
CO2		
O2		
CO		
N2		

STACK 1-4

STACK SAMPLING DATA SHEET

CLIENT USS Clinton Works TEST DATE 10-3-97 ORIFICE CORRECTION 1.535 HOT BOX NO. 4
 TEST UNIT 123 PEC Bayhouse TEST NO. CLR-1-4-1 METER CORRECTION 0.9976 COLD BOX NO. 4
 PROJECT NO. 300196-04 NOZZLE (SIZE, #) 0.158 #18 CALIBRATION DATE 9-14-97 PROBE NO. 5-5
 CONTROL BOX OPERATOR 883 STATIC PRESSURE 1.0 PITOT CORRECTION 0.884 FILTER NO. 135 Q12
 BAROMETRIC PRESSURE 29.32 PORT DIRECTION South CONTROL BOX NO. 7 STACK DIA. 36"

Page 4 of 5

Traverse Point (inches)	Time	Dry Gas Meter Reading (def)	Pitot Δ P (in. H2O)	Orifice Δ H		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°C/°F)	Hot Box Temp. (°F)	Comments
35.0		911.676	1.0	Req'd. (in. H2O)	Act. (in. H2O)	In (°F)	Out (°F)						
33.6		912.105	1.0	0.51	0.50	90	83	2.5	134	250	< 68°F	~250	
31.7		912.561	1.2	0.62	0.60	93	84	2.5	134				
29.6		913.057	1.2	0.62	0.60	93	85	3.0	134				
27.0		913.565	1.2	0.62	0.60	91	86	3.0	136				
23.0		914.074	1.0	0.51	0.50	90	85	3.0	137				
12.8		914.520	0.8	0.41	0.40	93	85	2.5	136				
9.0		914.933	0.8	0.41	0.40	92	84	2.0	137				
6.4		915.345	0.8	0.41	0.40	92	85	2.0	140				
4.3		915.752	0.8	0.41	0.40	92	84	2.0	140				
2.4		916.168	0.9	0.41	0.40	92	86	2.0	137				
1.0		916.694	0.8	0.41	0.45	92	86	2.0	124				
		917.030			0.40	94	86	2.0	120				

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

Before	Positive	Negative
After		

CO2	O2	CO	N2

Impinger No. 1

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

STACK SAMPLING DATA SHEET

Page 5 of 5

HOT BOX NO.

COLD BOX NO. 4

PROBE NO. 5-5

FILIER NO. 135 Q12
STACK DIA. 3.0

Estimates:

PITOT LEAK CHECK		
	Positive	Negative
Before		
After		

no.	Contents	Final	Initial	Difference
1.				
2.				
3.				
4.				
5.				

STACK 1-1

STACK SAMPLING DATA SHEET

CLIENT USC Clinton Works TEST DATE 1-4-92 ORIFICE CORRECTION 1.756 HOT BOX NO. 7
 TEST UNIT 1-3 Battery REC TEST NO. CL-1-1-2 METER CORRECTION 0.9721 COLD BOX NO. 7
 PROJECT NO. 30076-101 NOZZLE (SIZE, #) 0.180 # 22 CALIBRATION DATE 6-3-92 PROBE NO. 5-1
 CONTROL BOX OPERATOR BAROMETRIC PRESSURE 29.07 PORT DIRECTION EAST CONTROL BOX NO. 4 FILTER NO. 138 QTR QTR
 STACK DIA. 36"

Page 4 of 5

Traverse Point (inches)	Time	Dry Gas Meter Reading (scf)	Pitot ΔP (in. H2O)	Orifice ΔH	Req'd. (in. H2O)	Act. (in. H2O)	Meter Temperature In (°F)	Meter Temperature Out (°F)	Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°C/°F)	Hot Box Temp. (°F)	Comments
35.0		573.255	1.5	1.44	1.44	1.44	89	88	4.0	143	250	48.0	250	Imink point
33.6		574.013	1.5	1.44	1.44	1.44	89	89	4.0	145				
31.7		574.661	1.5	1.44	1.44	1.44	90	89	4.0	147				
29.6		575.387	1.4	1.33	1.33	1.33	90	89	4.0	146				
27.0		576.098	1.4	1.33	1.33	1.33	90	90	4.0	148				
23.2		576.758	1.3	1.25	1.25	1.25	90	90	3.5	147				
12.8		577.392	1.0	1.05	1.05	1.05	91	90	3.0	148				
9.0		577.993	1.0	1.05	1.05	1.05	91	91	3.0	147				
6.4		578.617	1.1	1.05	1.05	1.05	91	90	3.0	149				
4.3		579.213	1.0	1.05	1.05	1.05	90	90	3.0	146				
2.4		579.831	1.1	1.05	1.05	1.05	91	90	3.0	145				
1.0		580.392	1.0	1.05	1.05	1.05	91	90	3.0	144				

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

Before	Positive	Negative
After		

CO2	O2	CO	N2

Impinger

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

STACK SAMPLING DATA SHEET

Page 5 of 5

CLIENT	USS Clinton	Wards	TEST DATE	11-4-92-	ORIFICE CORRECTION	1.756	HOT BOX NO.	7	Page 5 of 5
TEST UNIT	1-3 Battery	Rec	TEST NO.	CRP - 1-1-2	METER CORRECTION	0.9721	COLD BOX NO.	7	
PROJECT NO.	32976	011	NOZZLE (SIZE,#)	#22	CALIBRATION DATE	6-3-92	PROBE NO.	5-1	
CONTROL BOX OPERATOR	M6		STATIC PRESSURE	1.0	PITOT CORRECTION	0.84	FILTER NO.	138	Q72
BAROMETRIC PRESSURE	29.07		PORT DIRECTION	East	CONTROL BOX NO.	4	STACK DIA.	34"	

[illegible]

SYSTEM LEAK CHECK			PITOT LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)		Positive	Negative
Before				Before	
After				After	

	1	2
CO2		
O2		
CO		
N2		

2672 EOE 2/92

STACK SAMPLING DATA SHEET

[illegible]

	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.010
After	5.0	0.009

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

C02	0
O2	20.5
C0	0
N2	79.5

No.	Contents	Final	Initial	Difference
1.	100 ml H ₂ O	554.3	545.2	9.1
2.	100 ml H ₂ O	570.8	570.2	0.6
3.	empty	463.0	462.5	0.5
4.	Silica gel	685.1	676.4	8.7
5.				

$$\text{MW} = 28.7$$

STACK SAMPLING DATA SHEET

CLIENT	USS Christian Warble	TEST DATE	11-4-93	ORIFICE CORRECTION	1.618	HOT BOX NO.	5
TEST UNIT	1-3 Battery Rec	TEST NO.	CUR-112-2	METER CORRECTION	0.9915	COLD BOX NO.	5
PROJECT NO.	700 P6 101	NOZZLE (SIZE, #)	0.180 #11	CALIBRATION DATE	5-5-92	PROBE NO.	5-4
CONTROL BOX OPERATOR		STATIC PRESSURE	1.0	PITOT CORRECTION	0.84	FILTER NO.	139
BAROMETRIC PRESSURE	29.07	PORT DIRECTION	East	CONTROL BOX NO.	3	STACK DIA.	36"

[illegible]

PITOT LEAK CHECK		
	Positive	Negative
Before		
After		

	I	Z
CO2		
O2		
CO		
N2		

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

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

Page 3 of 5

STACK SAMPLING DATA SHEET

HOT BOX NO. 8

ORIFICE CORRECTION 1.768

METER CORRECTION 1.0245

CALIBRATION DATE	10-16-92
PITOT CORRECTION	0.847

CONTROL BOX NO 1

SYSTEM LEAK CHECK

PITOT LEAK CHECK

	I	2
CO2		
O2		
CO		
N2		

Impinger	Impinger
----------	----------

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

AAQE 2/92

STACK SAMPLING DATA SHEET

CLIENT	USS Claiton Works	TEST DATE	11-21-92	ORIFICE CORRECTION	1.768	HOT BOX NO.	8
TEST UNIT	1-3. Battery REC	TEST NO.	CLC-1-3-2	METER CORRECTION	1.0295	COLD BOX NO.	8
PROJECT NO.	30296 F-01	NOZZLE (SIZE, #)	#16-158	CALIBRATION DATE	10-16-92	PROBE NO.	5-3
CONTROL BOX OPERATOR	118	STATIC PRESSURE	71.0	PITOT CORRECTION	0.84	FILTER NO.	140
BAROMETRIC PRESSURE	29.67	PORT DIRECTION	East	CONTROL BOX NO.	1	STACK DIA	21"

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK		
	Positive	Negative
Before		
After		

	1	2
CO2		
O2		
CO		
N2		

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

STACK SAMPLING DATA SHEET

CLIENT	USS Clayton Works	TEST DATE	11-4-92	ORIFICE CORRECTION	1.768	HOT BOX NO.	8
TEST UNIT	1-3 Battery Rec	TEST NO.	CR-1-3-2	METER CORRECTION	1.0275	COLD BOX NO.	8
PROJECT NO.	70076-61	NOZZLE (SIZE, #)	#16 .158	CALIBRATION DATE	10-16-92	PROBE NO.	5-3
CONTROL BOX OPERATOR	V11	STATIC PRESSURE	+1.0	PITOT CORRECTION	0.84	FILTER NO.	140
BAROMETRIC PRESSURE	29.07	PORT DIRECTION	East	CONTROL BOX NO.	1	STACK DIA.	36"
							QR2

CLIENT USS Clayton Works
TEST UNIT 1-3 Battery REC
PROJECT NO. 30096-61
CONTROL BOX OPERATOR VJZ
BAROMETRIC PRESSURE 29.07

[illegible]

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK	
	Negative
Before	
After	

CO2		
O2		
CO		
N2		

Impinger No.	Impinger Contents
1.	
2.	
3.	
4.	
5.	

AQE 2/92

STACK SAMPLING DATA SHEET

CLIENT USS Claiton Works

TEST NO.	010-14
TEST DATE	11-4-92
TEST UNIT	1-3 Battery POC
PROJECT NO.	033 Canyon Works

PROJECT NO. 300196-01	TEST NO. CIL-14-2
CONTRACT NO. 13 Battery PCT	NOZZLE (SIZE) 1/2"

NOZZLE (SIZE, #)	0, 158
STATIC PRESSURE	410
BAROMETRIC PRESSURE	29.5
CONTROL BOX OPERATOR	
250-110 3	

BAROMETRIC PRESSURE	29.07	STATIC PRESSURE	#1.0
TEMPERATURE	72°	PORT DIRECTION	South

Traverse Point	Time	Dry Gas Meter Reading	Pilot ΔP	Orifice ΔH	Meter

Post (inches)	Meter Reading (def)	Req'd. (in. H ₂ O)	Act. (in. H ₂ O)	Grubbs Δ H in	Meter
------------------	------------------------	----------------------------------	--------------------------------	------------------	-------

(mm. Hg)	(vol)	(in. H ₂ O)	(in. H ₂ O)	(°F)
35.0	923	170	180	—

25.0	923/170	1.950	75	75
33.6	923/245	1.115	75	75

923.745	1.45	73	78
923.745	1.45	73	78

924.231	1.50	75	75	78
924.231				

9.6	924.712	150	75	75	80
70					

7.0	987.56	1.60	08	08	80
7.0	987.56	1.60	08	08	80

3.2	925.700	130	-65	-65	80
-----	---------	-----	-----	-----	----

1.0	120.181	1.00	.50	80
1	926.626	1.25	13	81

4	120.626	1.25	.63	81
4	927.118	1.25	.13	21

3	927 580	1.25	-63	-63	81
3	927 580	1.25	-63	-63	81

4	427.590	125	63	83
4	938.100	115	8	8

1	928.100	1.15	58	84
0	928.577	1	58	84

0	928.552	1.20	.60	86
0	928.552	1.20	.60	86

Vacuum	DGM Rate	Positive	Negative
--------	----------	----------	----------

	(in. Hg)	(cfm)	Positive	Negative
Before			OK 15 SE 20K 15 SE	

before	5.0	.012	OK 13 DEC 68 OK 13 DEC 68
After	5.0		OK 13 DEC 68 OK 13 DEC 68

for	5.0	-012
pages	57	103a
		of 15400
	1	2

CO2	2
	2

02	20.5
03	20.5

2	0	0
2	0	0

2/92	N2	79.5	
------	----	------	--

AC

STACK SAMPLING DATA SHEET

CLIENT	USS CLARK Pk	TEST DATE	11-5-92	ORIFICE CORRECTION (ΔH)	1.756	HOT/COLD BOX NO.	7
TEST UNIT	1-3 Battery PCC	TEST NO.	CLR-1-1-3	METER CORRECTION (Y)	0.9721	PROBE NO.	5-1
PROJECT NO.	300196-01	NOZZLE (SIZE, IN)	0.180 H 2 Z	CALIBRATION DATE	6-3-92	FILTER NO.	5-143
TEST CREW	M.G.	STATIC PRESSURE	0.10	PILOT CORRECTION	0.84	STACK DIA.	36.0
BAROMETRIC PRESSURE	79.15	PORT DIRECTION	EAST	CONTROL BOX NO.	4	PORT SIZE	4"

Transverse Point (inches)	Time	Dry Gas Meter Reading (cu ft)	Plot Δ P (in. H ₂ O)	Orifice Δ H		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
				Required (in. H ₂ O)	Actual (in. H ₂ O)	In (°F)	Out (°F)						
35.0		588.357	1.5	1.45	1.45	60	58	4.0	115	255	68 Ambient	250	1 min./point
33.6		589.050	1.5	1.45	1.45	58	57	4.0	117				
31.7		589.771	1.5	1.45	1.45	58	57	4.0	117				
29.6		590.476	1.4	1.35	1.35	57	57	4.0	118				
27.0		591.161	1.4	1.35	1.35	57	57	4.0	118				
23.2		591.853	1.2	1.16	1.16	58	57	3.5	119				
12.8		592.455	1.2	1.16	1.16	58	58	3.5	121				
9.0		593.094	1.2	1.16	1.16	59	58	3.5	120				
6.4		593.729	1.1	1.07	1.07	61	59	3.5	118				
4.3		594.194	1.1	1.07	1.07	61	60	3.5	119				
2.4		594.970	1.0	1.07	1.07	62	61	3.0	117				
1.0		595.500	1.1	1.07	1.07	62	61	3.5	117				
		596.123											
													Estimates:
													MW=28.7
													% H ₂ O= 2.9%

SYSTEM LEAK CHECK		PITOT LEAK CHECK	
	Vacuum (in. Hg)	DCM Rate (cfm)	
Before	5.0	0.005	
After	5.0	0.005	

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

	1	2
QAS		
CO2		
O2	20.5	Air
CO		
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100 ml H ₂ O	553.2	550.1	5.1
2.	100 ml H ₂ O	538.1	537.2	0.9
3.	Day	736.3	456.3	0.0
4.	5.16 c1	590.0	582.5	7.5
5.				

STACK 1-1

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING STACK SAMPLING DATA SHEET

Page 2 of 5

CLIENT USS Chemical Works TEST DATE 11-5-92 ORIFICE CORRECTION (ΔH) 0.1756 HOT/COLD BOX NO. 7
 TEST UNIT 1-3 Barrical pec TEST NO. CLR-1-1-3 METER CORRECTION (Y) 0.9221 PROBE NO. 5-1
 PROJECT NO. 300196-01 NOZZLE (SIZE, θ) 0.180 #22 CALIBRATION DATE 6-3-92 FILTER NO. 143
 TEST CREW STATIC PRESSURE 1.0 PITOT CORRECTION 0.84 STACK DIA. 36.0
 BAROMETRIC PRESSURE PORT DIRECTION EAST CONTROL BOX NO. 4 PORT SIZE 4" NPT

Traverse Point (inches)	Time	Dry Gas Meter Reading	Pitot ΔP (in. H ₂ O)	Orifice ΔH		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
				Required (in. H ₂ O)	Actual (in. H ₂ O)	In (°F)	Out (°F)						
1.0		596.741	1.1	1.07	1.07	62	61	3.5	118	255	168	250	1 min./point
2.4		597.362	1.1	1.07	1.07	62	61	3.5	117				
4.3		597.990	1.1	1.07	1.07	62	61	3.5	120				
6.4		598.619	1.2	1.16	1.16	63	62	4.0	122				
9.0		599.227	1.0	1.07	1.07	63	62	3.0	121				
12.8		599.961	1.1	1.07	1.07	61	61	3.5	122				
23.2		600.536	1.3	1.26	1.26	62	61	4.0	125				
27.0		601.258	1.5	1.45	1.45	62	61	4.0	120				
29.6		601.985	1.5	1.45	1.45	62	62	4.0	118				
31.7		602.623	1.3	1.26	1.26	61	61	4.0	117				
33.6		603.355	1.6	1.55	1.55	61	61	4.5	117				Estimates:
35.0		604.073	1.6	1.55	1.55	62	61	4.5	117				MW=
													% H ₂ O=

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

	Positive	Negative
Before		
After		
GAS	1	2
CO ₂		
O ₂		
CO		
N ₂		

Impinger

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

STACK 1-1

CLIENT	USS Clairan Wonts	TEST DATE	1/-5-92	ORIFICE CORRECTION (ΔH)	1.756	HOT/COLD BOX NO.	7
TEST UNIT	1-3 Parrey Pec	TEST NO.	CL-1-1-3	METER CORRECTION (Y)	0.9721	PROBE NO.	5-1
PROJECT NO.	300196-01	NOZZLE (SIZE, #)	0.180 #	22-CALIBRATION DATE	6-3-92	FILTER NO.	143
TEST CREW		STATIC PRESSURE	1.0	PTOT CORRECTION	0.84	STACK DIA.	36-C
BAROMETRIC PRESSURE		PORT DIRECTION	EAST	CONTROL BOX NO.	4	PORT SIZE	4"

LEAK CHECK

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

AOE 6192

STACK SAMPLING DATA SHEET						Page 4 of 5
CLIENT YSSC/Airport Works		TEST DATE	ORIFICE CORRECTION ($\Delta H @$) 1.75%		HOT/COLD BOX NO.	
TEST UNIT	1-3 BATTERY REC	TEST NO.	CER-1-1-3	METER CORRECTION (Y) 0.9231	PROBE NO. 5-1	
PROJECT NO.	700196 - 01	NOZZLE (SIZE, A)	0.180 #2.2	CALIBRATION DATE 6.3-82	FILTER NO. 143	
TEST CREW		STATIC PRESSURE	1.0	PITOT CORRECTION	STACK DIA. 36.0	
		PORT DIRECTION	SOUTH	CONTROL BOX NO.	PORT SIZE 4"	
Traverse Point	Time	Dry Gas	Port ΔP	Orifice ΔH	Meter Transmittance	

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[illegible]

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

	Positive	Negative
Before		
After		

	1	2
CO2		
O2		
CO		
N2		

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

**KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET**

CLIENT USSC/Airton Woods TEST DATE 11-5-92
TEST LINE# _____

TEST UNIT	1-3 BATTERY	TEST NO.	11-5-92	ORIFICE CORRECTION (H ₂ O)	1.756	HOT/COLD BOX NO.	7
PROJECT NO.	30096-01	NOZZLE (SIZE, #)	0.180 #22	METER CORRECTION (Y)	0.9721	PROBE NO.	5-1
TEST CREW		STATIC PRESSURE		CALIBRATION DATE	6-3-92	FILTER NO.	
BAROMETRIC PRESSURE		PORT DIRECTION	1-0	PITOT CORRECTION	0.84	STACK DIA.	36"
			50474	CONTROL BOX NO.	4	PORT SIZE	4"

[illegible]

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

	Before	After	Before	After
GAS			1	2
CO2				
O2				
CO				
N2				

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

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT	TEST UNIT	TEST DATE	ORIFICE CORRECTION (Δ H _O)	HOT/COLD BOX NO.	Page	of
USEC Claitor Works	1-3 Battery Pack	11-5-92		1618		
PROJECT NO.	30096-01	TEST NO.	METER CORRECTION (Y)	PROBE NO.		
TEST CREW	JTS	NOZZLE (SIZE, #)	CALIBRATION DATE	FILTER NO.		
BAROMETRIC PRESSURE	29.15	STATIC PRESSURE	PITOT CORRECTION	STACK DIA.		
		PORT DIRECTION	CONTROL BOX NO.	PORT SIZE		

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

FITOT LEAK CHECK			
		Positive	Negative
	Before		
	After		

GAS 1 2			
	CO2		
	O2		
	CO		
	N2		

Impinger No.	Impinger Contents	Final	Initial	Difference	% H ₂ O=
1.					
2.					
3.					
4.					
5.					

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT	USS CLARKSON Works	TEST DATE	11-5-92
TEST UNIT	1-3 Battery Pec	TEST NO.	CLR-1-2-3
PROJECT NO.	300196 01	NOZZLE (SIZE, #)	0.180
TEST CREW	TPS	STATIC PRESSURE	1.0"
		BAROMETRIC PRESSURE	29.15
		PORT DIRECTION	EAST

CLIENT	USS Claiton Works	TEST DATE	11-5-92	ORIFICE CORRECTION (ΔH ₀)	1.618	HOT/COLD BOX NO.	5
TEST UNIT	1-3 Battery Pec	TEST NO.	CLE-1-2-3	METER CORRECTION (Y)	0.9915	PROBE NO.	5-4
PROJECT NO.	300196 01	NOZZLE (SIZE, I)	0.180 #11	CALIBRATION DATE	5-5-93	FILTER NO.	144 QT2
TEST CREW	JPS	STATIC PRESSURE	1.0"	PITOT CORRECTION	0.84	STACK DIA.	36.0"
BAROMETRIC PRESSURE	29.15	PORT DIRECTION	EAST	CONTROL BOX NO.	3	PORT SIZE	4"

[illegible]

SYSTEM LEAK CHECK	PITOT LEAK CHECK
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	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

	Positive	Negative
Before		
After		

	GAS		1		2	
	CO2					
	O2					
	CO					
	N2					

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

AQE 6/92

STACK 1-2

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING STACK SAMPLING DATA SHEET

Page 4 of 5

CLIENT USD Clinton Works TEST DATE 11-5-92 ORIFICE CORRECTION (ΔH) 1.6/18 HOT/COLD BOX NO. 5
 TEST UNIT 1-3 Battery Rec TEST NO. 22R-1-2-3 METER CORRECTION (Y) 0.9915 PROBE NO. 5-4
 PROJECT NO. 30096-01 NOZZLE (SIZE, #) 0.180 #11 CALIBRATION DATE 5-5-92 FILTER NO. 144QT2
 TEST CREW TR STATIC PRESSURE 1.0 PITOT CORRECTION 0.84 STACK DIA. 36.0"
 BAROMETRIC PRESSURE 29.15 PORT DIRECTION SOUTH CONTROL BOX NO. 3 PORT SIZE 4"

Traverse Point (inches)	Time	Dry Gas Meter Reading (scf)	Pitot ΔP (in. H2O)	Orifice ΔH		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
				Required (in. H2O)	Actual (in. H2O)	In (°F)	Out (°F)						
35.0		998.563	1.50	1.35	1.35	70	61	3.5	115	250	468°F Flame down	250	1 min./point
33.6		999.289	1.60	1.44	1.44	70	63	3.5	116				
31.7		1000.007	1.65	1.48	1.48	71	64	3.8	114				
29.6		1000.752	1.70	1.53	1.53	62	55	4.0	108				
27.0		1001.488	1.50	1.35	1.35	64	59	3.5	107				
23.2		1002.205	1.30	1.17	1.17	65	57	3.0	108				
12.8		1002.865	1.10	0.99	0.99	65	58	2.8	109				
9.0		1003.494	1.10	0.99	0.99	64	57	2.8	112				
6.4		1004.129	1.00	0.90	0.90	64	59	2.5	109				
4.3		1004.732	1.20	1.08	1.08	64	57	2.8	103				
2.7		1005.380	0.50	0.45	0.45	64	59	1.8	102				Estimates:
1.0		1005.856	1.20	1.08	1.08	65	57	3.0	101				MW=
		1006.490											% H2O=

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 Contents

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

Page 5 of 5

Page 5 of 5

BAROMETRIC PRESSURE	29.15	PORT DIRECTION	SE 47 H
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[illegible]

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before		
After		

PITOT LEAK CHECK	
	Positive
Before	
After	

CO2		
O2		
CO		
N2		

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

Stack-1-M

STACK 1-3

Page 2 of 5

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING STACK SAMPLING DATA SHEET

CLIENT U.S.S. CLAIRBORO WORKS TEST DATE 11-5-92 ORIFICE CORRECTION (ΔH) 0.1768 HOT/COLD BOX NO. 8
 TEST UNIT 1-3 Battery Rec TEST NO. CLR-1-3-3 METER CORRECTION (Y) 1.0275 PROBE NO. 5-3
 PROJECT NO. 30096-01 NOZZLE (SIZE, #) #16.158 CALIBRATION DATE 12-16-92 FILTER NO. 175473
 TEST CREW 117 STATIC PRESSURE 71.0 PITOT CORRECTION 0.84 STACK DIA. 36.0"
 BAROMETRIC PRESSURE 29.15 PORT DIRECTION EAST CONTROL BOX NO. 1 PORT SIZE 4" MALE

Traverse Point (inches)	Time	Dry Gas Meter Reading (ccf)	Pitot ΔP (in. H ₂ O)	Orifice ΔH		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°F)	Hot Box Temp. (°F)	Comments
				Required (in. H ₂ O)	Actual (in. H ₂ O)	In (°F)	Out (°F)						
1.0		722.934	0.8	0.48	0.48	56	59	2.0	103	250	250	250	1 min./point
2.4		723.352	1.0	0.60	0.60	57	61	2.0	108		268		
4.3		723.835	1.0	0.60	0.60	58	62	2.0	105				
6.4		724.310	1.0	0.60	0.60	58	61	2.0	104				
9.0		724.815	1.0	0.60	0.60	59	60	2.0	106				
12.8		725.315	1.1	0.64	0.64	58	60	2.5	109				
23.2		725.793	1.3	0.76	0.76	57	60	2.5	108				
27.0		726.324	1.5	0.88	0.88	56	62	3.0	107				
29.6		726.963	1.5	0.88	0.88	57	61	2.5	108				
31.7		727.580	1.1	0.64	0.64	57	61	2.5	107				
33.6		728.083	1.4	0.82	0.82	57	62	3.0	106				
35.0		728.735	1.6	0.94	0.94	56	61	3.0	107				
		729.358											
													Estimates:
													MW=
													%H ₂ O=

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

	Positive	Negative
Before		
After		
GAS	1	2
CO ₂		
O ₂		
CO		
N ₂		

Impinger

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

KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET

CLIENT	USS Claiton Works	TEST DATE	11-5-92	ORIFICE CORRECTION (ΔH)	1.768	HOT/COLD BOX NO.	8
TEST UNIT	1-3 Battery Rec	TEST NO.	CLR-1-3-3	METER CORRECTION (Y)	1.0215	PROBE NO.	5-3
PROJECT NO.	300196-01	NOZZLE (SIZE, θ)	#16.158	CALIBRATION DATE	12/16/92	FILTER NO.	145 GT2.
TEST CREW	flk	STATIC PRESSURE	760	PITOT CORRECTION	0.54	STACK DIA.	36.0"
BAROMETRIC PRESSURE	29.15	PORT DIRECTION	SOUTH	CONTROL BOX NO.	1	PORT SIZE	4" NPS / 2

[illegible]

SYSTEM LEAK CHECK			PITOT LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)		Positive	Negative
Before			Before		
After			After		
			GAS	1	2
			CO2		
			O2		
			CO		
			N2		

AOE 6/92

**KEYSTONE ENVIRONMENTAL RESOURCES / AIR QUALITY ENGINEERING
STACK SAMPLING DATA SHEET**

CLIENT	U.S.S. C/Atlantic	TEST DATE	11-5-92	ORIFICE CORRECTION (A/HO)	1.768	HOT/COLD BOX NO.	8
TEST UNIT	1-3 Bannery DEC	TEST NO.	CLD-1-3-3	METER CORRECTION (Y)	1.0245	PROBE NO.	5-3
PROJECT NO.	300796-01	NOZZLE (SIZE, A)	#1/4, 158	CALIBRATION DATE	10-16-92	FILTER NO.	1458727
TEST CREW	12	STATIC PRESSURE	41.0	PITOT CORRECTION	0.84	STACK DIA.	36.0"
BAROMETRIC PRESSURE	27.15	PORT DIRECTION	SOUT-H	CONTROL BOX NO.	1	PORT SIZE	4" male

[illegible]

SYSTEM LEAK CHECK			PITOT LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)		Positive	Negative
Before			Before		
After			After		
			GAS	1	2
			CO2		
			O2		
			CO		
			N2		

AOE 6492

STACK SAMPLING DATA SHEET

Page / of 5

CLIENT USS Clinton Works

TEST DATE 11-5-92

TEST UNIT 1-3 Battery PBC

TEST UNIT 1-3 Battery PBC

PROJECT NO. 30219% for

CONTROL BOX OPERATOR

BAROMETRIC PRESSURE

Traverse	Time	Dev Gm
----------	------	--------

TEST DATE 11-5-92

TEST NO. CLR-144-

TEST NO: CCE-1-7
NOZZLE (SIZE) 08 / 15

STATIC PRESSURE ± 1 (51) O (41) (12) (15)

PORT DIRECTION ES

0.5 "

OFFICE CORRECTION 135

METER CORRECTION - 0011

METER CORRECTION 0.9916

CALIBRATION DATE 9-14-91
PITOT CORRECTION: 0.1

FILED CORRECTION 0.864

CONTROL BOX NO. 7

1000

HOT BOX NO. 4

COLD BOX NO. 4

PROBE NO. 5-5

FILTER NO. 145

STACK DIA. 36 "

Traverse Point (inches)	Time	Dry Gas Meter Reading (ccf)	Pilot Δ P (in. H ₂ O)	Orifice Δ H		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°C/°F)	Hot Box Temp. (°F)	Comments
				Req'd. (in. H ₂ O)	Act. (in. H ₂ O)	In (°F)	Out (°F)						
31.0		954.035	1.6	0.80	0.80	83	56	3.0	98	250	48°F Red Dawn	250	1 minute / point
33.6		954.586	1.6	0.84	0.85	67	57	3.0	104				
31.7		955.233	1.6	0.84	0.85	65	58	3.0	101				
29.6		955.895	1.5	0.79	0.80	66	58	3.0	103				
27.0		956.300	1.4	0.73	0.75	65	59	2.5	102				
23.2		956.812	1.3	0.68	0.70	68	60	2.5	103				
12.8		—	1.2	0.63	0.65	65	58	2.5	104				
9.0		957.877	1.3	0.68	0.70	64	57	2.5	102				
6.4		958.414	1.3	0.68	0.70	63	56	2.5	106				
4.3		958.924	1.3	0.68	0.70	64	57	2.5	105				
2.4		959.443	1.2	0.63	0.65	63	56	2.5	104				
1.0		959.976	1.2	0.63	0.65	62	56	2.5	104				
		960.482											
AVERAGE		—	1.38	0.72	—	—	61.8	—	103				
													Estimates: MW = 28.7 %H ₂ O = 2%

SYSTEM LEAK CHECK		
	Vacuum (in. Hg)	DGM Rate (cfm)
Before	5.0	0.018
After	5.0	0.018

PITOT LEAK CHECK		Positive	Negative
Before		OK 15 sec.	OK 15 sec
After		OK	OK

CO2	0	
O2	20.5	
CO	0	
N2	79.5	

Impinger No.	Impinger Contents	Final	Initial	Difference
1.	100ml H ₂ O	566.0	563.6	3.2
2.	100ml H ₂ O	565.5	565.3	0.2
3.	empty	390.9	390.8	0.1
4.	Silica Gel	695.7	688.0	7.7
5.				

STACK 1-4

STACK SAMPLING DATA SHEET

CLIENT USS Clouston Works TEST DATE 11-5-92 ORIFICE CORRECTION 1.535 HOT BOX NO. 4
 TEST UNIT 1-3 Battery PCT TEST NO. CR-14-3 METER CORRECTION 0.9916 COLD BOX NO. 4
 PROJECT NO. 300196-61 NOZZLE (SIZE, #) 0.158 #18 CALIBRATION DATE 9-14-92 PROBE NO. 5-5
 CONTROL BOX OPERATOR 2803 STATIC PRESSURE PORT DIRECTION East PITOT CORRECTION 0.84 FILTER NO. 1A2 Q72
 BAROMETRIC PRESSURE 29.15 CONTROL BOX NO. 7 STACK DIA. 36"

Page 2 of 5

Traverse Point (inches)	Time	Dry Gas Meter Reading (scf)	Pitot ΔP (in. H2O)	Req'd. (in. H2O)	Act. (in. H2O)	Orifice ΔH		Meter Temperature		Vacuum (in. Hg)	Stack Temp. (°F)	Probe Temp. (°F)	Impinger Temp. (°C/°F)	Hot Box Temp. (°F)	Comments
1.0		960.482	1.12	0.63	0.65			In (°F)	Out (°F)						
2.4		961.092	1.1	0.58	0.60			64	56	2.5	103	250	56.5 F	250	1 minute point
4.3		961.597	1.2	0.63	0.65			67	58	2.2	106				
6.4		962.092	1.3	0.68	0.70			66	58	2.5	107				
9.0		962.516	1.2	0.63	0.65			68	59	2.7	108				
12.8		963.018	1.2	0.63	0.65			64	57	2.5	108				
23.2		963.501	1.2	0.63	0.65			63	55	2.5	108				
27.0		964.009	1.3	0.68	0.68			63	56	2.5	108				
29.6		964.521	1.5	0.79	0.80			65	56	2.5	111				
31.7		965.075	1.4	0.73	0.75			65	56	3.0	108				
33.6		965.672	1.8	0.94	0.95			67	57	3.0	107				
35.0		966.367	1.8	0.94	0.95			67	56	3.2	106				
		966.889						67	57	3.5	108				
AVERAGE			1.35	0.71					61.1		107.3				

SYSTEM LEAK CHECK

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

PITOT LEAK CHECK

Before	Positive	Negative
After		

CO2	1	2
O2		
CO		
N2		

Impinger

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

STACK SAMPLING DATA SHEET

TEST DATE 11-5-92

Page 4 of 5

TEST NO. CAP-1-4-7

TEST NO. CAP-1-4-7

NOZZLE (SIZE, #) 0.188

STATIC PRESSURE

PORT DIRECTION S-V

Matr.	Unificação
216000	

Req'd.	Act.	In
--------	------	----

	(in. H ₂ O)	(in. H ₂ O)	(°F)
--	------------------------	------------------------	------

0.84	0x5	17
------	-----	----

0.84	0.00	0.00
0.84	0.00	0.00

0.80	0.80	0.80
0.80	0.80	0.80

0,84	0,85	64
------	------	----

0.89	0.90	57
------	------	----

5.84	0.85	5.8
------	------	-----

[illegible]

0.10	0.10	58
------	------	----

0.52	0.50	60
------	------	----

0.63	0.65	58
------	------	----

0.63	0.50	0.50
0.63	0.50	0.50

[illegible]

09	09.0	59.7
----	------	------

09.0	29
------	----

85	0.60	19
----	------	----

10	23	0
----	----	---

[illegible][illegible]

--	--

[illegible][illegible][illegible][illegible]

NOT LEAK CHECK

[illegible]

fore		
------	--	--

After		
-------	--	--

1 2

02

12

2

100



KEYSTONE
ENVIRONMENTAL SERVICES

BAG HOUSE READING

Abstract

DATE: 11-3-92

BAB MOUSE 1+2+3

END TIME:

ROADWAY U.S.A.

DISTANCE: 200 F.T.

DIRECTION FROM: SOUTH

HEIGHT: 100 F.T.

SPEED: 7. M.P.H.

DIRECTION: S. E.

TEMPERATURE: 52°

SKY CONDITION: CLEAR

BACKGROUND: sky

READING CONDITIONS: 600 0

COLOR OF EMISSION:

TOTAL No. OF READINGS:

No. READINGS >= 20%

No. READINGS = 602

GREATEST OPACITY: _____

CREW: D FOREMAN: WARGO

COMMENTS: BAG HOUSE

READING U.SX

CLAIMANT

A 22 -1	0	0	0	0	0	12:34	30				
B 24-3	1	0	0	0	0	12:39	31				
A 24 -1	2	0	0	0	0	12:45	32				
B 26-3	3	0	0	0	0	12:50	33				
A 26-1	4	0	0	0	0	12:56	34				
B 28-3	5	0	0	0	0	1:01	35				
A 28-1	6	0	0	0	0	1:07	36				
B 30-3	7	0	0	0	0	1:12	37				
A 30-1	8	0	0	0	0	1:18	38				
C 2-3	9	0	0	0	0	1:23	39				
B 1-1	10	0	0	0	0	1:29	40				
A 1-2	11	0	0	0	0	1:33	41				
B 3-1	12	0	0	0	0	1:39	42				
A 3-2	13	0	0	0	0	1:44	43				
B 5-1	14	0	0	0	0	1:50	44				
A 5-2	15	0	0	0	0	1:55	45				
B 7-1	16	0	0	0	0	2:01	46				
A 7-2	17	0	0	0	0	2:06	47				
A 9-1	18	0	0	0	0	2:11	48				
A 9-2	19	0	0	0	0	2:16	49				
B 11-1	20	0	0	0	0	2:22	50				
A 11-2	21	0	0	0	0	2:27	51				
B 13-1	22	0	0	0	0	2:33	52				
A 13-2	23	0	0	0	0	2:38	53				
B 15-1	24	0	0	0	0	2:44	54				
A 15-2	25	0	0	0	0	2:49	55				
B 17-1	26	0	0	0	0	2:54	56				
A 17-2	27	0	0	0	0	2:59	57				
B 19-1	28	0	0	0	0	3:05	58				
A 19-2	29	0	0	0	0	3:10	59				

Name Danem M. Key
 Date 11-3-92
 Foreman J. Wargo Crew D

BATTERY 1-2-3 ^{Pec} Test + Key Stone

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. ≥ 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
2 B-25	9:08	:00	090	:00	58	—	good coke face to ^{later} top
3 A-25	9:14	:00	090	:00	080	—	good coke face to top later
2 B-27	9:19	:00	090	:12	30%	—	good coke face top later
3 A-27	9:25	:00	090	:00	590	—	good coke face top later
2 B-29	9:31	:00	090	:06	15%	—	good coke face top later
3 A-29	9:36	:00	090	:00	090	—	slightly green top hook
2 B-31	9:42	:00	090	:00	590	—	good face top hook
3 A-31	9:47	:00	090	:00	590	—	good face top hook
2 C-2	9:53	:00	090	:19	20%	—	good face to hook
3 B-2	10:01	:00	090	:07	25%	—	coke face green ^{top} hook
1 A-2	10:07	:00	090	:16	:20%	—	coke face green ^{at number} ^{plate}
3 B-4	10:12	:00	090	:00	090	—	good coke face top hook
1 A-4	10:18	:00	090	:00	590	—	good face top hook
3 B-6	10:25	:00	090	:00	090	—	good face top hook
1 A-6	10:31	:00	090	:00	090	—	good face top hook
3 B-8	10:36	:00	090	:00	090	—	good face top hook
1 A-8	10:43	:00	090	:00	090	—	U. B. locked
3 B-10	10:48	:00	090	:00	090	—	U. B. locked
1 A-10	10:54	:00	090	:00	090	—	more face good top hook

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

Name Darren M. K.
 Date 11-3-92
 Foreman J. Wargo Crew D

BATTERY 1-2-3

Pec
Test

KeyStone

	Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.		II. TRAVEL* Seconds Max. ≥ 10% Opac.		III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
3	B-12	10:57	:00	090	:00	090	—	U. B. Locked
1	A-12	11:05	:60	090	:00	090	—	good face top latch
3	B-14	11:11	:00	090	:00	090	—	U. B. Locked
1	A-14	11:17	:00	090	:00	090	—	Slightly green top latch
3	B-16	11:23	:00	090	:60	090	—	good face top hook
1	A-16	11:24	:00	090	:00	590	—	Slightly green top hook
3	B-18	11:34	:00	090	:00	090	—	good face top latch
1	A-18	11:40	:00	090	:60	090	—	Slightly green top latch
3	B-20	11:46	:00	090	:00	090	—	good coke face top latch
1	A-20	11:51	:00	090	:00	090	—	Slightly green top hook
3	B-22	11:58	:00	090	:00	090	—	U. B. Locked
1	A-22	12:34	:00	090	:00	590	—	U. B. Locked
3	B-24	12:39	:00	090	:00	590	—	good coke face top latch
1	A-24	12:45	:60	090	:00	090	—	good face top latch
3	B-26	12:50	:00	090	:00	090	—	U. B. Locked
1	A-26	12:56	:00	090	:00	090	—	good coke face top hook
3	B-28	1:01	:00	090	:00	090	—	U. B. Locked
1	A-28	1:07	:00	090	:00	590	—	Slightly green top hook
3	B-30	1:12	:00	090	:00	090	—	U. B. Locked

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

BATTERY 1-2-3Pec
Test

Key Stone

Name

Daven M E Key

Date

11-3-92

Foreman

J. Wargo

Crew

D

	Oven	Time	I. PUSH		II. TRAVEL*		III. SCRUBBER	Comments:
			Seconds Max. ≥ 20% Opac.		Seconds Max. > 10% Opac.		Seconds Max. ≥ 20% Opac.	
1	A-36	1:17	:00	0%	:00	5%	—	U. B. locked
3	C-2	1:23	:00	0%	:00	0%	—	U. B. locked
1	B-1	1:29	:00	0%	:00	0%	—	good coke face top hook
2	A-1	1:33	:00	0%	:00	0%	—	good face top latch
1	B-3	1:39	:00	0%	:00	0%	—	good coke face top hook
2	A-3	1:44	:00	0%	:00	5%	—	good coke face top hook
1	B-5	1:50	:00	0%	:00	5%	—	good coke face top latch
2	A-5	1:55	:00	0%	:00	5%	—	Slightly green top hook
1	B-7	2:01	:00	0%	:03	20%	—	coke face green top hook
2	A-7	2:06	:00	0%	:00	0%	—	U. B. locked
1	B-9	2:11	:00	0%	:00	5%	—	good coke face top latch
2	A-9	2:16	:00	0%	:00	0%	—	U. B. locked
1	B-11	2:22	:00	0%	:00	5%	—	coke face slightly green ^{top face}
2	A-11	2:27	:00	0%	:00	0%	—	good coke face top hook
1	B-13	2:33	:00	0%	:00	0%	—	coke face slightly green ^{top plate}
2	B-13	2:38	:00	0%	:00	5%	—	Slightly green top hook
1	B-15	2:44	:00	0%	:00	0%	—	green face top latch
2	A-15	2:49	:00	0%	:00	0%	—	good coke face ^{top} hook
1	B-17	2:54	:00	0%	:00	0%	—	Slightly green face top plate

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

PAGE # 1

VISIBLE EMISSIONS OBSERVATIONS FORM

BAGHOUSE READINGS

OBSERVER: BEANIE MAY

DATE: 11-4-92

FACILITY: USX CLAIRTON
1-2 & 3 BATTERIES

OBSERVATION: START TIME: 8:29
END TIME: 12:14

OBSERVATION POINT:
ROADWAY SOUTH
OF BAGHOUSE

SOURCE:

DISTANCE: 175 FT.
DIRECTION FROM: SOUTH
HEIGHT: 100 FT.

WIND:

SPEED: 16 M.P.H.
DIRECTION: S
TEMPERATURE: 48°
SKY CONDITION: CLOUDY
BACKGROUND: SKY

READING CONDITIONS: FAIR
COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 240
No. READINGS >= 20% _____
No. READINGS >= 60% _____
GREATEST OPACITY: _____
CREW: D FOREMAN: WARGO

COMMENTS: U.S.X. CLAIRTON
BAGHOUSE READING
1-2 & 3 BATTERIES

PUSHING
CODE
TIME

C1-3	0	0	0	0	0	8:29	30				
	1	0	0	0	0	8:35	31				
A1-2	2	0	0	0	0	8:40	32				
B3-1	3	0	0	0	0	8:46	33				
A3-2	4	0	0	0	0	8:51	34				
B5-1	5	0	0	0	0	8:57	35				
A5-2	6	0	0	0	0	9:01	36				
B7-1	7	0	0	0	0	9:10	37				
A7-2	8	0	0	0	0	9:15	38				
B9-1	9	0	0	0	0	9:21	39				
A9-2	10	0	0	0	0	9:26	40				
B11-1	11	0	0	0	0	9:32	41				
A11-2	12	0	0	0	0	9:38	42				
B13-1	13	0	0	0	0	9:44	43				
A13-2	14	0	0	0	0	9:49	44				
B15-1	15	0	0	0	0	9:56	45				
A15-2	16	0	0	0	0	10:01	46				
B17-1	17	0	0	0	0	10:07	47				
A17-2	18	0	0	0	0	10:12	48				
B19-1	19	0	0	0	0	10:18	49				
A19-2	20	0	0	0	0	10:23	50				
B21-1	21	0	0	0	0	10:29	51				
A21-2	22	0	0	0	0	10:34	52				
B23-1	23	0	0	0	0	10:40	53				
A23-2	24	0	0	0	0	10:44	54				
B25-1	25	0	0	0	0	10:50	55				
A27-2	26	0	0	0	0	10:55	56				
B27-1	27	0	0	0	0	11:01	57				
A27-2	28	0	0	0	0	12:08	58				
B29-1	29	0	0	0	0	12:14	59				

VISIBLE EMISSIONS OBSERVATIONS FORM BAGHOUSE READINGSOBSERVER: BERNIE MAYDATE: AP-4-92FACILITY: U.S.X. CLAIRTON
1-2-3 BATTERIESOBSERVATION: START TIME: 12:19

END TIME: _____

OBSERVATION POINT: _____

ROADWAY SOUTH OF
BAGHOUSE

SOURCE: _____

DISTANCE: 175 F.T.DIRECTION FROM: SOUTHHEIGHT: 100 FT.

WIND: _____

SPEED: 25 M.P.H.DIRECTION: SOUTH WESTTEMPERATURE: 69°SKY CONDITION: CLOUDYBACKGROUND: SKYREADING CONDITIONS: FAIR

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 240No. READINGS $\geq$ 20% _____No. READINGS $\geq$ 60% _____

GREATEST OPACITY: _____

CREW: D FOREMAN: WARGOCOMMENTS: U.S.X. CLAIRTONBAGHOUSE READING1-2-3 BATTERIES

SUNCK						PUSHING CORE TIME				
						↓				
A29-2	0	0	0	0	0	12:19	30			
B31-1	1	0	0	0	0	12:25	31			
A31-2	2	0	0	0	0	12:29	32			
C1-1	3	0	0	0	0	12:35	33			
A2-3	4	0	0	0	0	12:42	34			
B2-2	5	0	0	0	0	12:54	35			
B4-2	6	0	0	0	0	1:00	36			
A4-3	7	0	0	0	0	1:05	37			
B6-2	8	0	0	0	0	1:11	38			
A6-3	9	0	0	0	0	1:16	39			
B8-2	10	0	0	0	0	1:22	40			
A8-3	11	0	0	0	0	1:27	41			
B10-2	12	0	0	0	0	1:33	42			
A10-3	13	0	0	0	0	1:38	43			
B12-2	14	0	0	0	0	1:44	44			
A12-3	15	0	0	0	0	1:49	45			
B14-2	16	0	0	0	0	1:55	46			
A14-3	17	0	0	0	0	2:00	47			
B16-2	18	0	0	0	0	2:06	48			
A16-3	19	0	0	0	0	2:12	49			
B18-2	20	0	0	0	0	2:17	50			
A18-3	21	0	0	0	0	2:23	51			
B20-2	22	0	0	0	0	2:29	52			
A20-3	23	0	0	0	0	2:34	53			
B22-2	24	0	0	0	0	2:39	54			
A22-3	25	0	0	0	0	2:45	55			
B24-2	26	0	0	0	0	2:51	56			
A24-3	27	0	0	0	0	2:56	57			
B26-2	28	0	0	0	0	3:02	58			
A26-3	29	0	0	0	0	3:07	59			

(Page 1 of 4)

Name T. WargoDate 11-4-92Foreman J. WARGOCrew DBATTERY 1-2-3 P.E.C. TEST

	Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
3	C-1	8:29	0 - 5%	0 - 10%	1	Coke Face not Visible
1	B-1	8:35	05 = 25%	0 - 10%	2	Slight Green Face at Top Hook
2	A-1	8:40	0	0 - 5%	3	Good Face at Top Hook
1	B-3	8:46	05 = 30%	04 = 30%	4	Green Face at Top Hook
2	A-3	8:51	10 = 100%	40 = 30%	5	Good Face at Top Hook
1	B-5	8:57	0 - 15%	0 - 10%	6	Slight Green Face at Top Hook
2	A-5	9:01	0	0 - 5%	7	Coke Face not Visible
1	B-7	9:10	08 = 60%	12 = 25%	8	Green oven ends
2	A-7	9:15	0	10 = 15%	9	Coke Face not Visible
1	B-9	9:21	02 = 30%	07 = 25%	10	Green Face at Top Hook
2	A-9	9:26	0 - 10%	0 - 10%	11	Slight Green Face at Top Hook
1	B-11	9:32	0 - 15%	0 - 10%	12	Slight Green Face at Top Latch
2	A-11	9:38	0 - 5%	0 - 10%	13	Green Face at Top Hook
1	B-13	9:44	0 - 15%	0 - 10%	14	Green Face at Top Hook
2	A-13	9:49	0 - 15%	0 - 10%	15	Slight Green Face at Top Hook
1	B-15	9:56	06 = 80%	11 = 25%	16	Green Face at Top Hook
2	A-15	10:01	0 - 10%	0 - 10%	17	Good Face at Top Hook
1	B-17	10:07	10 = 60%	16 = 25%	18	Green Face at Top Hook
2	A-17	10:12	0	0 - 10%	19	Slight Green Face at Top Hook

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

(Page 2 of 4)

Name T. H. A.Date 11-4-92Foreman J. WargoCrew DBATTERY 1-2-3

P.E.C. TEST

	Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
1	B-19	10:18	:06 = 30%	:10 = 20%	20	GREEN FACE AT TOP HOOK
2	A-19	10:21	0 - 10%	0 - 10%	21	Good FACE AT TOP HOOK
1	B-21	10:29	:07 = 50%	:10 = 25%	22	GREEN FACE AT TOP HOOK
2	A-21	10:34	0 - 15%	25 = 15%	23	GREEN FACE AT TOP HOOK
1	B-23	10:40	:07 = 40%	:03 = 15%	24	GREEN FACE AT TOP HOOK
2	A-23	10:44	0	0 - 5%	25	Good FACE AT TOP HOOK
2	B-25	10:50	:09 = 50%	:09 = 25%	26	GREEN COKE FACE AT TOP HOOK
2	A-25	10:55	0	0 - 5%	27	Good COKE FACE AT TOP HOOK
1	B-27	11:01	:11 = 60%	10 - 25%	28	GREEN COKE FACE AT TOP HOOK
2	A-27	12:08	0 - 10%	0 - 5%	29	COKE FACE NOT VISIBLE
1	B-29	12:14	:04 = 35%	0 - 10%	30	SLIGHT GREEN FACE AT TOP HOOK
2	A-29	12:19	0	0 - 5%	31	Good FACE AT TOP HOOK
1	B-31	12:25	:06 = 80%	:08 = 30%	32	GREEN FACE AT TOP HOOK
2	A-31	12:29	0 - 5%	0 - 5%	33	Good FACE AT TOP HOOK
1	C-2	12:35	0 - 10%	0 - 5%	34	Good FACE AT TOP HOOK
3	A-2	12:42	0 - 5%	0 - 5%	35	Good FACE AT TOP HOOK
2	B-2	12:54	0 - 5%	0	36	Good FACE AT TOP HOOK
2	B-4	13:00	0 - 5%	0	37	Good COKE FACE AT TOP HOOK
3	A-4	13:05	0	0	38	Good FACE AT TOP LATCH

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

(Page 3 of 4)

Name J. WargoDate 11-4-92Foreman J. WargoCrew DBATTERY 1-2-3

P.E.C. Test

	Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
2	B-6	13:11	0 - 15%	0 - 10%	39	Good Face at Top Hook
3	A-6	13:16	0	0 - 5%	40	Good Face at Top Hook
2	B-8	13:22	0	0 - 10%	41	Good Face at Top Hook
3	A-8	13:27	0 - 5%	0 - 10%	42	Good Face at Top Latch
2	B-10	13:33	0 - 5%	0 - 10%	43	Good Coke Face at Top Hook
3	A-10	13:38	0 - 10%	15 - 30%	44	Coke Face not Visible
2	B-12	13:44	0	0 - 10%	45	Good Face at Top Hook
3	A-12	13:49	0 - 10%	0 - 10%	46	Coke Face not Visible
2	B-14	13:55	0 - 10%	0 - 5%	47	Good Face at Top Hook
3	A-14	14:00	0 - 10%	0	48	Coke Face not Visible
2	B-16	14:06	0 - 10%	0 - 10%	49	Good Face at Top Hook
3	A-16	14:12	0 - 10%	0 - 10%	50	Coke Face not Visible
2	B-18	14:17	0 - 5%	0	51	Good Face Above Number Plate
3	A-18	14:23	0 - 10%	0 - 10%	52	Coke Face not Visible
2	B-20	14:29	0 - 10%	0 - 5%	53	Good Face at Top Latch
3	A-20	14:34	0 - 10%	0 - 10%	54	Good Face at Top Hook
2	B-22	14:39	0 - 5%	0	55	Good Face at Top Hook
3	A-22	14:45	0 - 10%	0 - 5%	56	Good Face at Top Hook
2	B-24	14:51	0	0	57	Good Face at Top Hook

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

- * 13-15 Travel > 10% Opacity

VISIBLE EMISSIONS OBSERVATIONS FORM

BAG HOUSE READINGS

OBSERVER: BERNIE MAY

DATE: 11-5-92

FACILITY: U.S.X. CLAIRTON
BATTERY 1-2-3

OBSERVATION: START TIME: 8:18
END TIME: 11:08

OBSERVATION POINT:
ROADWAY SOUTH OF
BAG HOUSE

SOURCE:

DISTANCE: 100 FT.

DIRECTION FROM: SOUTH

HEIGHT: 100 F.T.

WIND:

SPEED: 6 M.P.H.

DIRECTION: S.W.

TEMPERATURE: 40°

SKY CONDITION: CLOUDY

BACKGROUND: SKY

READING CONDITIONS: FAIR

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 240

No. READINGS $\geq$ 20% _____

No. READINGS $\geq$ 60% _____

GREATEST OPACITY: _____

CREW: 0 FOREMAN: WARGO

COMMENTS: U.S.X. CLAIRTON

BAG HOUSE READINGS

BATTERY 1-2-3

						P. CHING COKE TIME					
						↓					
A4-3	0	0	0	0	0	8:18	30				
B6-2	1	0	0	0	0	8:25	31				
A6-3	2	0	0	0	0	8:31	32				
B8-2	3	0	0	0	0	8:37	33				
A8-3	4	0	0	0	0	8:45	34				
B10-2	5	0	0	0	0	8:51	35				
A10-3	6	0	0	0	0	8:56	36				
B12-2	7	0	0	0	0	9:02	37				
A12-3	8	0	0	0	0	9:08	38				
B14-2	9	0	0	0	0	9:14	39				
A14-3	10	0	0	0	0	9:19	40				
B16-2	11	0	0	0	0	9:25	41				
A16-3	12	0	0	0	0	9:30	42				
B18-2	13	0	0	0	0	9:36	43				
A18-3	14	0	0	0	0	9:41	44				
B20-2	15	0	0	0	0	9:46	45				
A20-3	16	0	0	0	0	9:54	46				
B22-2	17	0	0	0	0	10:00	47				
A22-3	18	0	0	0	0	10:05	48				
B24-2	19	0	0	0	0	10:11	49				
A24-3	20	0	0	0	0	10:16	50				
B26-2	21	0	0	0	0	10:22	51				
A26-3	22	0	0	0	0	10:27	52				
B28-2	23	0	0	0	0	10:37	53				
A28-3	24	0	0	0	0	10:38	54				
B30-2	25	0	0	0	0	10:44	55				
A30-3	26	0	0	0	0	10:49	56				
C1-2	27	0	0	0	0	10:55	57				
B1-3	28	0	0	0	0	11:01	58				
A1-1	29	0	0	0	0	11:07	59				

PAGE
#2

VISIBLE EMISSIONS OBSERVATIONS FORM

BAG HOUSE READINGS

31

OBSERVER: BERNIE MAY

DATE: 11-5-92

FACILITY: U.S.X. CLAIRTON

OBSERVATION: START TIME: 11:12

END TIME: _____

OBSERVATION POINT:

ROADWAY SOUTH OF
BAG HOUSE

SOURCE:

DISTANCE: 90 FT.

DIRECTION FROM: SOUTH.

HEIGHT: 100 FT.

WIND:

SPEED: 7 M.P.H.

DIRECTION: S. E.

TEMPERATURE: 38°

SKY CONDITION: CLOUDY RAIN.

BACKGROUND: SKY

READING CONDITIONS: FAIR

COLOR OF EMISSION: _____

TOTAL No. OF READINGS: 240

No. READINGS $\geq$ 20% _____

No. READINGS $\geq$ 60% _____

GREATEST OPACITY: _____

CREW: D FOREMAN: WABER

COMMENTS: U.S.X. CLAIRTON

BAG HOUSE READINGS

BATTERY 1-2-2

						PUSHING COKE TIME ↓					
B3-3	0	0	0	0	0	11:12	30				
A3-1	1	0	0	0	0	11:18	31				
B5-3	2	0	0	0	0	11:24	32				
A5-1	3	0	0	0	0	11:29	33				
B7-3	4	0	0	0	0	11:35	34				
A7-1	5	0	0	0	0	11:41	35				
B9-3	6	0	0	0	0	11:46	36				
A9-1	7	0	0	0	0	11:52	37				
B11-3	8	0	0	0	0	11:57	38				
A11-1	9	0	0	0	0	12:03	39				
B13-3	10	0	0	0	0	12:08	40				
A13-1	11	0	0	0	0	12:14	41				
B15-3	12	0	0	0	0	12:18	42				
A15-1	13	0	0	0	0	12:24	43				
B17-3	14	0	0	0	0	12:29	44				
A17-1	15	0	0	0	0	1:04	45				
B19-3	16	0	0	0	0	1:09	46				
A19-1	17	0	0	0	0	1:18	47				
B21-3	18	0	0	0	0	1:22	48				
A21-1	19	0	0	0	0	1:28	49				
B23-3	20	0	0	0	0	1:33	50				
A23-1	21	0	0	0	0	1:38	51				
B25-3	22	0	0	0	0	1:43	52				
A25-1	23	0	0	0	0	1:49	53				
B27-3	24	0	0	0	0	1:53	54				
A27-1	25	0	0	0	0	1:59	55				
B29-3	26	0	0	0	0	2:03	56				
A29-1	27	0	0	0	0	2:11	57				
B31-3	28	0	0	0	0	2:16	58				
A31-1	29	0	0	0	0	2:22	59				

DEC TEST

Name Paul T. Smith
Date 11/5/92
Foreman Margo Crew D

BATTERY 1-2-3

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
3/A4	8:18	:0 0 ⁹⁰	:0 0 ⁹⁰		Coke to Good
2/B6	8:25	:0 0 ⁹⁰	:0 10 ⁹⁰		Good F.c.
3/A6	8:31	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
2/B8	8:32	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A8	8:45	:0 0 ⁹⁰	:0 10 ⁹⁰		Good F.c.
2/B10	8:51	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A10	8:56	:0 0 ⁹⁰	:0 10 ⁹⁰		View Blocked
2/B12	9:02	:0 5 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A12	9:08	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked
2/B14	9:14	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A14	9:19	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
2/B16	9:25	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A16	9:30	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked
2/B18	9:36	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A18	9:41	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
2/B20	9:46	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
3/A20	9:54	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.
2/B22	10:00	:0 0 ⁹⁰	:0 5 ⁹⁰		Good F.c.
3/A22	10:05	:0 0 ⁹⁰	:0 0 ⁹⁰		Good F.c.

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

2.

PEC TEST

Name Paul Pastorek
Date 11/5/92Foreman Waga Crew DBATTERY 1-2-3

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
2/B24	10:11	1:00	0% 1:00	0%	Good Face Top Hatch
3/A24	10:16	1:00	0% 1:00	0%	Good Face Top Hook
2/B26	10:22	1:00	0% 1:00	0%	Good Face Top Hook
3/A26	10:27	1:00	0% 1:00	0%	Good Face Top Hatch
2/B28	10:33	1:00	0% 1:00	10%	Good Face Top Hatch
3/A28	10:38	1:00	0% 1:00	0%	Good Face Top Hook
2/B30	10:44	1:00	0% 1:00	0%	Good Face Top Hook
3/A30	10:49	1:00	0% 1:00	0%	Slight Green
2/C-1	10:55	1:00	0% 1:00	0%	Good face
3/B1	11:01	1:00	0% 1:00	0%	Good face
1/A1	11:07	1:00	0% 1:00	0%	Good face
3/B3	11:12	1:00	15% 1:00	0%	Green face Top Hook
1/A-3	11:18	1:00	0% 1:00	0%	Good face
3/B5	11:24	1:00	0% 1:00	0%	Good face
1/A5	11:29	1:00	0% 1:00	0%	Good face
3/B7	11:35	1:00	0% 1:00	0%	Good face
1/A7	11:41	1:00	0% 1:00	0%	Good face
3/B-9	11:46	1:00	0% 1:00	0%	Good face
1/A9	11:52	1:00	0% 1:00	0%	Good face

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

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

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

* 13-15 Travel ≥ 10% Opacity

E

PEC
TEST

Name

Date

Foreman

Crew

BATTERY

1-2-3

Name Paul R. R. R.
 Date 11/5/92
 Foreman Nargo Crew D

Oven	Time	I. PUSH Seconds Max. ≥ 20% Opac.	II. TRAVEL* Seconds Max. ≥ 10% Opac.	III. SCRUBBER Seconds Max. ≥ 20% Opac.	Comments:
3/B11	11:57	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A11	12:33	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
3/B13	12:38	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A13	12:44	:0 0 ⁹⁰	:0 0 ⁹⁰		SLIGHT GREEN
3/B15	12:48	:0 15 ⁹⁰	:0 10 ⁹⁰		Green trace LOW
1/A15	12:54	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
3/B17	12:59	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A17	1:04	:0 0 ⁹⁰	:0 10 ⁹⁰		Green Fc
3/B19	1:09	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A19	1:18	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
3/B21	1:22	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A21	1:28	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked
3/B23	1:33	:0 0 ⁹⁰	:0 0 ⁹⁰		SLIGHT Green
1/A23	1:38	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
3/B25	1:43	:0 5 ⁹⁰	:0 0 ⁹⁰		Good Fc
1/A25	1:49	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked
1/A27	1:53	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked
1/A27	1:59	:0 0 ⁹⁰	:0 0 ⁹⁰		Good Fc
3/B29	2:03	:0 0 ⁹⁰	:0 0 ⁹⁰		View Blocked

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

PEC TEST

Name Paul DeBor
Date 11/5/92
Wage Crew D

BATTERY 1-2-3

* 13-15 Travel > 10% Opacity

**COMPLIANCE DEMONSTRATION
1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL**

**USS CLAIRTON WORKS
CLAIRTON, PA**

APPENDIX B

OPERATIONAL DATA

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1-

12 Hrs. Beginning 12:00 M

Date 11-3-92

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	6 30	7 03		1		12 24		1			
3	6 40	7 13		3	12 09	12 38		3			
5	6 50	7 23		5	12 20	12 53		5			
7	7 05	7 33		7	12 30	1 03		7			
9	7 15	7 43		9	12 40	1 20		9			
11	7 25	8 05		11	12 55	1 30		11			
13	7 35	8 17		13	1 05	1 40		13			
15	7 45	8 29		15	1 22	1 50		15			
17	8 07	8 51		17	1 32	2 03		17			
19	8 19	9 04		19	1 42	2 20		19			
21	8 31	9 16		21	1 52	2 30		21			
23	8 53	9 28		23	2 05	2 40		23			
25	9 06	9 40		25	2 22	2 50		25			
27	9 18	9 50		27	2 32	3 08		27			
29	9 30	10 03		29	2 42	3 18		29			
31	9 42	10 13		31	2 52	3 28		31			
2				2	10 05	10 40	P.B.	2	3 10	3 38	
4				4	10 15	10 50	P.B.	4	3 20	3 48	
6				6	10 30	11 00		6	3 30	4 30	
8				8	10 40	11 14		8	3 40	4 40	
10				10	10 54	11 24		10	3 50	4 51	
12				12	11 02	11 26		12	4 32	5 03	
14				14	11 16	11 48		14	4 42	5 13	
16				16	11 26			16	4 52	5 23	
18				18	11 38			18	5 05	5 33	
20				20	11 50			20	5 15	5 43	
22				22				22	5 25	5 53	
24				24				24	5 35	6 08	
26				26				26	5 45	6 18	
28				28				28	5 55	6 28	
30		12 07		30				30	6 10	6 38	
C-1		12 18		1				1	6 20	6 48	
C-2	9 53	10 28		2				C-2	12 45	4 55	
REMARKS:											
17/19 25/23 17/17											
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	6	5		6-7	5	5					
1-2	5	5		7-8	5	5		Total Ovens Pushed 59			
2-3	5	5		8-9	4	4		Total Ovens Charged 59			
3-4	5	5		9-10	5	5					
4-5	3	4		10-11	5	5		Pusherman			
5-6	6	6		11-12	5	5		Battery Foreman <i>John</i>			
	30	20			29	29					

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 ^AM

Date 11-3-92

BATTERY NO. <u>45-3</u>				BATTERY NO. <u>B5-3</u>				BATTERY NO. <u>70-2</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	6 35	7 02		1		12 27		1			
3	6 45	7 13		3	12 25	12 37		3			
5	7 00	7 23		5	12 15	1 03		5			
7	7 15	7 37		7	12 25	1 07		7			
9	7 25	7 47		9	12 35	1 32		9			
11	7 35	8 12		11	12 55	1 47		11			
13	7 45	8 24		13	1 05	1 50		13			
15	7 55	8 35		15	1 15	1 57		15			
17	8 14	8 57		17	1 30	2 12		17			
19	8 26	9 12		19	1 45	2 18		19			
21	8 37	9 23		21	1 55	2 32		21			
23	8 59	9 34		23	2 10	2 42		23			
25	9 14	9 45		25	2 20	2 55		25			
27	9 25	9 57		27	2 30	2 57		27			
29	9 36	10 22		29	2 40	3 13		29			
31	9 47	10 44		31	2 50	3 17		31			
2				2	9 59	10 49		2	3 15	3 42	
4				4	10 11	11 04		4	3 25	3 48	
6				6	10 25	11 08		6	3 40	3 57	
8				8	10 36	11 20		8	3 50	4 37	
10				10	10 48	11 25		10	3 59	4 47	
12				12	10 59	11 36		12	4 35	4 57	
14				14	11 10	11 47		14	4 45	5 12	
16				16	11 23	11 56		16	4 55	5 22	
18				18	11 34			18	5 10	5 32	
20				20	11 45			20	5 20	5 42	
22				22	11 58			22	5 30	5 52	
24				24				24	5 40	6 08	
26				26				26	5 50	6 22	
28		12 03		28				28	6 10	6 33	
30		12 13		30				30	6 20	6 47	
1				1				1			
2				2				2			
				C2	3 45	3 23					

REMARKS:

16/18 27/25 15/15

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		8-7	4	4	
1-2	5	6		7-8	6	5	
2-3	5	6		8-9	4	4	
3-4	6	6		9-10	5	5	
4-5	3	3		10-11	5	3	
5-6	5	5		11-12	5	7	
	29	30			29	28	

Total Ovens Pushed 58

Total Ovens Charged 58

Pusherman

Battery Foreman Jim

Date 11-3-92

BATTERY NO. <u>A-3</u>				BATTERY NO. <u>B-3</u>				BATTERY NO. <u>A-2</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1				1	7 24	7 47		1	1 25	2 03	
3				3	7 34	8 35		3	1 44	2 14	
5				5	7 44	8 45	KO-PB	5	1 55	2 24	
7				7	7 53	8 53	KO-PB	7	2 05	2 37	
9				9	8 33	9 05	PB	9	2 16	2 46	
11				11	8 43	9 15		11	2 26	3 00	
13				13	8 53	9 25	PB	13	2 39	3 08	
15				15	9 03	9 35	PB	15	2 48	3 20	
17				17	9 13	9 48		17	3 02	3 33	
19				19	9 23	9 59		19	3 10	3 46	
21				21	9 33	10 10	PB	21	3 22	4 07	
23				23	9 46	10 20	KO-PB	23	3 35	4 15	
25				25	9 57	10 38	PB	25	3 48	4 29	
27				27	10 08	10 42	PB	27	4 05	4 36	
29				29	10 18	10 50	PB	29	4 16	4 51	
31				31	10 28	10 59	PB	31	4 27	5 02	PB
2	4 42	5 18	PB	2				2	10 45	11 19	
4	4 54	5 29		4				4	11 34	11 59	
6	5 05	5 40	PB	6				6			
8	5 16	5 51	KO-PB	8				8	11 17		
10	5 27	6 02		10				10	11 27		
12	5 38	6 14	PB	12				12			
14	5 49	6 26		14				14			
16	6 -	6 37		16				16			
18	6 12	6 48		18		12 37		18			
20	6 24	6 59		20		12 48		20			
22	6 35	7 09		22		1 00		22			
24	6 46	7 26		24	12 39	1 09		24			
26	6 57	7 36		26	12 50	1 21		26			
28	7 07	7 47	PB	28	1 02	1 37		28			
30	X	X	X	30	1 11	1 42		30			
1				31	1 23	1 53		1			
2				32	10 38	11 09		2			

REMARKS: 14/14 22/25 21/18

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	2	2		8-7	6	6	
1-2	6	6		7-8	5	5	
2-3	5	5		8-9	3	3	
3-4	5	5		9-10	6	6	
4-5	5	5		10-11	6	6	
5-6	5	5		11-12	3	3	
	29	29			29	29	

Total Ovens Pushed 57
 Total Ovens Charged 57

Pusherman
 Battery Foreman Jann

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 PM

Date 11-3-92

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1				1	7 28	7 51		1	1 26	1 57	
3				3	7 38	8 34		3	1 38	2 09	
5				5	7 48	8 45		5	1 49	2 20	
7				7	7 59	8 54		7	1 59	2 30	
9				9	8 36	9 04	PB	9	2 10	2 41	
11				11	8 46	9 15		11	2 22	2 52	
13				13	8 56	9 27		13	2 32	3 02	
15				15	9 06	9 39		15	2 43	3 12	
17				17	9 17	9 51		17	2 54	3 23	
19				19	9 29	10 01	PB	19	3 04	3 33	
21				21	9 41	10 12		21	3 14	3 43	
23				23	9 53	10 23		23	3 25	4 08	
25				25	10 03	10 35	PB	25	3 35	4 19	
27				27	10 14	10 46		27	3 45	4 32	
29				29	10 25	10 57	PB	29	4 10	4 44	
31				31	10 37	11 07	PB	31	4 21	4 55	
2	4 34	5 06		2				2	10 48	11 18	
4	4 46	5 18		4				4	10 59	11 28	
6	4 57	5 30		6				6	11 09	11 39	PB
8	5 08	5 41		8				8	11 20		
10	5 20	5 52		10				10	11 30		
12	5 32	6 03		12				12	11 42		
14	5 43	6 14		14				14			
16	5 54	6 25		16		12 32		16			
18	6 05	6 36		18		12 43		18			
20	6 16	6 47		20		12 53		20			
22	6 27	6 59		22	12 34	1 03		22			
24	6 38	7 09		24	12 44	1 14		24			
26	6 49	7 15		26	12 55	1 34		26			
28	7 1	7 24		28	1 05	1 36		28			
30	7 11	7 36		30	1 16	1 47		30			
C-1	7 17	7 46		1				1			
2				2				2			

REMARKS:

16/16

21/24

22/19

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	3	3		6-7	5	6		
1-2	4	4		7-8	7	6		Total Ovens Pushed <u>59</u>
2-3	5	5		8-9	3	3		Total Ovens Charged <u>59</u>
3-4	5	5		9-10	5	5		
4-5	5	5		10-11	6	6		Pusherman
5-6	5	5		11-12	4	4		Battery Foreman <u>Zamir</u>
	29	29			30	30		

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 ^{PM}

Date 11-11-62

BATTERY NO. <u>25-3</u>				BATTERY NO. <u>135-3</u>				BATTERY NO. <u>45-2</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	2 05	2 33		1				1	8 51	9 12	
3	2 15	2 42		3				3	9 03	9 37	
5	2 35	3 03		5				5	9 13	9 48	
7	2 45	3 25		7				7	9 25	10 00	
9	3 05	3 42		9				9	9 39	10 12	
11	3 10	3 57	PA-160	11				11	9 50	10 22	
13	3 15	4 03		13				13	10 02	10 33	
15	3 20	4 33		15				15	10 14	10 43	
17	3 40	4 57		17				17	10 24	10 51	
19	3 55	5 10	PA	19				19	10 35		
21	4 05	5 17		21				21	10 45		
23	4 35	5 28		23				23	10 55		
25	4 45	5 30		25				25			
27	4 58	5 47		27				27			
29	5 05	5 57		29				29			
31	5 15	6 07		31				31			
2				2	5 30	6 13		2			
4				4	5 45	6 32		4			
6				6	5 55	6 35		6		12 07	
8				8	6 05	6 38		8		12 15	
10				10	6 15	6 52		10		12 27	
12				12	6 30	7 07		12	12 05	12 38	
14				14	6 40	7 10		14	12 15	12 52	
16				16	6 50	7 13		16	12 25	1 02	
18				18	7 05	7 23		18	12 40	1 12	
20				20	7 15	7 23		20	12 50	3 20	
22				22	7 25	8 03		22	1 00	1 22	
24				24	7 35	8 17		24	1 10	1 36	
26				26	7 45	8 27		26	1 20	1 43	
28				28	8 05	8 38		28	1 30	2 07	
30				30	8 19	8 49		30	1 45	2 17	
1				C-1	8 29	9 01		1			
2				2				2			

REMARKS:

16/16

16/16

23/23

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		8-7	5	6	
1-2	5	5		7-8	5	5	
2-3	4	4		8-9	5	5	
3-4	6	5		9-10	5	5	
4-5	4	3		10-11	4	6	
5-6	5	6		11-12	0	0	
				Total Ovens Pushed <u>55</u>			
				Total Ovens Charged <u>55</u>			
				Pusherman			
				Battery Foreman <u>WARGO</u>			

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 AM

Date 11-4-92

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	1 59	2 28		1				1	8 34	9 08	
3	2 10	2 38		3				3	8 45	9 18	
5	2 20	2 48		5				5	8 55	9 28	
7	2 30	3 03		7				7	9 10	9 42	
9	2 40	3 13		9				9	9 20	9 53	
11	2 50	3 23		11				11	9 30	10 05	
13	3 05	3 33		13				13	9 44	10 16	
15	3 15	3 43		15				15	9 55	10 26	
17	3 25	3 53		17				17	10 07	10 36	
19	3 35	4 03		19				19	10 18	10 48	
21	3 45	4 18		21				21	10 28	10 57	
23	3 55	5 08		23				23	10 38		
25	4 05	5 18		25				25	10 50		
27	4 15	5 28		27				27	10 59		
29	5 10	5 30		29				29			
31	5 20	5 46		31				31			
2				2	5 38	6 08		2			
4				4	5 48	6 18		4			
6				6	5 59	6 28		6			
8				8	6 10	6 38		8		12 10	
10				10	6 20	6 48		10		12 23	
12				12	6 30	7 03		12		12 33	
14				14	6 40	7 13		14	12 12	12 43	
16				16	6 50	7 23		16	12 25	12 53	
18				18	7 05	7 33		18	12 35	1 03	
20				20	7 15	7 48		20	12 45	1 13	
22				22	7 25	8 08		22	12 55	1 23	
24				24	7 35	8 22		24	1 05	1 36	
26				26	7 50	8 32		26	1 15	1 46	
28				28	8 10	8 43		28	1 25	1 57	
30				30	8 24	8 53		30	1 38	2 08	
1				1				1			
2				2				2			
C1	5 35	5 57						C1	1 48	2 18	

REMARKS: 17/17 15/15 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	5		6-7	5	5	
1-2	6	6		7-8	5	5	
2-3	5	5		8-9	5	5	
3-4	6	6		9-10	5	5	
4-5	2	2		10-11	6	6	
5-6	6	6		11-12	0	0	
	30	30			26	26	

Total Ovens Pushed 56

Total Ovens Charged 56

Pusherman _____

Battery Foreman WANG

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 PM

Date 11-4-92

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	10 06	10 40		1	3 45	4 25		1			
3	10 18	10 52		3	4 07	4 35		3			
5	10 30	11 03		5	4 17	4 45		5			
7	10 42	11 15		7	4 27	4 55		7			
9	10 54	11 27		9	4 37	5 04		9			
11	11 05	11 39		11	4 47	5 16		11			
13	11 17	11 51		13	4 57	5 25		13			
15	11 29			15	5 06	5 40		15			
17	11 41			17	5 18	5 52		17			
19	11 53			19	5 30	6 03		19			
21				21	5 42	6 15		21			
23				23	5 54	6 27		23		12 12	
25				25	6 05	6 39		25		12 23	
27				27	6 17	6 51		27		12 34	
29				29	6 29	7 02		29	12 14	12 52	
31				31	6 41	7 12		31	12 25	1 58	
2	12 54	1 20		2				2	6 53	7 22	
4	1 02	1 30		4				4	7 04	7 32	
6	1 10	1 42		6				6	7 14	7 42	
8	1 22	1 53		8				8	7 24	7 52	
10	1 32	2 04		10				10	7 34	8 34	
12	1 44	2 14		12				12	7 44	8 44	
14	1 55	2 26		14				14	7 54	8 54	
16	2 06	2 36		16				16	8 36	9 05	
18	2 16	2 49		18				18	8 46	9 17	
20	2 28	3 01		20				20	8 56	9 29	
22	2 38	3 10		22				22	9 07	9 41	
24	2 50	3 22		24				24	9 07	9 41	
26	3 02	3 33		26				26	9 19	9 53	
28	3 12	3 43		28				28	9 31	10 04	
30	3 24	4 05		30				30	9 43	10 16	
C 3	3 35	4 15		1				1			
2				2				C 2	12 36	1 08	

REMARKS: 26/23 16/16 17/20

Condition of Signals				Condition of Pusher			
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HOURLY REPORT OF OPERATION							
TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	4	4		8-7	5	5	
1-2	6	6		7-8	6	6	
2-3	5	5		8-9	3	3	
3-4	5	5		9-10	5	5	
4-5	6	6		10-11	5	5	
5-6	5	5		11-12	5	5	
				Total Ovens Pushed <u>59</u>			
				Total Ovens Charged <u>59</u>			
				Pusherman			
				Battery Foreman <u>C.M. Jones</u>			

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 A.M.

Date 11-5-92

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1				1	11 06	11 49		1	4 30	5 01	46
3				3	11 17			3	4 42	5 11	46
5				5	11 30			5	4 52	5 22	50
7				7	11 41			7	5 03	5 35	PB 52
9				9	11 51			9	5 13	5 45	54
11				11				11	5 24	5 55	58
13				13				13	5 37	6 06	PB 58
15		12 05		15				15	5 47	6 16	60
17		12 16		17				17	5 57	6 26	62
19		12 27		19				19	6 08	6 37	64
21	12 07	12 37	2	21				21	6 18	6 47	66
23	12 18	12 47	4	23				23	6 28	6 57	68
25	12 29	12 59	6	25				25	6 39	7 07	70
27	12 39	1 09	8	27				27	6 49	7 22	72
29	12 49	1 20	10	29				29	6 59	8 12	74
31	1 01	1 31	12	31				31	7 09	8 23	76
2	7 18	8 48		2	1 22	1 53	16	2			
4	8 14	9 00		4	1 33	2 05	16	4			
6	8 25	9 12		6	1 44	2 13	PB 20	6			
8	8 37	9 23		8	1 55	2 23	PB 22	8			
10	8 50	9 33		10	2 05	2 34	24	10			
12	9 02	9 45		12	2 15	2 46	26	12			
14	9 14	9 57		14	2 25	2 55	28	14			
16	9 25	10 09		16	2 36	3 05	30	16			
18	9 35	10 21		18	2 46	3 15	32	18			
20	9 47	10 36		20	2 57	3 26	34	20			
22	9 59	10 43		22	3 07	3 36	36	22			
24	10 11	10 53		24	3 17	3 46	38	24			
26	10 23	11 04		26	3 28	4 28	40	26			
28	10 38	11 15		28	3 38	4 40	PB 40	28			
30	10 45	11 28		30	3 48	4 50	PB 44	30			
C 1	10 55	11 39		C 1				C 1			
C 2	1 11	1 42	14	C 2				C 2	7 24	8 35	76

REMARKS:

93/26 20/16 17/11

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	6	5		7-8	3	2	
2-3	6	6		8-9	4	4	
3-4	5	5		9-10	6	6	
4-5	3	3		10-11	5	5	
5-6	6	6		11-12	5	5	
	31	31			29	28	

Total Ovens Pushed 60

Total Ovens Charged 59

Pusherman

Battery Foreman

W. Jones

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 A M

Date 11-5-92

BATTERY NO. <u>As-3</u>				BATTERY NO. <u>Bs-3</u>				BATTERY NO. <u>As-2</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1				1	10 56	11 20		1	4 35	5 05	
3				3	11 13	11 30		3	4 44	5 16	
5				5	11 28	11 40		5	4 57	5 27	
7				7	11 33			7	5 07	5 39	
9				9	11 43			9	5 18	5 50	
11				11	11 53			11	5 29	6 01	
13		12 02		13				13	5 41	6 13	
15		12 12		15				15	5 52	6 23	
17		12 22		17				17	6 03	6 35	
19	12 00	12 29		19				19	6 15	6 47	
21	12 10	12 39		21				21	6 25	7 01	
23	12 20	12 50		23				23	6 37	7 11	
25	12 31	1 01		25				25	6 49	7 21	
27	12 41	1 12		27				27	7 03	8 08	
29	12 52	1 23		29				29	7 13	8 16	
31	1 03	1 33		31				31	7 23	8 29	
2	8 06	8 46		2	1 14	1 44		2			
4	8 18	8 56		4	1 25	1 53		4			
6	8 31	9 10		6	1 35	2 05		6			
8	8 44	9 20		8	1 46	2 15		8			
10	8 54	9 30		10	1 57	2 26		10			
12	9 08	9 40		12	2 07	2 37		12			
14	9 16	9 50		14	2 17	2 48		14			
16	9 28	10 -		16	2 28	3 -		16			
18	9 38	10 10		18	2 39	3 10		18			
20	9 48	10 20		20	2 50	3 20		20			
22	9 58	10 30		22	3 02	3 30		22			
24	10 16	10 40		24	3 12	3 40		24			
26	10 26	10 50		26	3 22	3 50		26			
28	10 36	11 -		28	3 32	4 33		28			
30	10 46	11 10		30	3 42	4 44		30			
1				C 1	3 52	4 55		1			
2				2				2			

REMARKS:

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	6	6	11-12	6-7	5	5	11-11
1-2	6	6	12-11	7-8	3	3	8-5
2-3	5	5	11-11	8-9	5	5	9-9
3-4	6	6	11-11	9-10	6	6	12-12
4-5	3	3	6-6	10-11	5	5	10-10
5-6	5	5	11-11	11-12	5	5	10-10
	31	31			29	29	

Total Ovens Pushed 60

Total Ovens Charged 60

Pusherman

Battery Foreman

C.M. Jones

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 P.M.

Date 11-5-72

BATTERY NO. <u>B-2</u>				BATTERY NO. <u>A-1</u>				BATTERY NO. <u>B-1</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1				1				1			
3	5 47	6 14		3		12 33		3			
5	5 57	6 24		5		12 43		5			
7	6 06	6 34		7		12 51		7			
9	6 16	6 44		9		12 53		9			
11	6 26	6 54		11	12 35	1 03		11			
13	6 36	7 03		13	12 45	1 15		13			
15	6 46	7 15		15	12 55	1 28		15			
17	6 56	7 27		17	1 05	1 38		17			
19	7 05	7 39		19	1 17	1 48		19			
21	7 17	7 51		21	1 30	1 57		21			
23	7 29	8 30		23	1 40	2 07		23			
25	7 41	8 40		25	1 50	2 19		25			
27	7 53	8 50		27	1 59	2 32		27			
29	8 32	9 -		29	2 09	2 45		29			
31	8 42	9 10		31	2 21	2 56		31			
2				2	9 02	9 30		2	2 34	3 05	
4				4	9 12	9 40		4	2 47	3 18	
6				6	9 22	9 50		6	2 58	3 28	
8				8	9 32	10 02		8	3 07	3 38	
10				10	9 42	10 12		10	3 20	3 48	
12				12	9 52	10 22		12	3 30	4 06	
14				14	10 04	10 32		14	3 40	4 18	
16				16	10 14	10 42		16	3 50	4 30	
18				18	10 24	10 52		18	4 08	4 42	
20				20	10 34	11 03		20	4 20	4 54	
22				22	10 44	11 15		22	4 32	5 05	
24				24	10 54	11 27		24	4 44	5 15	
26				26	11 05			26	4 56	5 25	P.B.
28				28	11 17			28	5 07	5 35	
30				30	11 29			30	5 17	5 45	
1				1				1	5 27	5 55	
2	8 52	9 20		2				2			

REMARKS: 16/16 26/27 16/16

Condition of Signals				Condition of Pusher			
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HOURLY REPORT OF OPERATION							
TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED	TIME	OVENS PUSHED	OVENS CHARGED	OVENS SCHEDULED
12-1	3	4		6-7	6	6	
1-2	6	6		7-8	5	5	
2-3	5	5		8-9	3	3	
3-4	5	5		9-10	6	6	
4-5	5	5		10-11	6	6	
5-6	5	5		11-12	3	3	
				Total Ovens Pushed <u>58</u>			
				Total Ovens Charged <u>59</u>			
				Pusherman			
				Battery Foreman <u>W4160</u>			

UNITED STATES STEEL CORPORATION
CLAIRTON COKE AND COAL CHEMICAL WORKS

PUSHING AND CHARGING REPORT

UNIT NO. 1

12 Hrs. Beginning 12:00 PM

Date 11-5-92

BATTERY NO. <u>A-3</u>				BATTERY NO. <u>B-3</u>				BATTERY NO. <u>A-2</u>			
OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES	OVEN NO.	TIME PUSHED	TIME CHARGED	NOTES
1	5 41	6 16		1				1			
3	5 52	6 27		3				3			
5	6 12	6 37		5				5			
7	6 14	6 47		7		12 26		7			
9	6 25	6 58	P.B.	9		12 46		9			
11	6 35	7 08		11		12 56		11			
13	6 45	7 18	P.B.	13	12 38	1 01		13			
15	6 56	7 29		15	12 48	1 11		15			
17	7 06	7 39		17	12 58	1 21		17			
19	7 16	7 50		19	1 09	1 32		19			
21	7 27	7 56		21	1 19	1 41		21			
23	7 37	8 08		23	1 29	1 52		23			
25	7 48	8 18		25	1 39	2 09		25			
27	7 58	8 58		27	1 49	2 19		27			
29	8 06	9 08		29	1 59	2 29		29			
31	8 46	9 18		31	2 16	2 39		31			
2				2	8 56	9 28		2	1 46	3 14	
4				4	9 06	9 38		4	2 56	3 24	
6				6	9 16	9 48		6	3 02	3 34	
8				8	9 26	9 58		8	3 12	3 44	
10				10	9 36	10 09		10	3 22	4 08	
12				12	9 46	10 19		12	3 32	4 19	
14				14	9 56	10 29		14	3 42	4 31	
16				16	10 07	10 39		16	4 06	4 41	
18				18	10 17	10 40		18	4 17	4 53	
20				20	10 27	10 59		20	4 29	5 03	
22				22	10 37	10 09		22	4 39	5 15	
24				24	10 47	11 19		24	4 51	5 25	
26				26	10 57		P.B.	26	5 01	5 31	
28				28	11 07			28	5 13	5 37	
30				30	11 17			30	5 23	5 49	
1				1				31	5 29	5 51	
2				2	2 26	2 47		2			

REMARKS: 16/16 26/26 16/16

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	3	3		8-7	6	6	
1-2	6	6		7-8	6	6	
2-3	4	5		8-9	3	3	
3-4	5	4		9-10	6	6	
4-5	5	5		10-11	6	6	
5-6	6	6		11-12	2	2	

Total Ovens Pushed 58

Total Ovens Charged 58

Pusherman

Battery Foreman WAG

1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 10-3-92TURN 1

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3	79	C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1	+C-2-1	B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

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1-2-3 BATTERY PUSHING SCHEDULE

2 MACHINE CREW

DATE 11/3/92TURN 2

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2	1	B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2	7 8	A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

F. P.
B-17-2L. P.
A-29-2

1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11/3/92TURN 3

B 1 /2		A16 /1		C 2 /1	<i>Pass up</i>	B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	79
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3	<i>Pass up</i>	A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

F.P.
A27/2L.P.
A10/2

1-2-3 BATTERY PUSHING SCHEDULE

2 MACHINE CREW

DATE 11-4-92TURN 1

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1	79	A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

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1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11-4-92TURN 814

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

F. P.
B283L. P.
B9-3

78 Owens

1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11-4-92TURN 3

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

F.P.
A3/1L.P.
B19/2

Pass UP

1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11-5-92TURN 1

B 1 /2		A16 /1		C 2 /1	<u>5</u>	B17 /3	
A 1 /3		B18 /3		B 2 /2	<u>79</u>	A17 /1	
B 3 /2		A18 /1		A 2 /3		B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

790 VENS

1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11/5/92TURN 8x4

B 1 /2		A16 /1		C 2 /1		B17 /3	
A 1 /3		B18 /3		B 2 /2		A17 /1	
B 3 /2		A18 /1		A 2 /3	<u>1 PP</u>	B19 /3	
A 3 /3		B20 /3		B 4 /2		A19 /1	
B 5 /2		A20 /1		A 4 /3		B21 /3	
A 5 /3		B22 /3		B 6 /2		A21 /1	
B 7 /2		A22 /1		A 6 /3		B23 /3	
A 7 /3		B24 /3		B 8 /2		A23 /1	
B 9 /2		A24 /1		A 8 /3		B25 /3	
A 9 /3		B26 /3		B10 /2		A25 /1	
B11 /2		A26 /1		A10 /3		B27 /3	
A11 /3		B28 /3		B12 /2		A27 /1	
B13 /2		A28 /1		A12 /3		B29 /3	
A13 /3		B30 /3		B14 /2		A29 /1	
B15 /2		A30 /1		A14 /3		B31 /3	
A15 /3		C 1 /3		B16 /2		A31 /1	
B17 /2		B 1 /1		A16 /3		C 2 /3	<u>7 + 82</u>
A17 /3		A 1 /2		B18 /2		B 2 /1	
B19 /2		B 3 /1		A18 /3		A 2 /2	
A19 /3		A 3 /2		B20 /2		B 4 /1	
B21 /2		B 5 /1		A20 /3		A 4 /2	
A21 /3		A 5 /2		B22 /2		B 6 /1	
B23 /2		B 7 /1		A22 /3		A 6 /2	
A23 /3		A 7 /2		B24 /2		B 8 /1	
B25 /2		B 9 /1		A24 /3		A 8 /2	
A25 /3		A 9 /2		B26 /2		B10 /1	
B27 /2		B11 /1		A26 /3		A10 /2	
A27 /3		A11 /2		B28 /2		B12 /1	
B29 /2		B13 /1		A28 /3		A12 /2	
A29 /3		A13 /2		B30 /2		B14 /1	
B31 /2		B15 /1		A30 /3		A14 /2	<u>78 LP</u>
A31 /3		A15 /2		C 1 /2		B16 /1	
C 2 /2		B17 /1		B 1 /3		A16 /2	
B 2 /3		A17 /2		A 1 /1		B18 /1	
A 2 /1		B19 /1		B 3 /3		A18 /2	
B 4 /3		A19 /2		A 3 /1		B20 /1	
A 4 /1		B21 /1		B 5 /3		A20 /2	
B 6 /3		A21 /2		A 5 /1		B22 /1	
A 6 /1		B23 /1		B 7 /3		A22 /2	
B 8 /3		A23 /2		A 7 /1		B24 /1	
A 8 /1		B25 /1		B 9 /3		A24 /2	
B10 /3		A25 /2		A 9 /1		B26 /1	
A10 /1		B27 /1		B11 /3		A26 /2	
B12 /3		A27 /2		A11 /1		B28 /1	
A12 /1		B29 /1		B13 /3		A28 /2	
B14 /3		A29 /2		A13 /1		B30 /1	
A14 /1		B31 /1		B15 /3		A30 /2	
B16 /3		A31 /2		A15 /1		C 1 /1	

F. P.
22
3

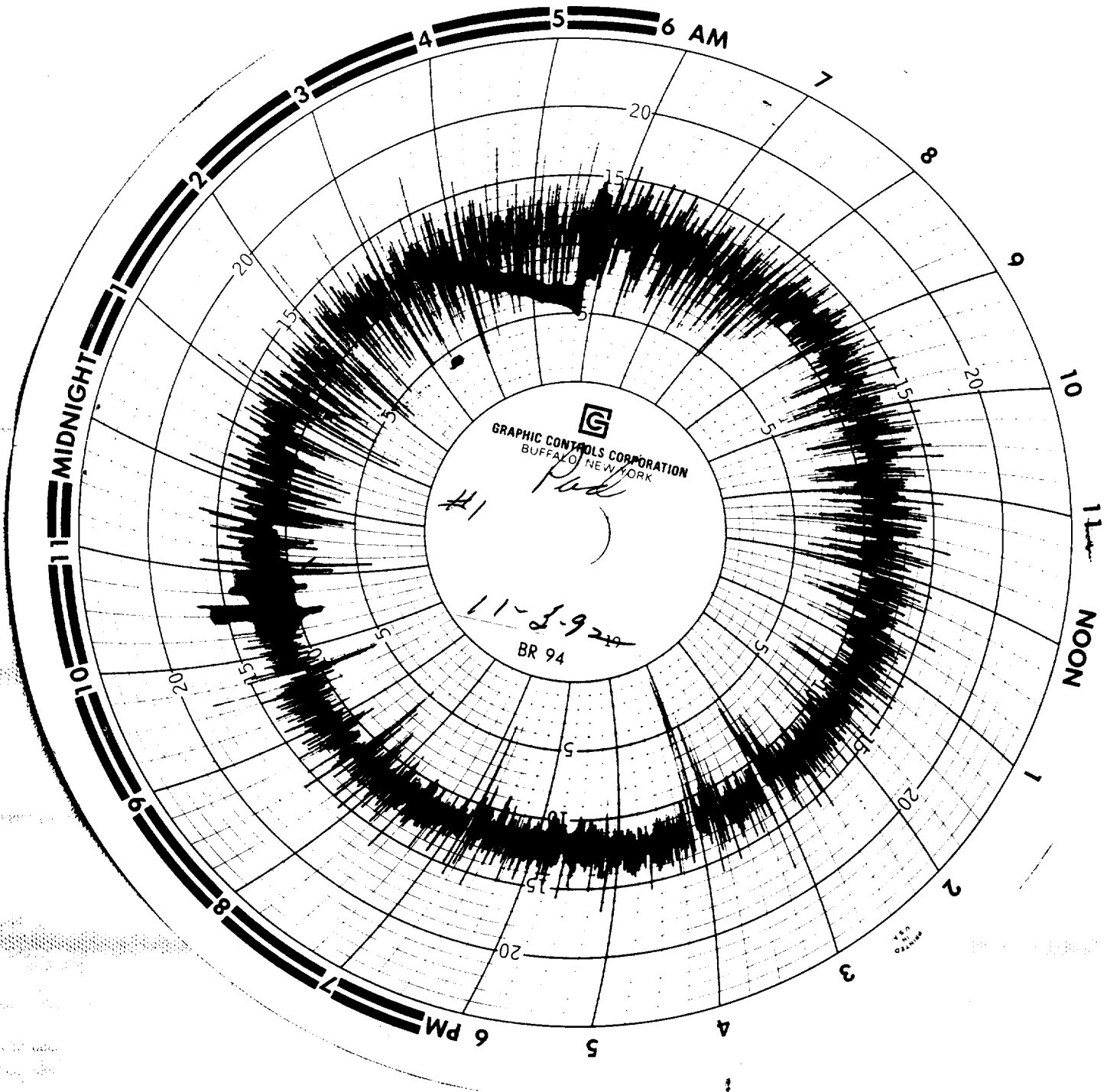
L. P.
214
2

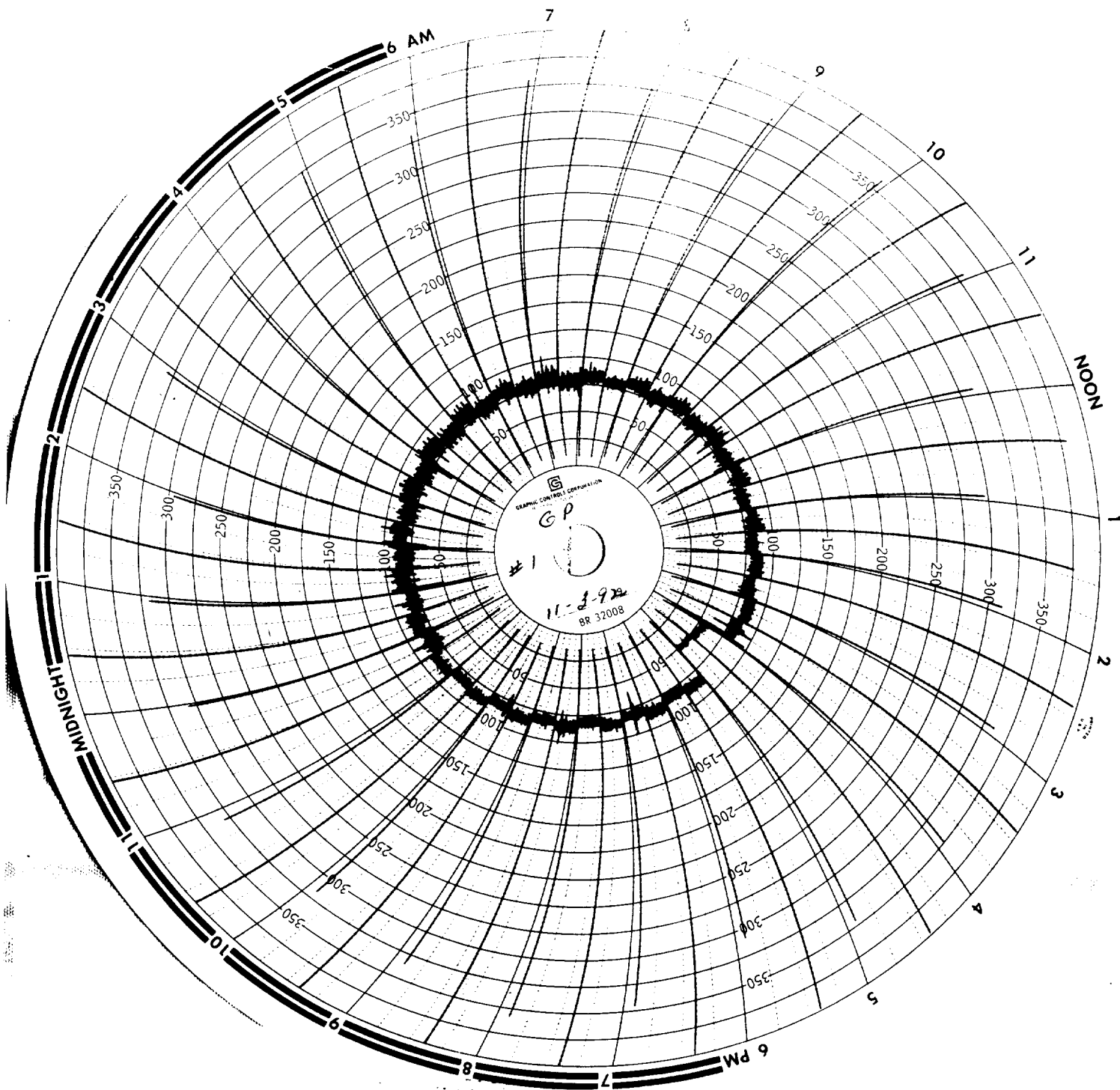
1-2-3 BATTERY PUSHING SCHEDULE
2 MACHINE CREWDATE 11-5-92TURN 3

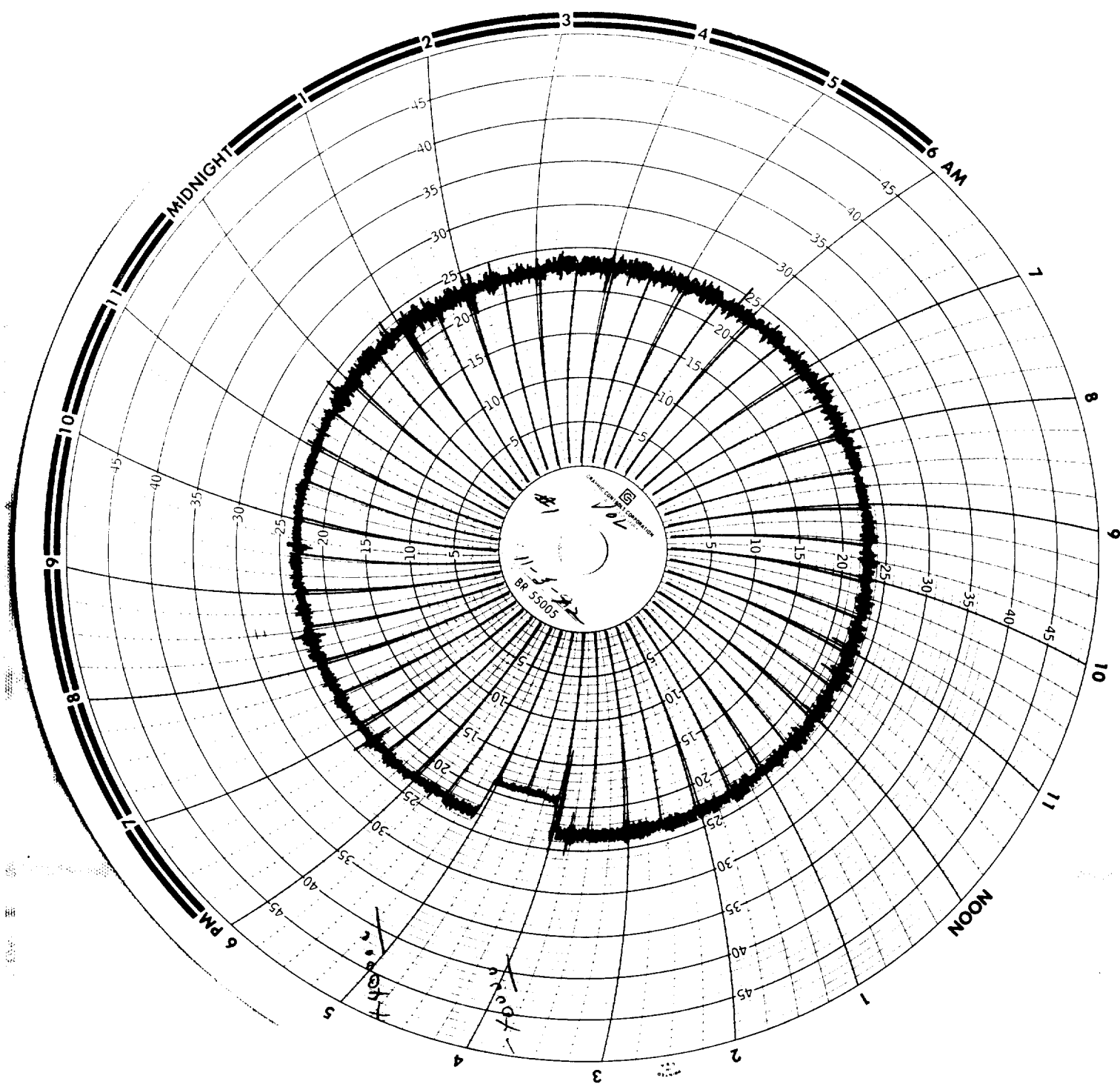
B 1 /2	A16 ³ /1	C 2 /1	B17 /3
A 1 /3	B18 /3	B 2 /2	A17 /1
B 3 /2	A18 /1	A 2 /3	B19 /3
A 3 /3	B20 /3	B 4 /2	A19 /1
B 5 /2	A20 /1	A 4 /3	B21 /3
A 5 /3	B22 /3	B 6 /2	A21 /1
B 7 /2	A22 /1	A 6 /3	B23 /3
A 7 /3	B24 /3	B 8 /2	A23 /1
B 9 /2	A24 /1	A 8 /3	B25 /3
A 9 /3	B26 /3	B10 /2	A25 /1
B11 /2	A26 /1	A10 /3	B27 /3
A11 /3	B28 /3	B12 /2	A27 /1
B13 /2	A28 /1	A12 /3	B29 /3
A13 /3	B30 /3	B14 /2	A29 /1
B15 /2	A30 /1	A14 /3	B31 /3
A15 /3	C 1 /3	B16 /2	A31 /1
B17 /2	B 1 /1	A16 /3	C 2 /3
A17 /3	A 1 /2	B18 /2	B 2 /1
B19 /2	B 3 /1	A18 /3	A 2 /2
A19 /3	A 3 /2	B20 /2	B 4 /1
B21 /2	B 5 /1	A20 /3	A 4 /2
A21 /3	A 5 /2	B22 /2	B 6 /1
B23 /2	B 7 /1	A22 /3	A 6 /2
A23 /3	A 7 /2	B24 /2	B 8 /1
B25 /2	B 9 /1	A24 /3	A 8 /2
A25 /3	A 9 /2	B26 /2	B10 /1
B27 /2	B11 /1	A26 /3	A10 /2
A27 /3	A11 /2	B28 /2	B12 /1
B29 /2	B13 /1	A28 /3	A12 /2
A29 /3	A13 /2	B30 /2	B14 /1
B31 /2	B15 /1	A30 /3	A14 /2
A31 /3	A15 /2	C 1 /2	B16 /1
C 2 /2	B17 /1	B 1 /3	A16 /2
B 2 /3	A17 /2	A 1 /1	B18 /1
A 2 /1	B19 /1	B 3 /3	A18 /2
B 4 /3	A19 /2	A 3 /1	B20 /1
A 4 /1	B21 /1	B 5 /3	A20 /2
B 6 /3	A21 /2	A 5 /1	B22 /1
A 6 /1	B23 /1	B 7 /3	A22 /2
B 8 /3	A23 /2	A 7 /1	B24 /1
A 8 /1	B25 /1	B 9 /3	A24 /2
B10 /3	A25 /2	A 9 /1	B26 /1
A10 /1	B27 /1	B11 /3	A26 /2
B12 /3	A27 /2	A11 /1	B28 /1
A12 /1	B29 /1	B13 /3	A28 /2
B14 /3	A29 /2	A13 /1	B30 /1
A14 /1	B31 /1	B15 /3	A30 /2
B16 /3	A31 /2	A15 /1	C 1 /1

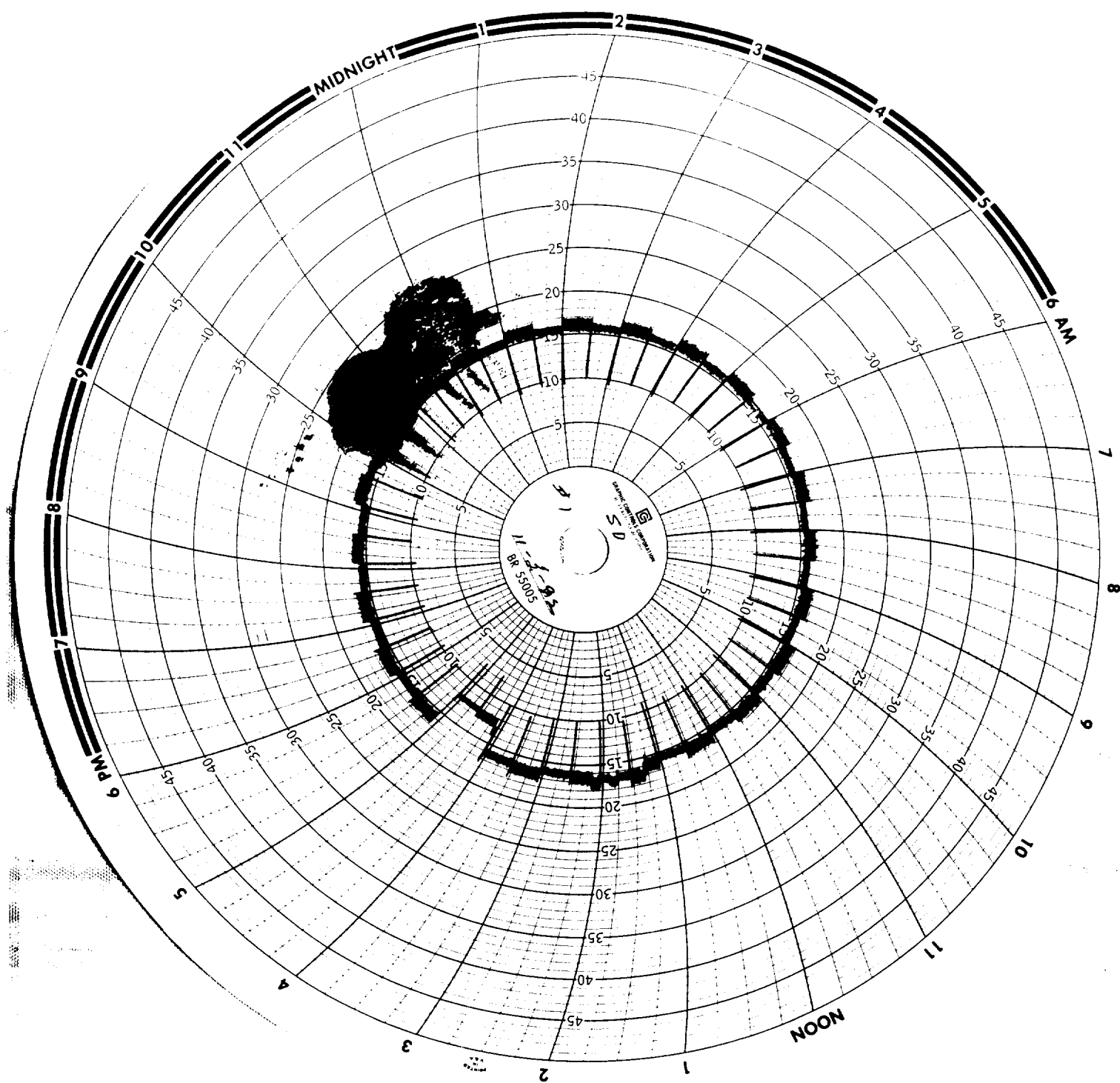
F. P.
A $\frac{16}{2}$ L. P.
A $\frac{30}{1}$

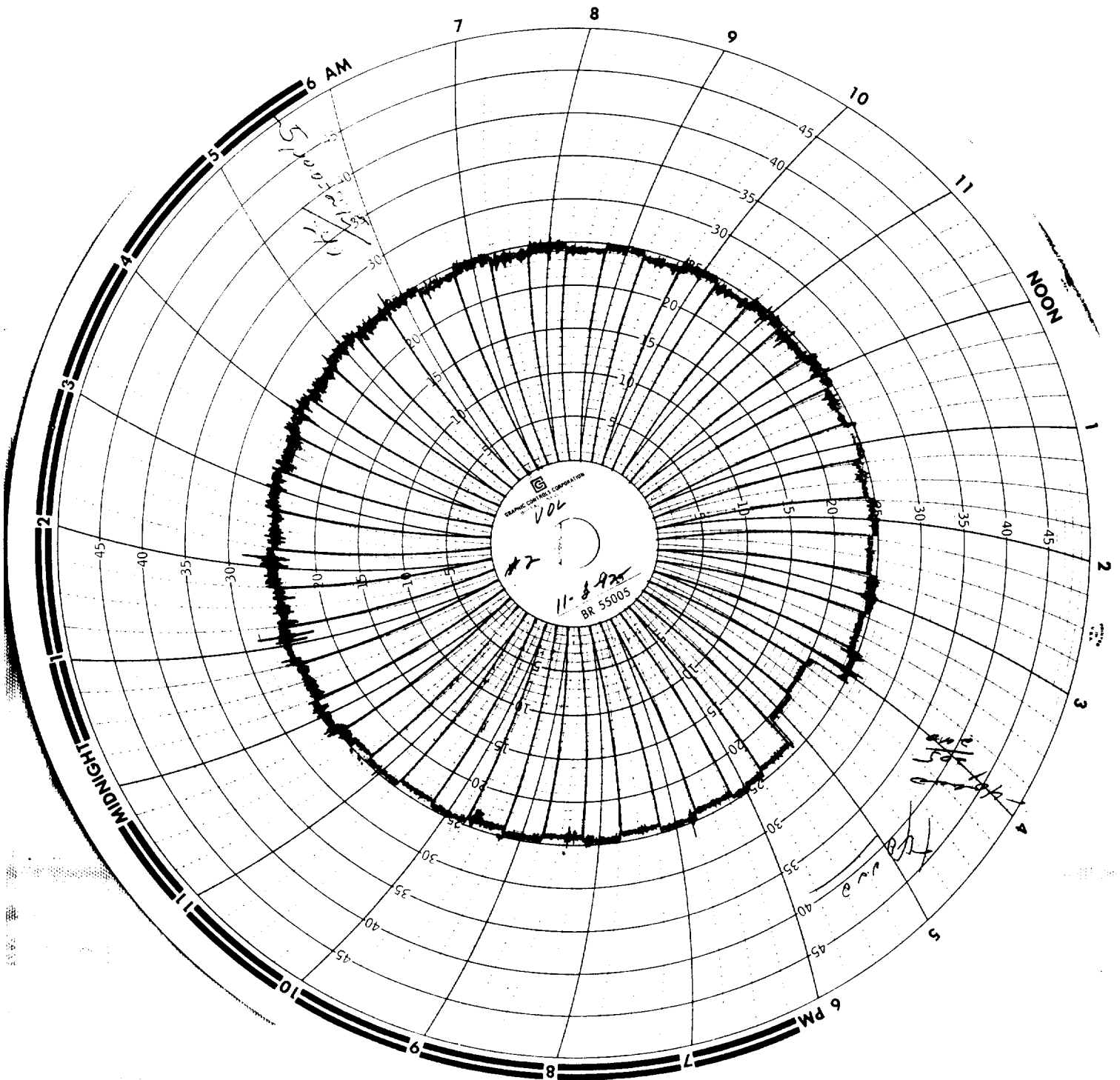
7900002

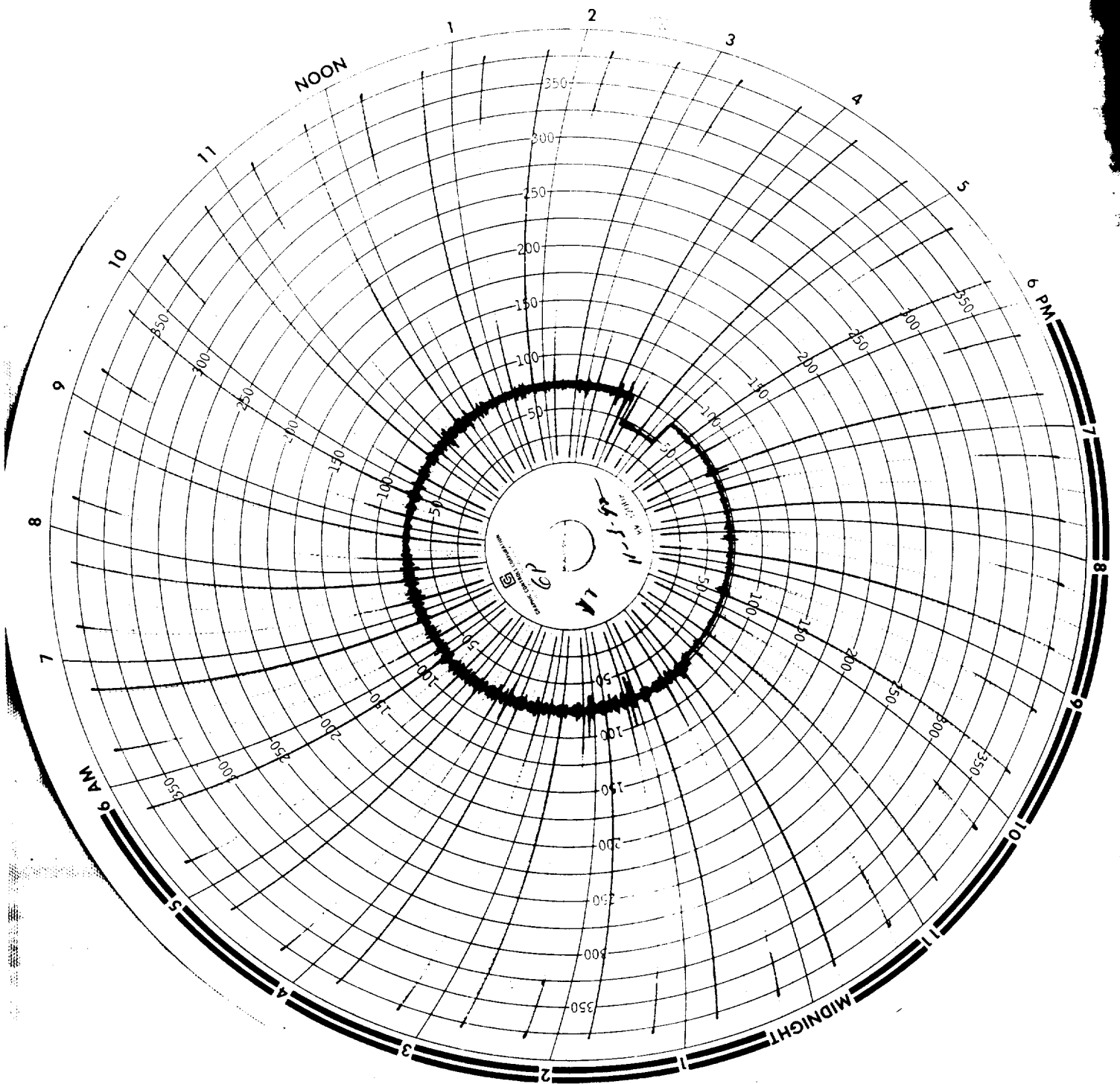


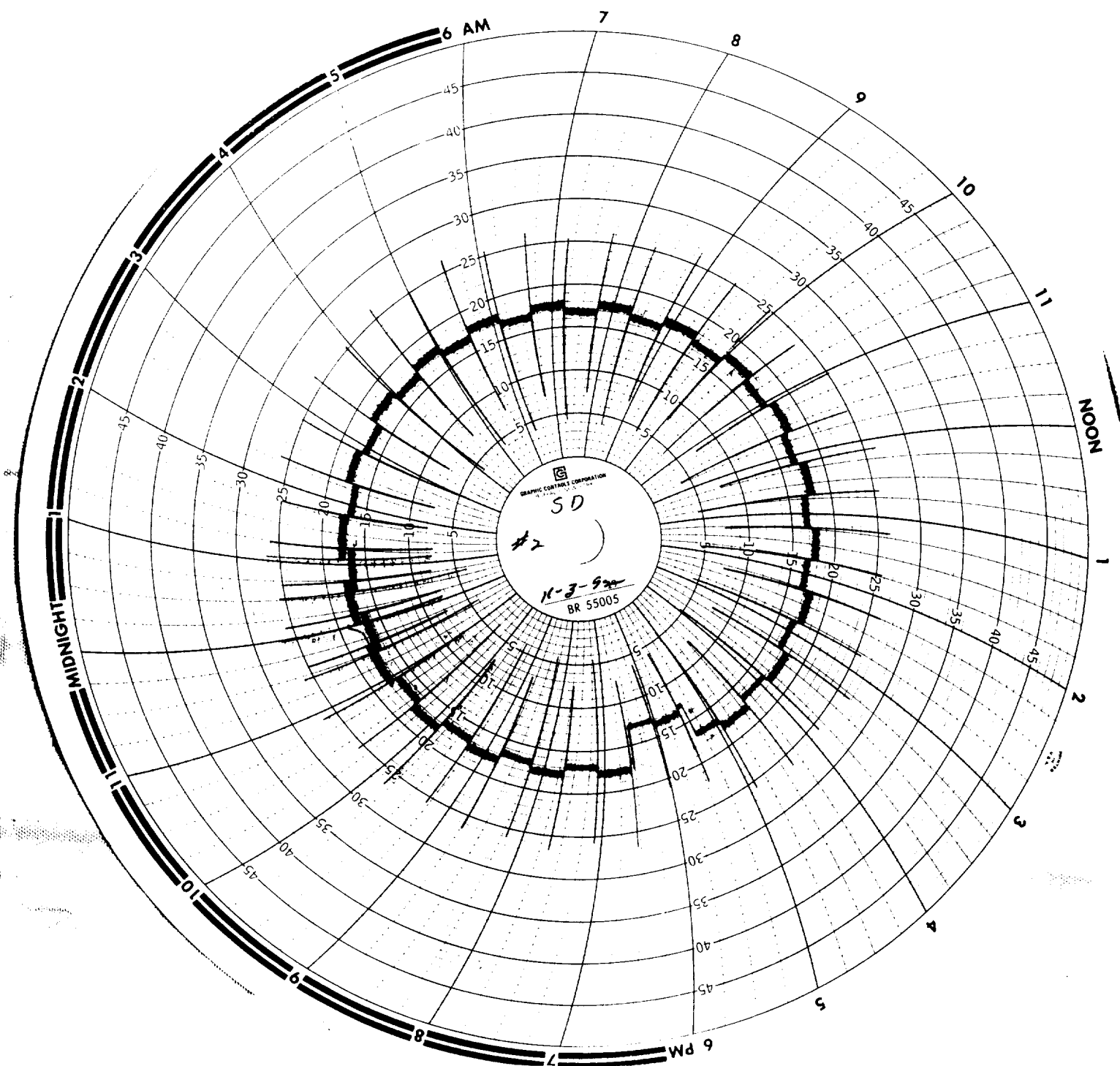


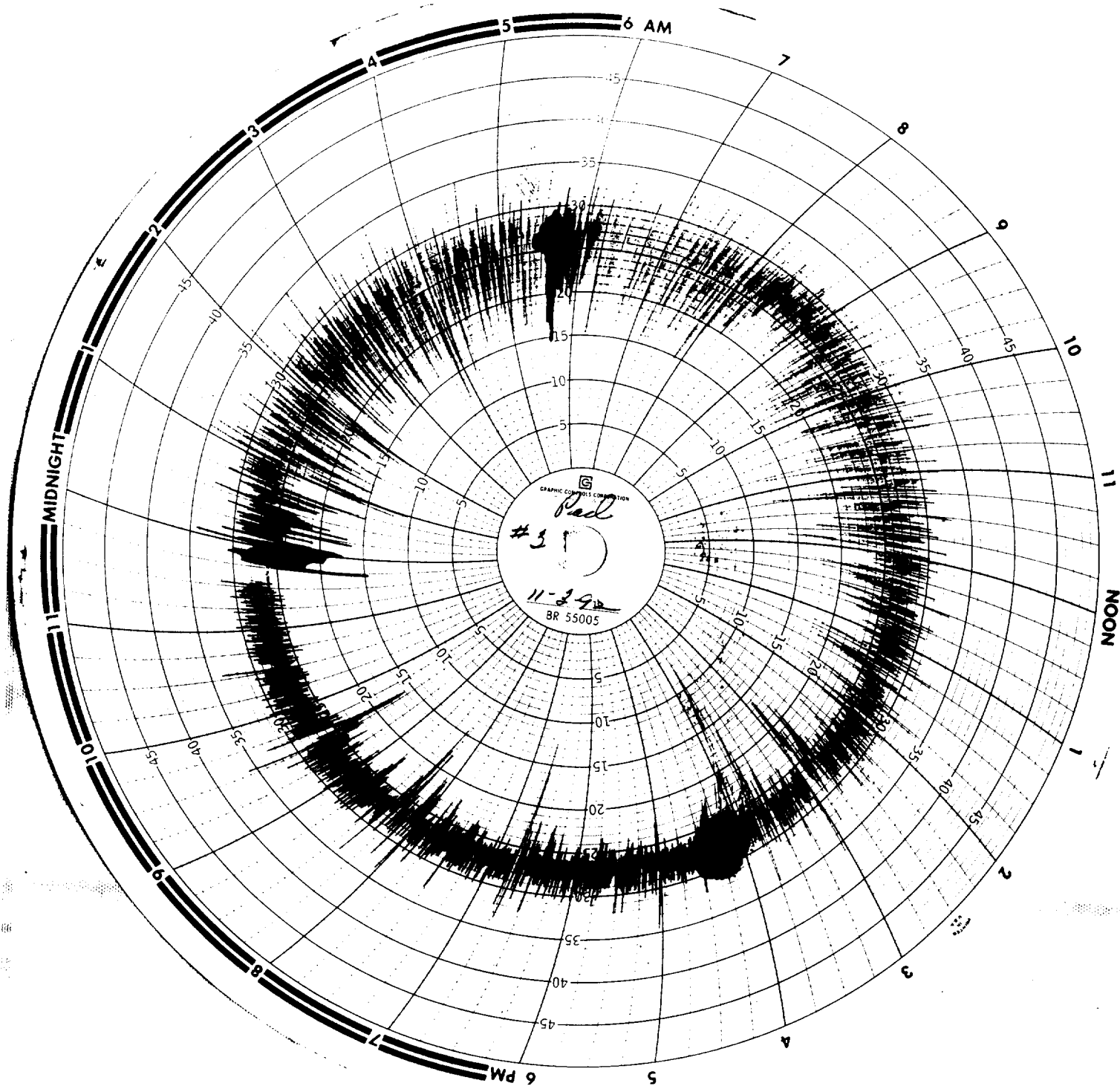


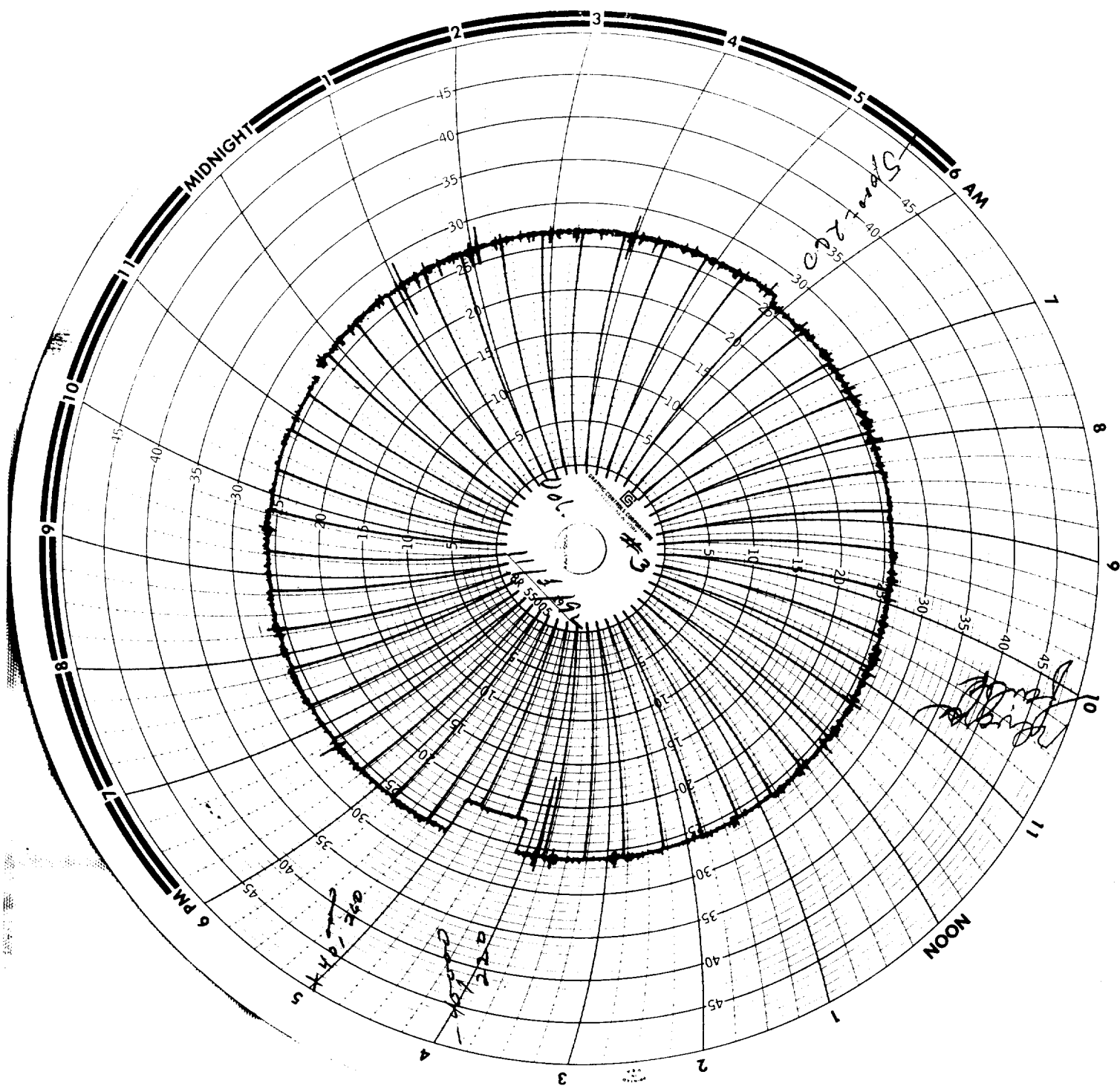


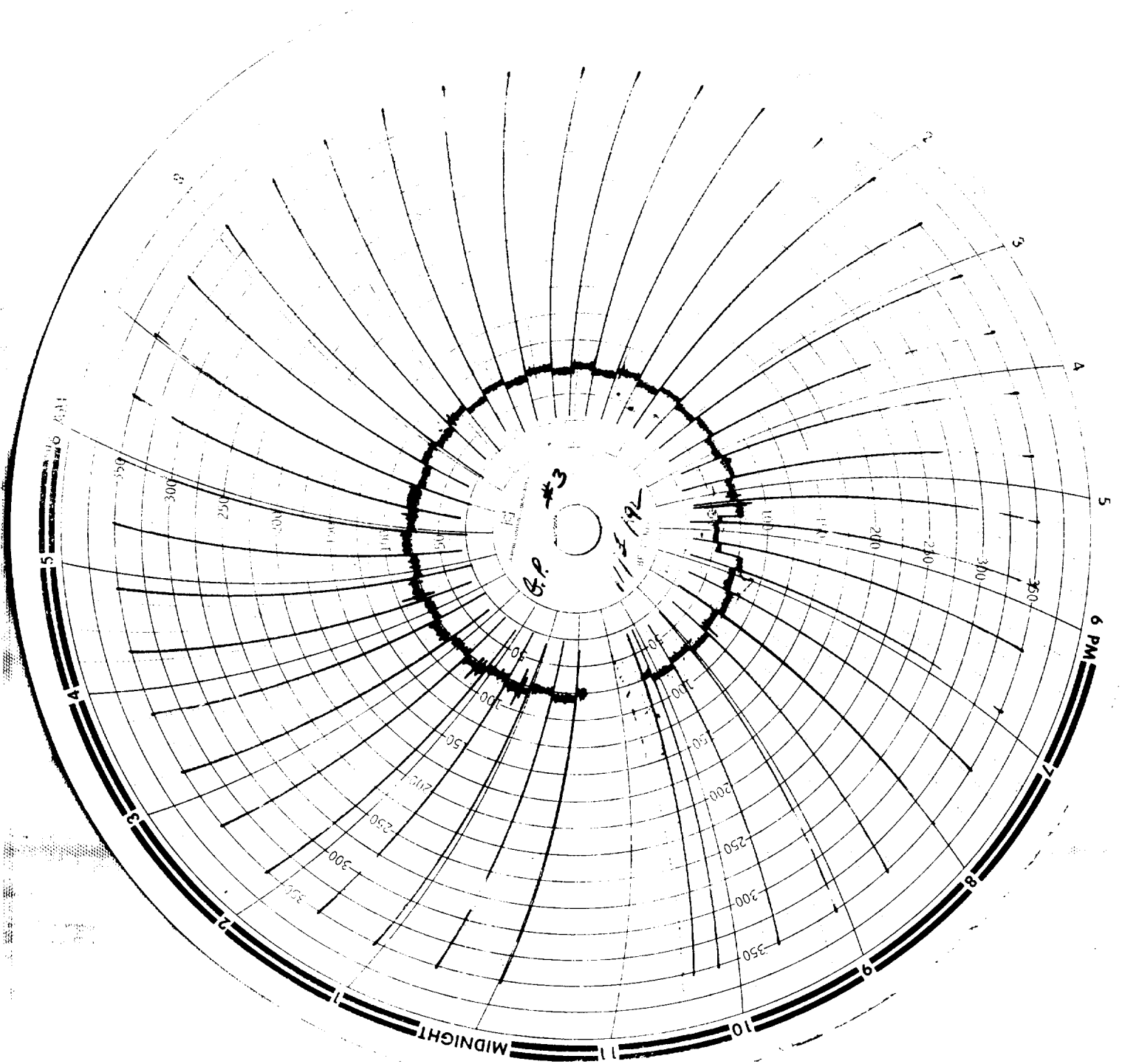


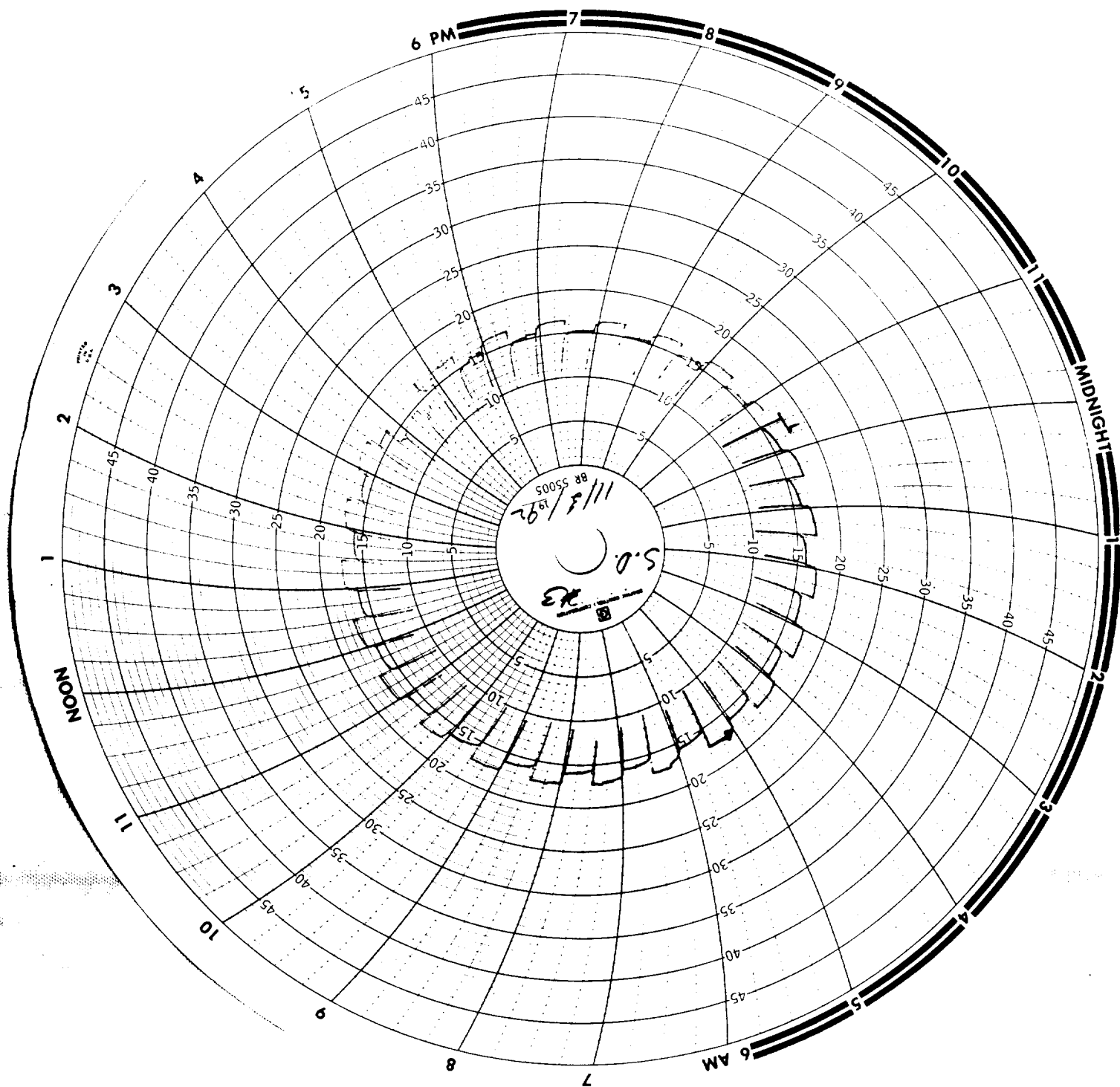


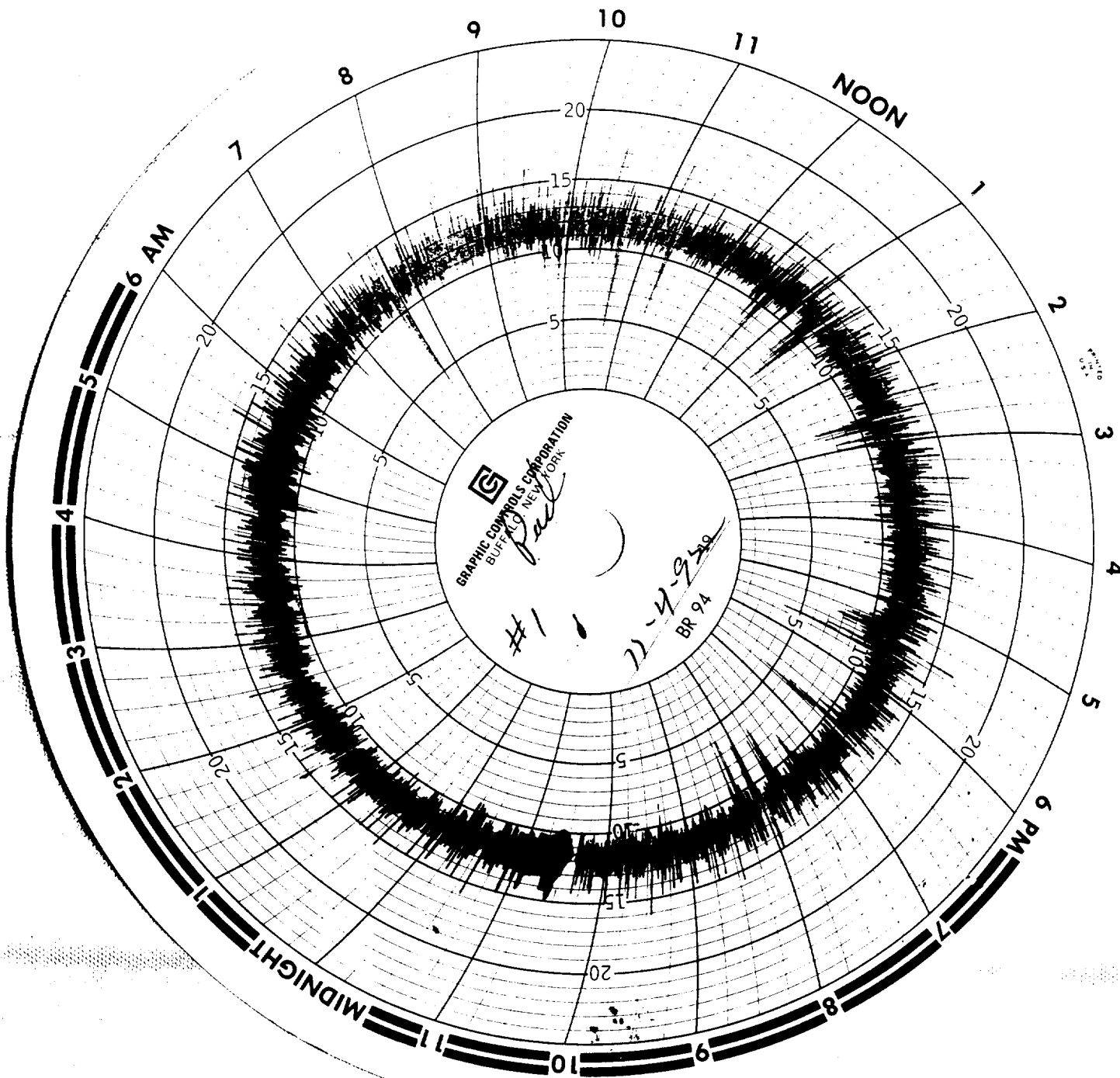


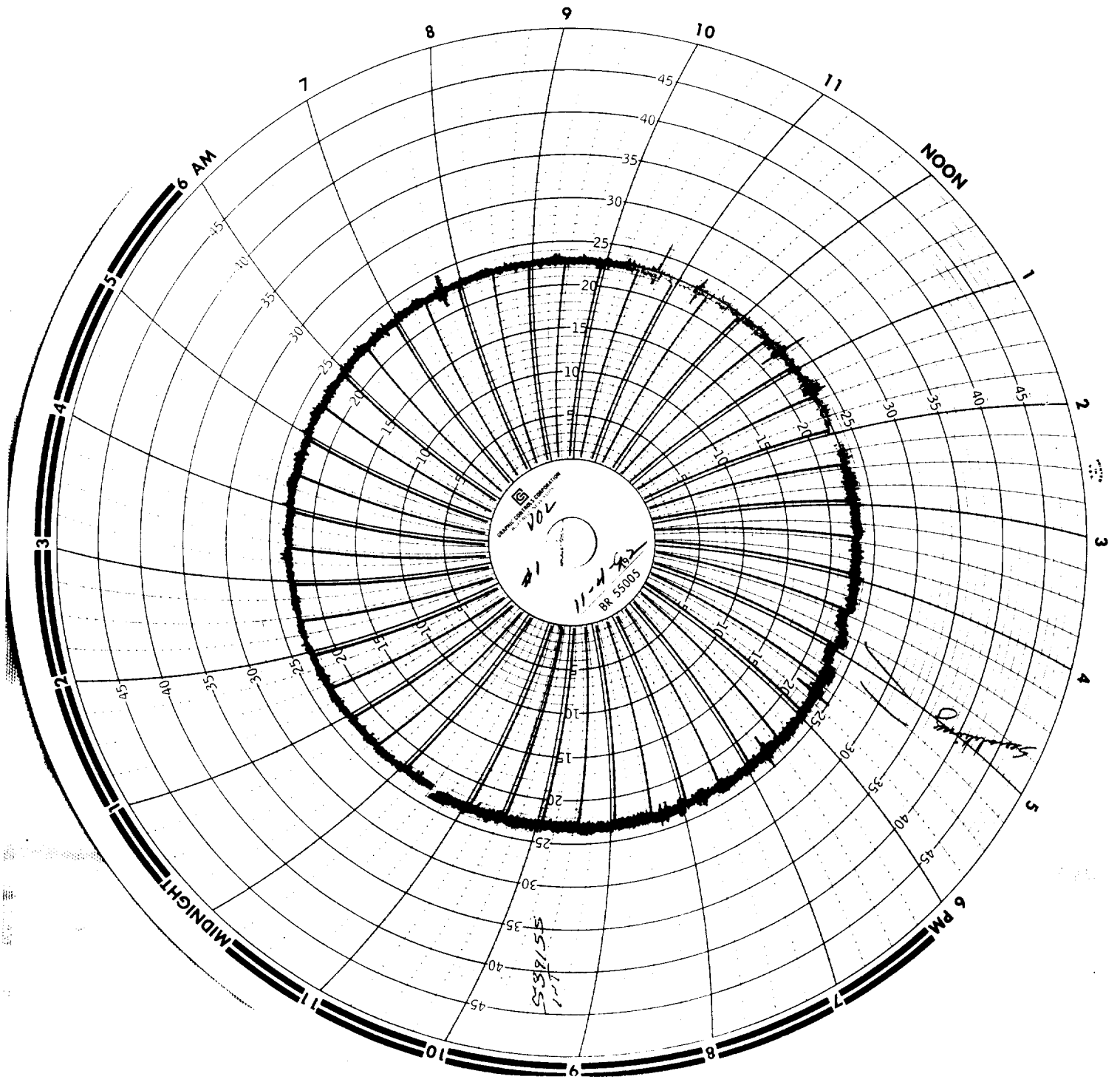


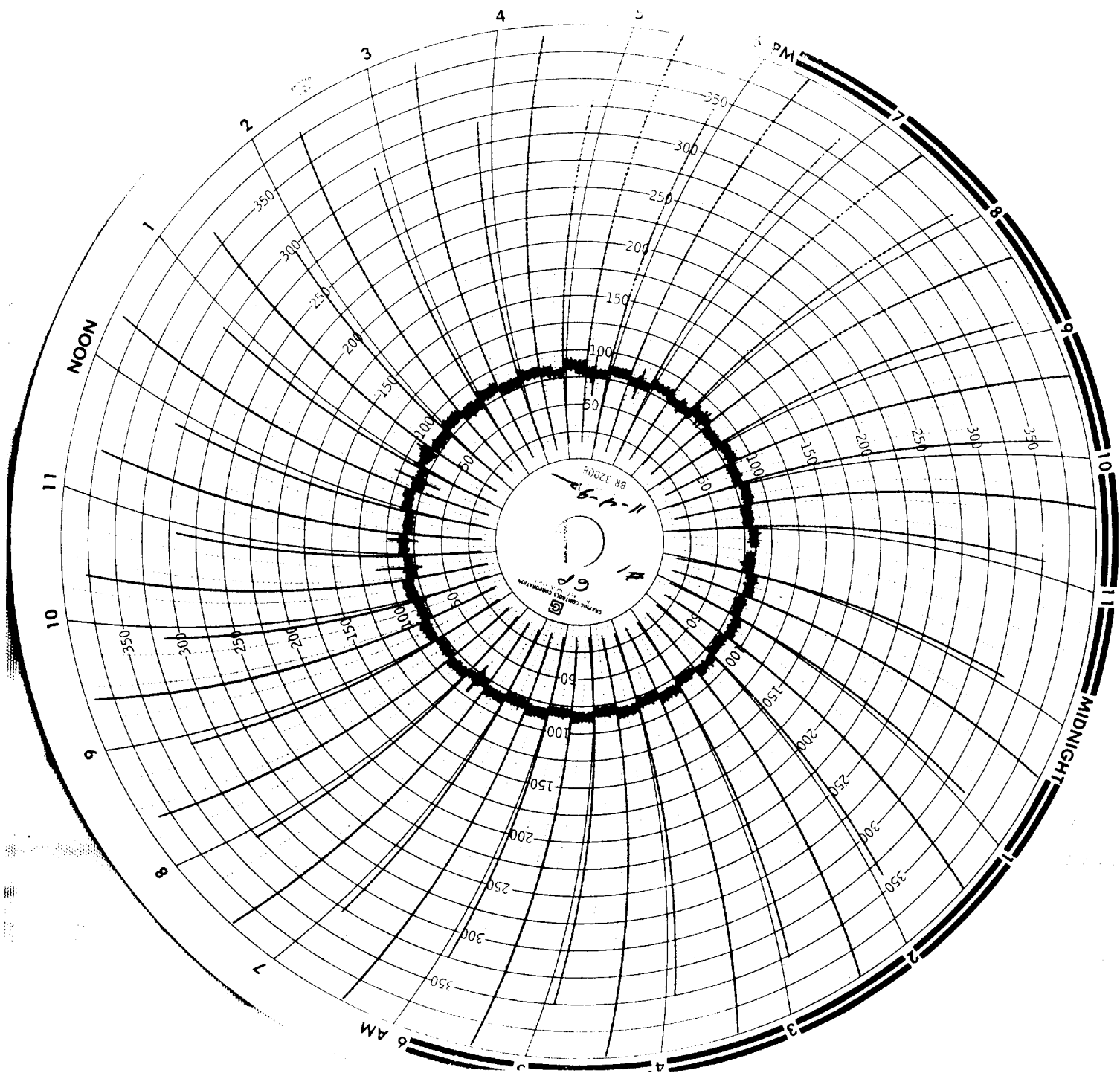


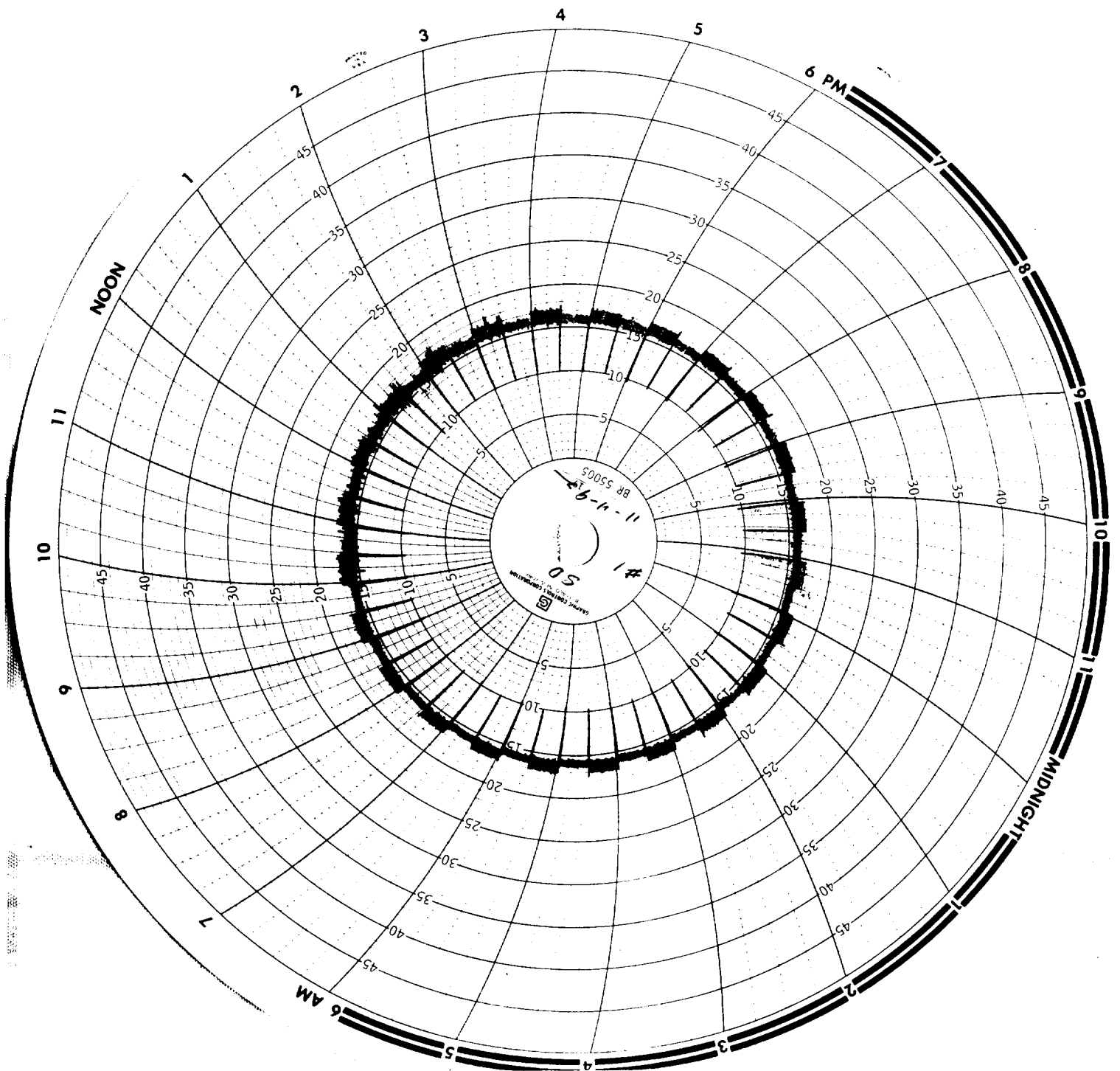


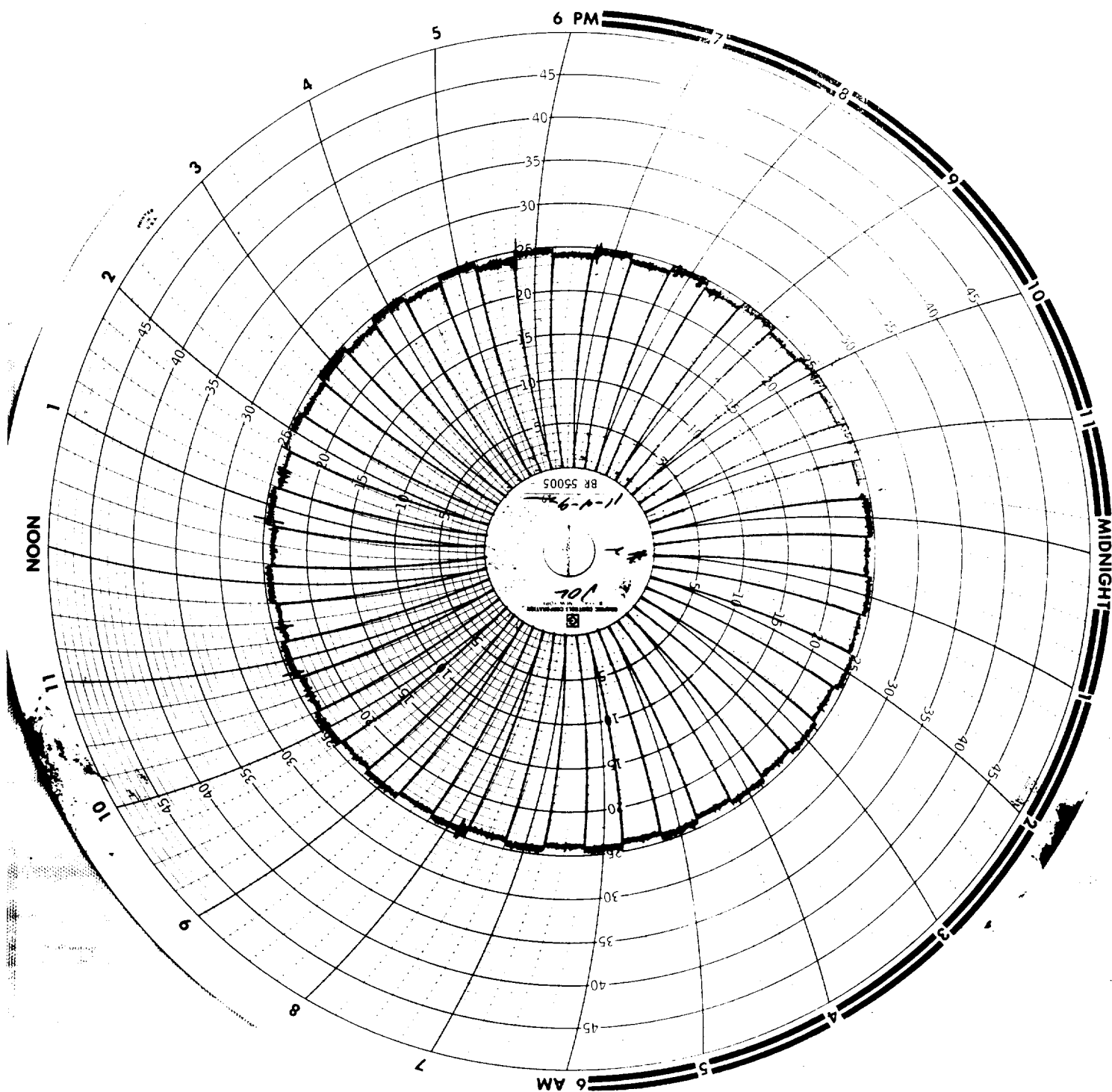


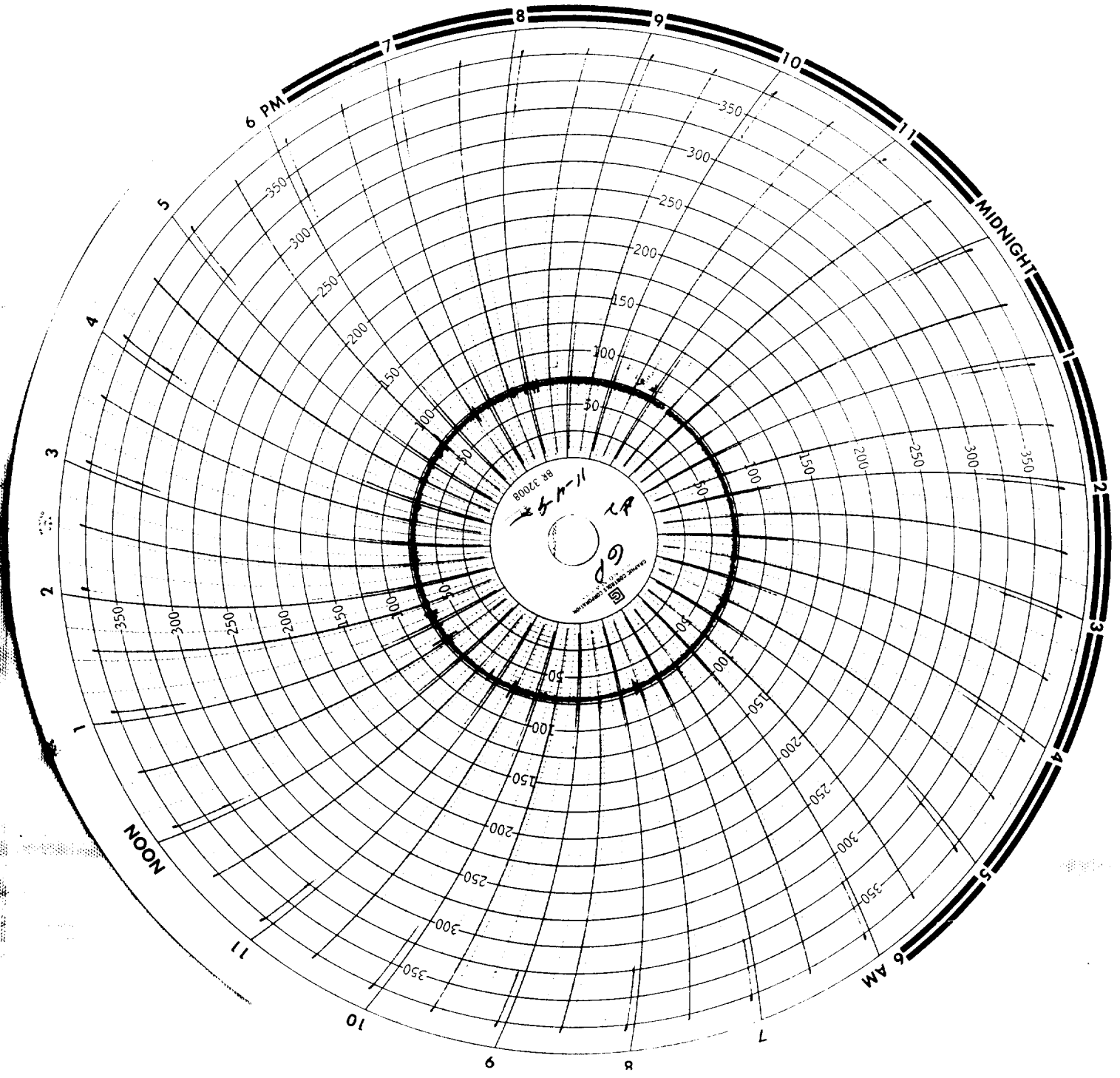


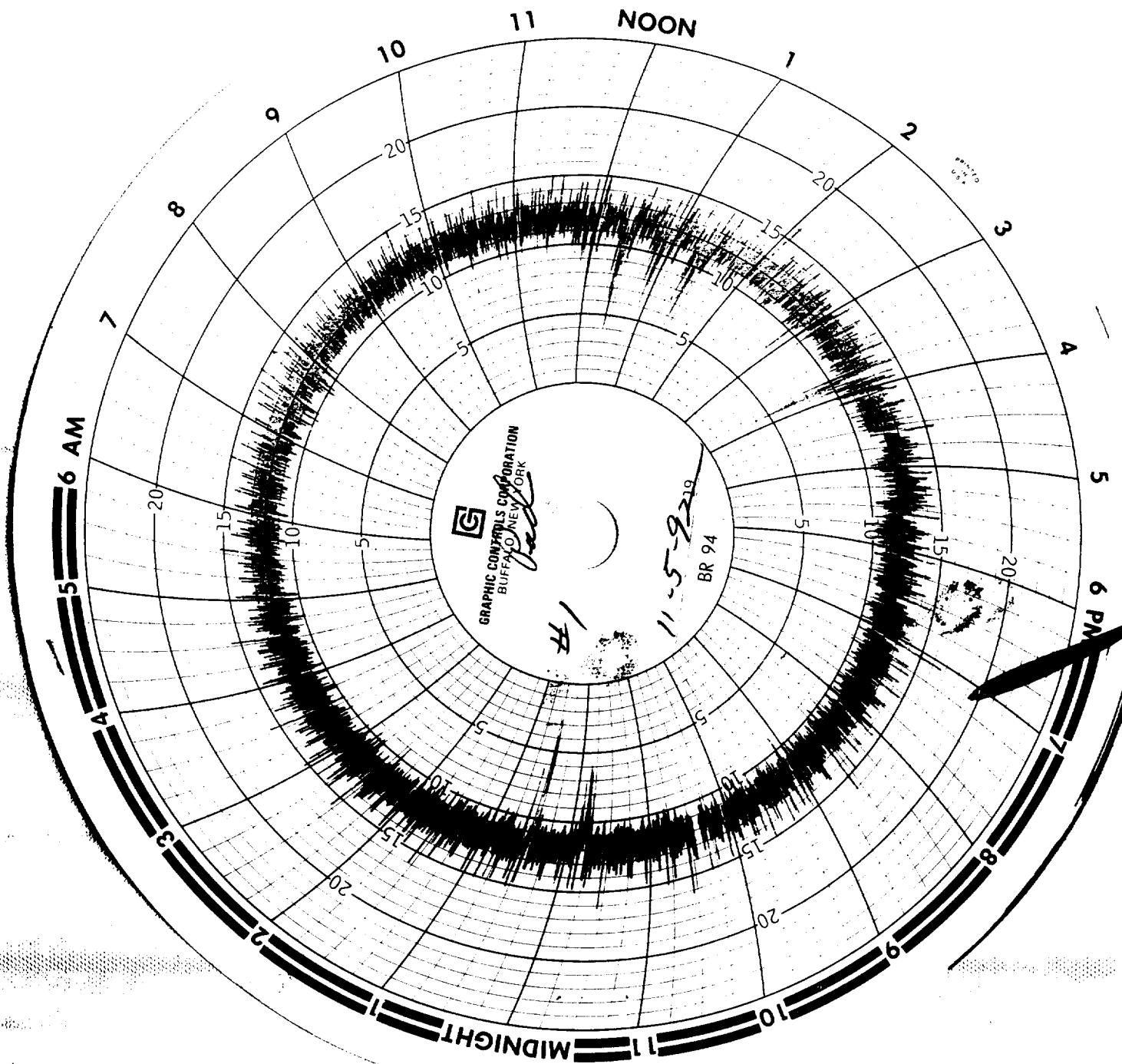


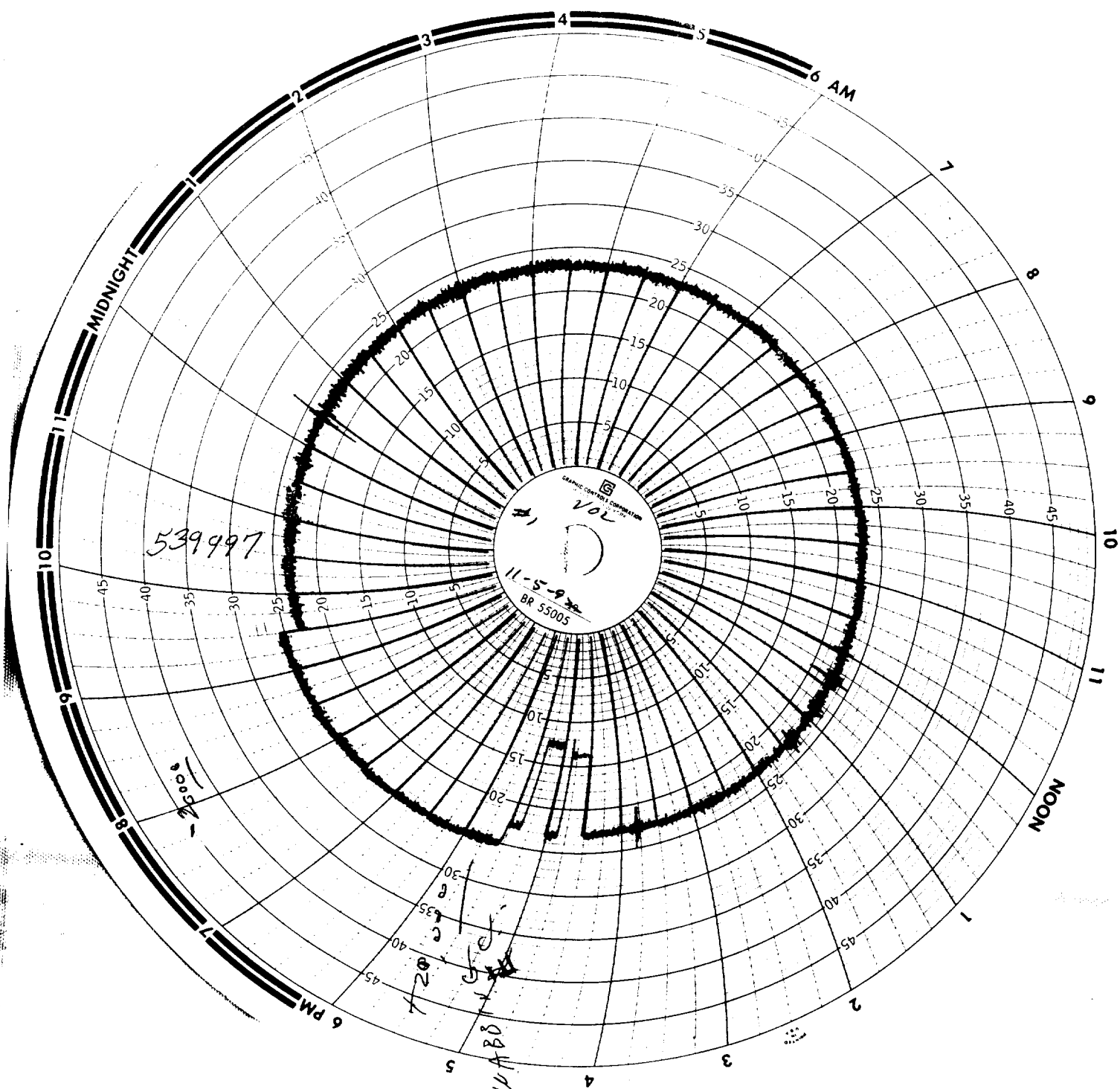


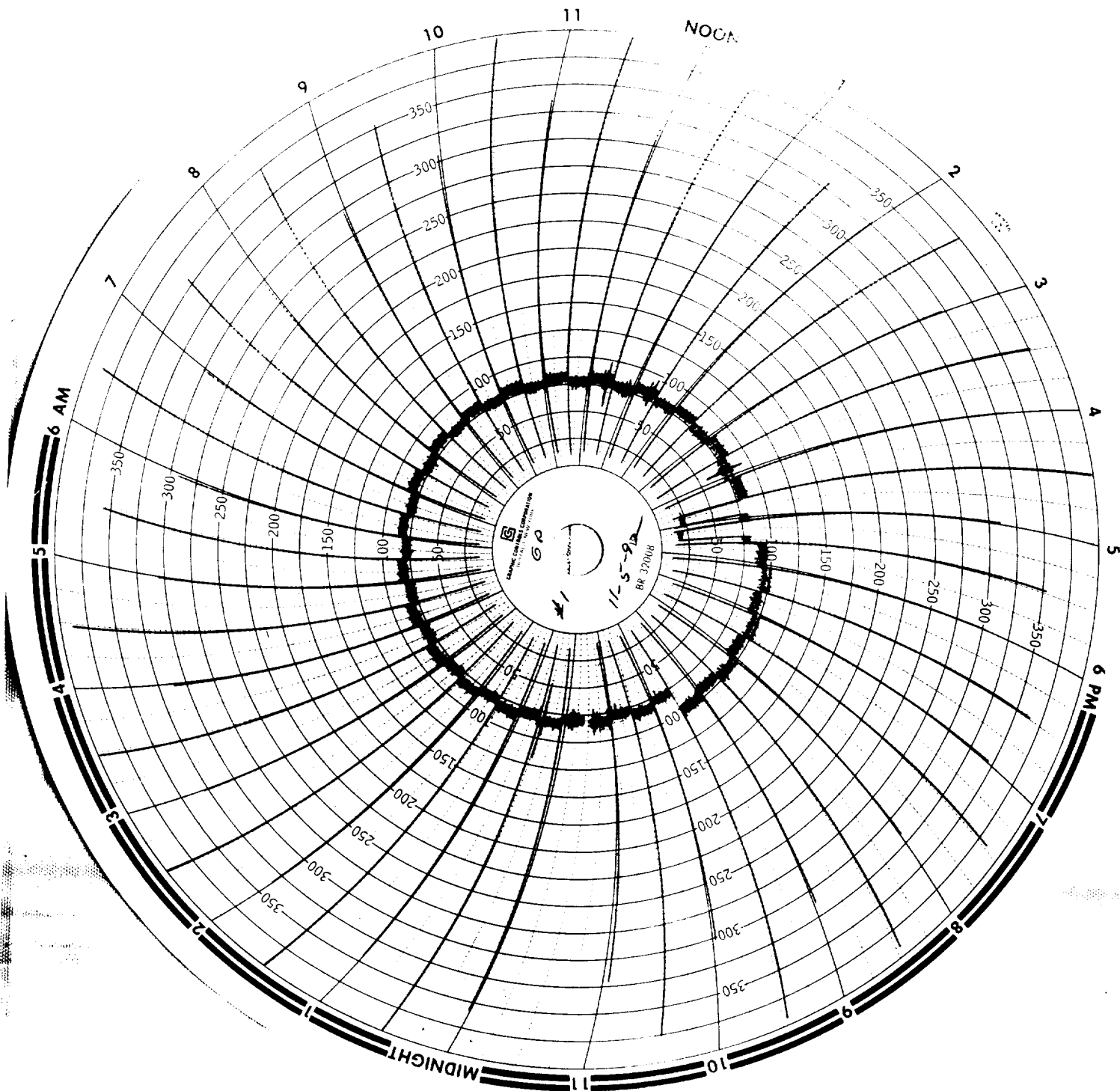


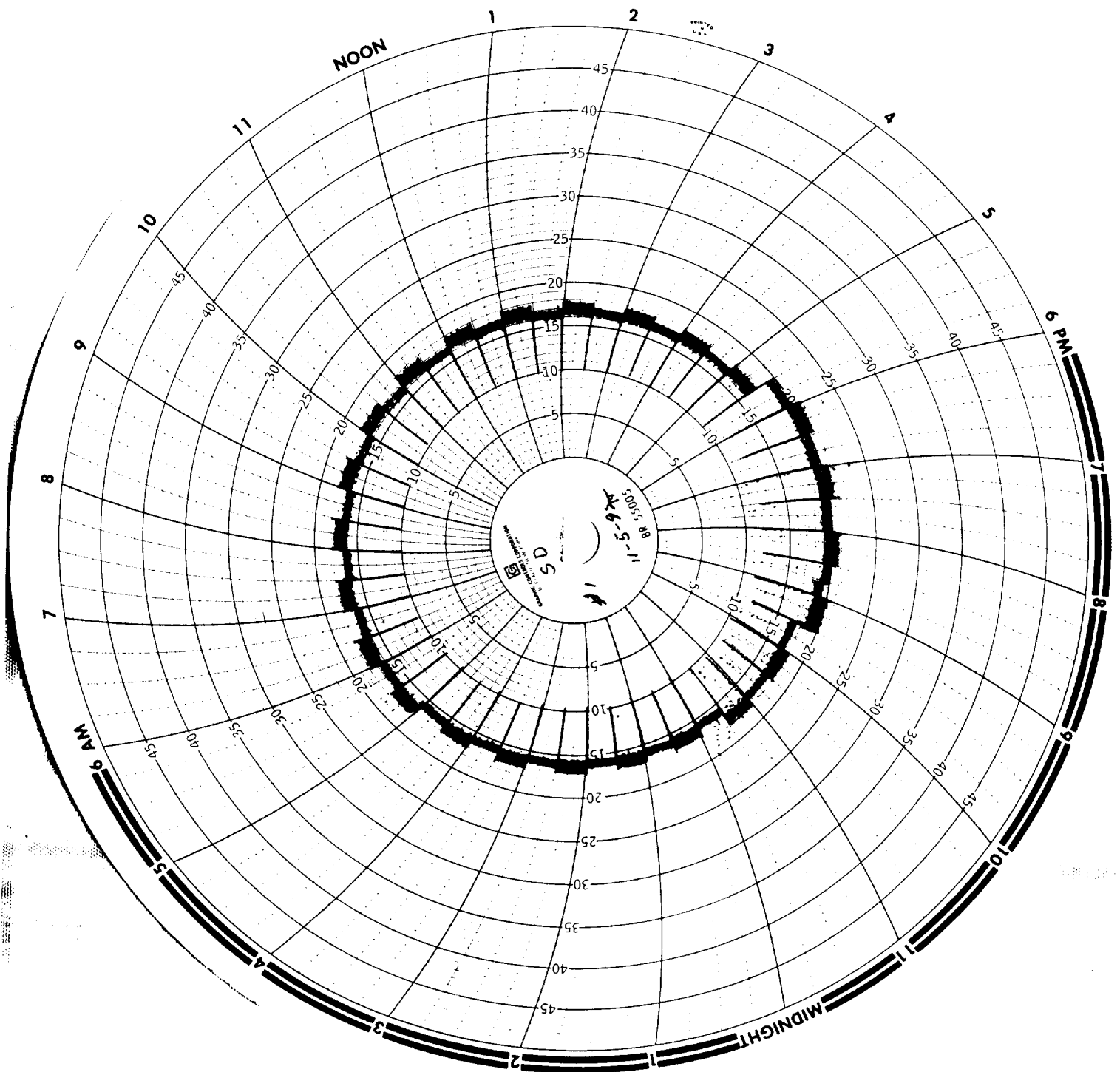


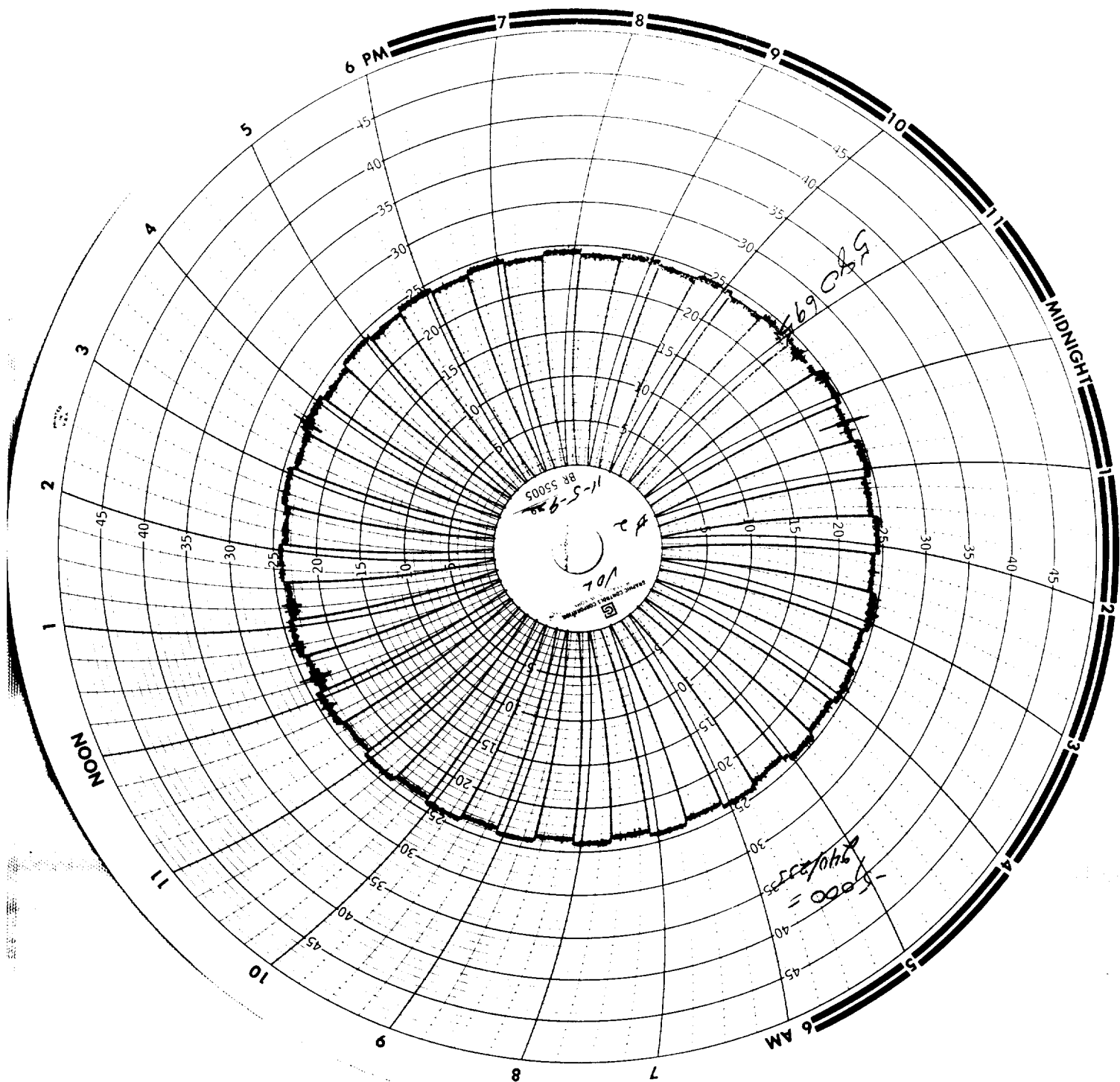


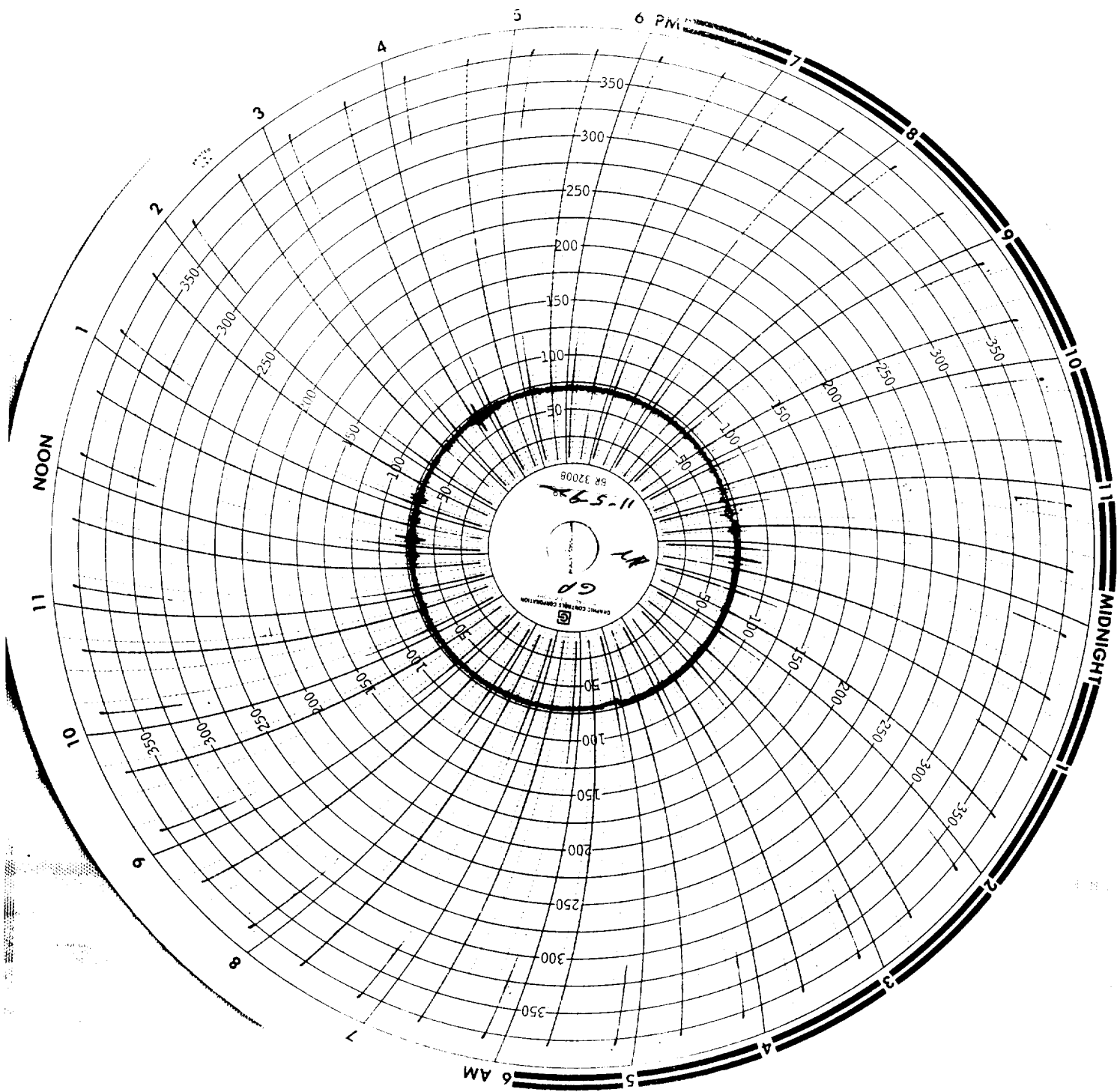


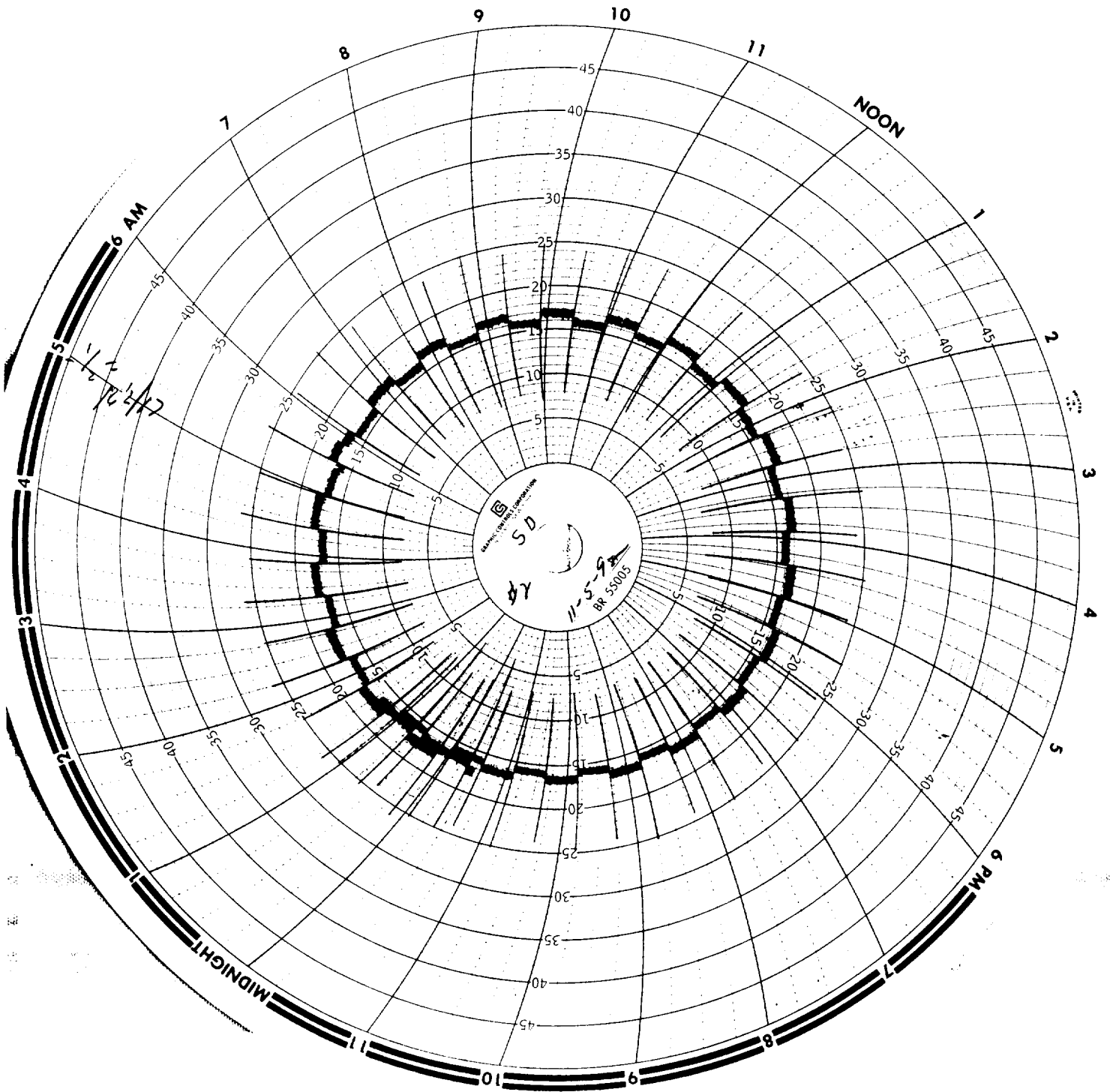


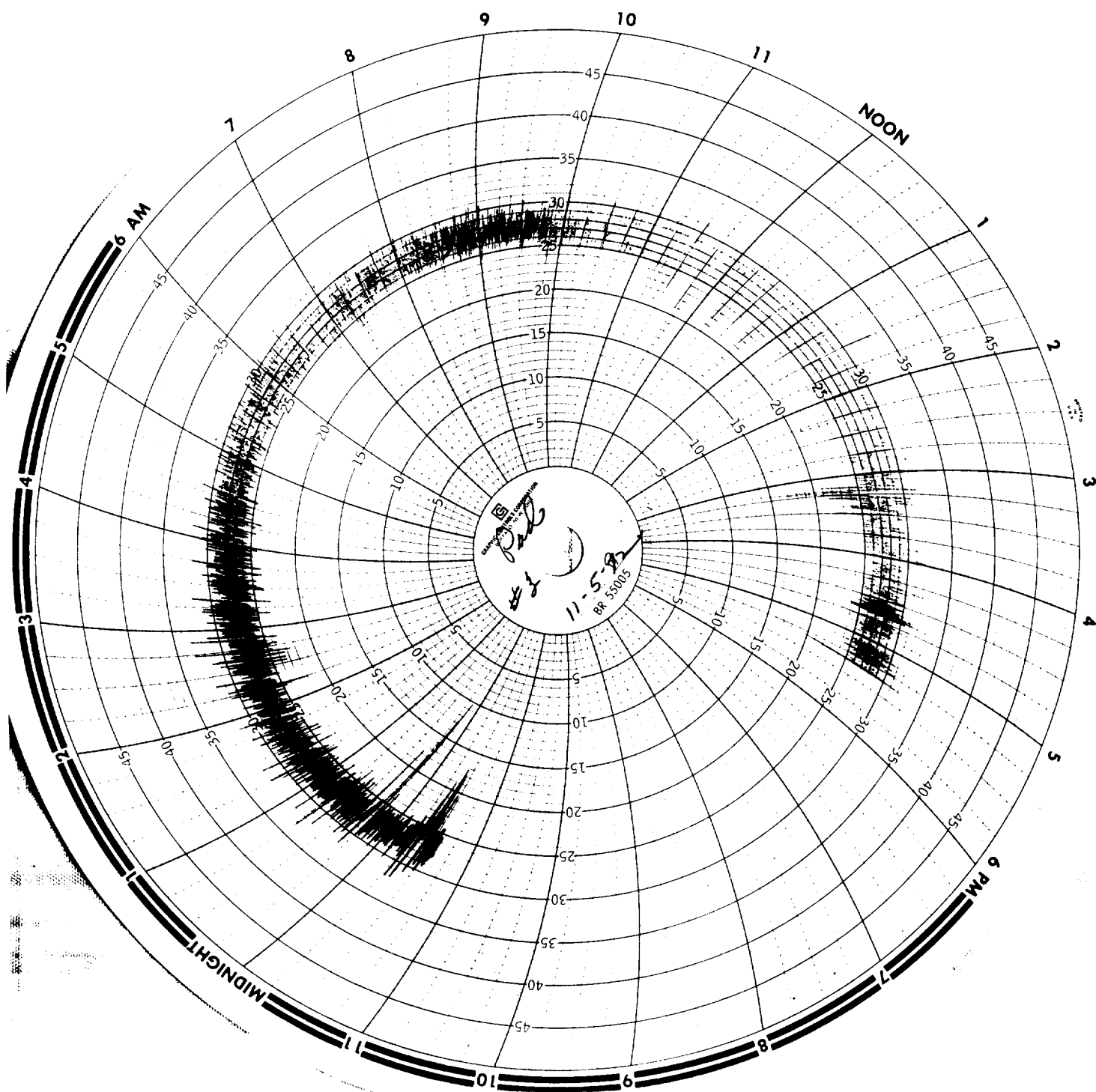


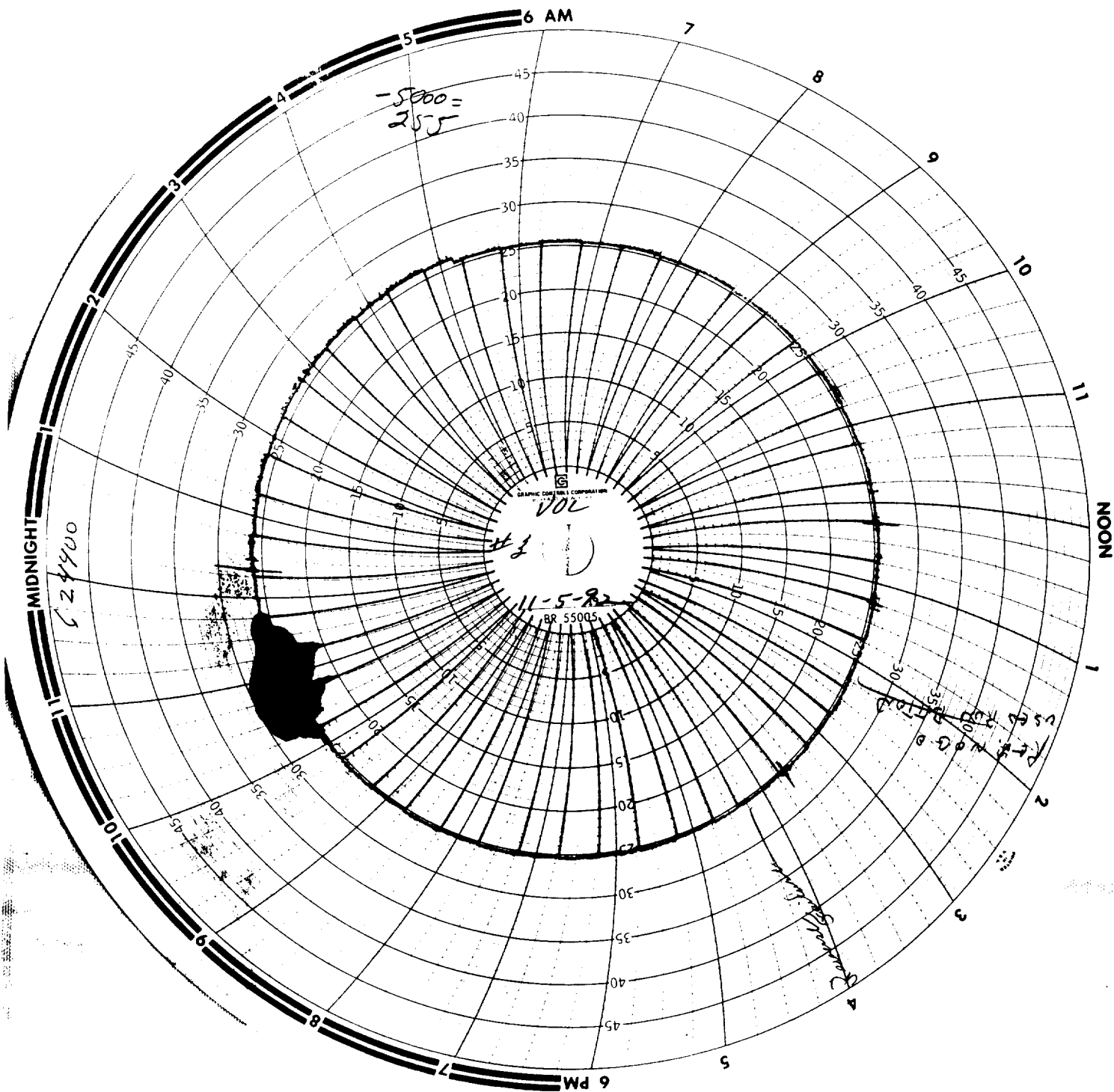


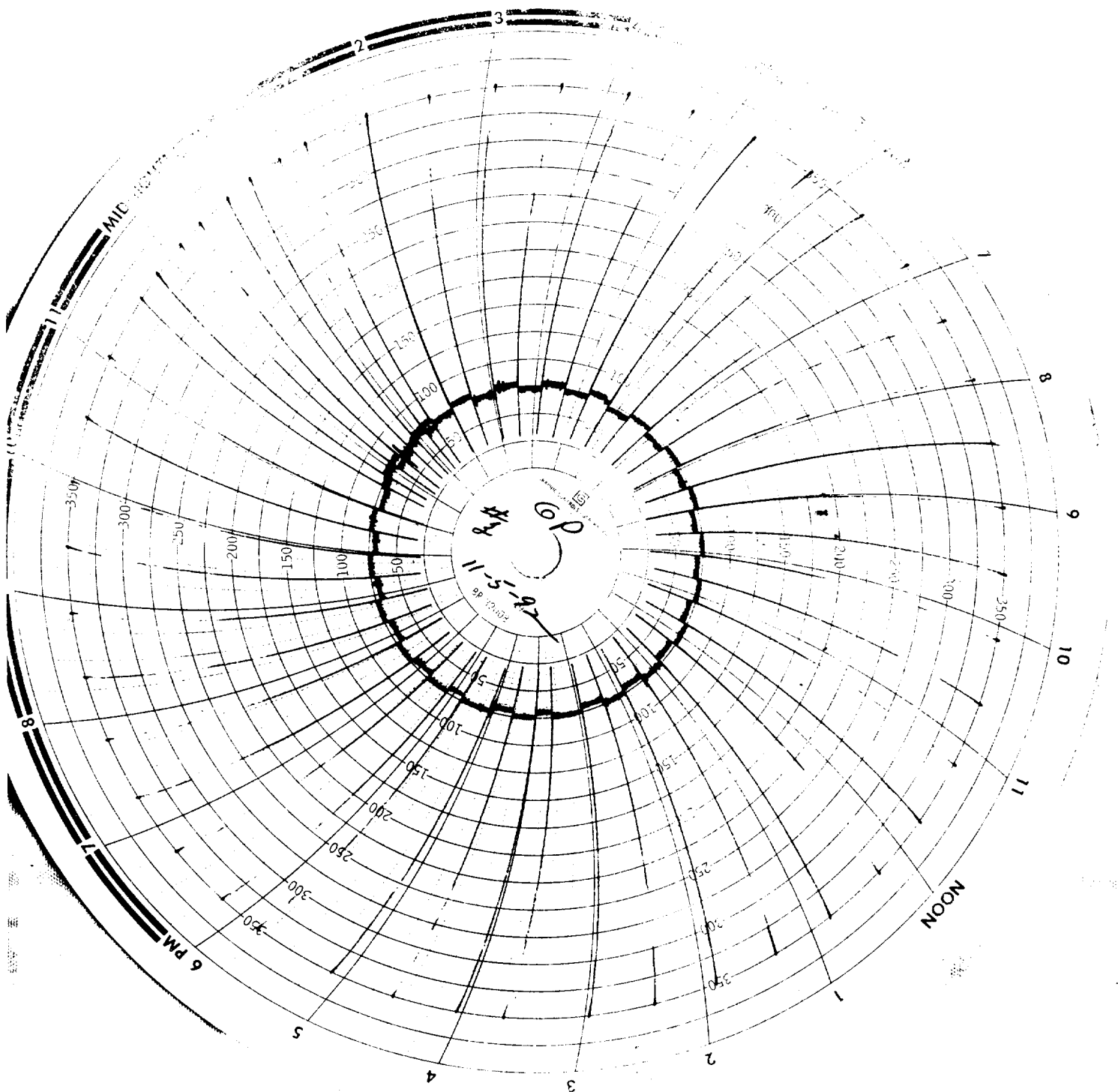


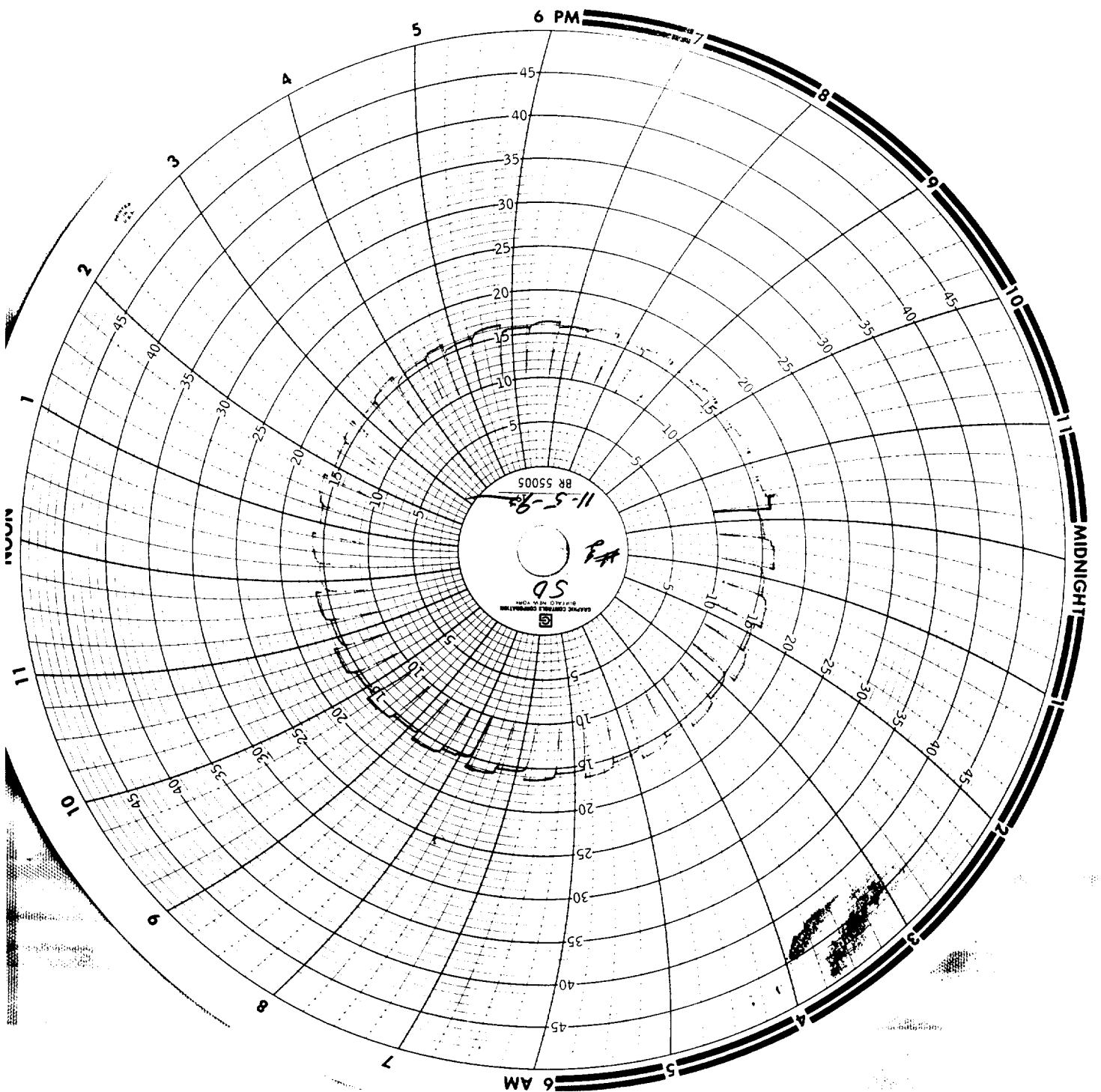












**COMPLIANCE DEMONSTRATION
1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL**

**USS CLAIRTON WORKS
CLAIRTON, PA**

APPENDIX C

CALIBRATION RESULTS

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 1 BP 28.80
DATE 10-16-92 OPERATOR TM

	<u>WET TEST METER</u>				<u>DRY TEST METER</u>						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	28.80				0.50	411.710			
HALF		80.0			88.0	105.0	96.5					
STOP	12.42		5.000						416.712			
CALCULATION	12.42	540.0	5.013	28.80			556.5	28.84	5.002	1.0314		1.770
START			0.000	28.80				1.00	418.880			
HALF		80.0			89.0	108.0	98.5					
STOP	8.82		5.000						423.915			
CALCULATION	8.82	540.0	5.013	28.80			558.5	28.87	5.035	1.0270		1.779
START			0.000	28.80				2.00	425.730			
HALF		80.0			89.0	111.0	100.0					
STOP	6.20		5.000						430.750			
CALCULATION	6.20	540.0	5.013	28.80			560.0	28.95	5.020	1.0302		1.754

AVERAGE

1.0295

1.768



CHESTER
ENVIRONMENTAL

POST TEST

BOX # 1 BP 28.87
 DATE 01-21-93 OPERATOR KS

	WET TEST METER				DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT Δ H@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD		
START HALF STOP	8.87	71.0	0.000	28.87	76.0	80.0	78.0	1.00	478.129		
CALCULATION	8.87	531.0	5.013	28.87			538.0	28.94	5.096	0.9940	1.802
START HALF STOP	9.22	71.0	0.000	28.87	77.0	87.0	82.0	1.00	483.300		
CALCULATION	9.22	531.0	5.213	28.87			542.0	28.94	5.358	0.9906	1.787
START HALF STOP	10.75	71.0	0.000	28.87	79.0	85.0	82.0	1.00	488.558		
CALCULATION	10.75	531.0	6.015	28.87			542.0	28.94	6.292	0.9733	1.825
AVERAGE										0.9860	1.804
DIFFERENCE										4.42%	-2.03%



CHESTER
 ENVIRONMENTAL

PRE-TEST MAGNEHELIC CALIBRATION

BOX# 1
DATE 10-16-92
OPERATOR TM

<u>0 to 10" H2O RANGE</u>			<u>0 to 0.50" H2O RANGE</u>			<u>0 to 5" H2O RANGE</u>		
MAGNEHELIC			MAGNEHELIC			MAGNEHELIC		
ΔP	MANOMETER		ΔP	MANOMETER		ΔP	MANOMETER	
0.50	0.50		0.50	0.50		4.00	4.00	
1.00	1.05		0.40	0.40		3.00	3.00	
2.00	2.00		0.30	0.30		2.00	2.00	
4.00	4.00		0.20	0.20		1.00	1.00	
6.00	6.00		0.10	0.10		0.50	0.50	
8.00	8.00							

PRE-TEST LEAK CHECK

DATE 10-16-92
OPERATOR TM

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	410.100	410.310	0.210	10.000	0.007
WET	0.000	0.275	0.275		

PRE-TEST PYROMETER CHECK

DATE 04-28-88
OPERATOR AGL

DATE 10-16-92
OPERATOR TM

TEMP READING		TEMP READING	
mV Input	°F	mV Input	°F
0.18	40	0.18	40
0.40	50	0.40	50
0.84	70	0.84	70
1.29	90	1.29	90
1.74	110	1.74	110
2.66	150	2.66	150
3.82	200	3.82	200
6.09	300	6.09	300
8.31	400	8.31	400
10.57	500	10.57	500

POST-TEST MAGNEHELIC CALIBRATION

BOX# 1

DATE 01-21-93

OPERATOR KS

0 to 10" H2O RANGE

MAGNEHELIC DELTA 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 DELTA P	MANOMETER
0.49	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 5" H2O RANGE

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

POST-TEST LEAK CHECK

DATE 01-21-93

OPERATOR KS

START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
494.925	495.101	0.176	10.000	-0.001
WET 0.000	0.170	0.170		

POST-TEST PYROMETER CHECK

DATE 04-28-88

OPERATOR AGL

DATE 01-21-93

OPERATOR KS

TEMP mV input	°F	TEMP READING	°F
0.18	40	40.0	41.0
0.40	50	50.0	50.0
0.84	70	70.0	71.0
1.29	90	90.0	90.0
1.74	110	110.0	110.0
2.66	150	150.0	151.0
3.82	200	200.0	200.0
6.09	300	301.0	301.0
8.31	400	400.0	400.0
10.57	500	500.0	500.0

TEMP mV input	°F	TEMP READING	°F
0.18	40	40	41.0
0.40	50	50	50.0
0.84	70	70	71.0
1.29	90	90	90.0
1.74	110	110	110.0
2.66	150	150	151.0
3.82	200	200	200.0
6.09	300	300	301.0
8.31	400	400	400.0
10.57	500	500	500.0



CHESTER
ENVIRONMENTAL

QA ORIFICE AUDIT

ORIFICE BAPC-3 DATE 10-27-92 B.P. 28.80
 OPERATOR RPC BOX # 1

RUN	1	2	3
INITIAL CF	637.400	644.700	652.100
FINAL CF	644.540	651.841	659.280
DIFFERENCE	7.140	7.141	7.180
TEMP INITIAL	IN 73 OUT 70	IN 73 OUT 70	IN 74 OUT 71
TEMP 5 MIN	73 70	74 71	75 71
TEMP 10 MIN	72 70	74 71	75 72
TEMP 15 MIN	73 70	74 71	75 72
TEMP AVG	TEMP R 71.375 531.375	TEMP R 72.25 532.25	TEMP R 73.125 533.125
TIME MINUTES	15.00	15.00	15.00
ORIFICE	IN WATE 0.70 IN HG 0.05	IN WATER 0.70 IN HG 0.05	IN WATER 0.70 IN HG 0.05
METER PRESSURE	28.85	28.85	28.85
AMBIENT TEMP.	°F 75.0 °C 23.9	°F 75.0 °C 23.9	°F 75.0 °C 23.9
VACUUM IN HG	18.0	18.0	18.0
DGM CAL Y	1.0295	1.0295	1.0295
STD CF	7.070	7.059	7.086
STD CUBIC METERS	0.2002	0.1999	0.2007



CHESTER
ENVIRONMENTAL

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 3 BP 28.8 in. Hg
DATE 05-06-92 OPERATOR RPC

	WET TEST METER				DRY TEST METER						METER COEFFICIENT Y	ORIFICE COEFFICIENT Δ 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	28.80								
HALF		70.0			101.0	84.0	92.5	0.50	985.600			
STOP	11.73		5.000						990.906			
CALCULATION	11.73	530.0	5.013	28.80			552.5	28.84	5.306		0.9835	1.532
START			0.000	28.80								
HALF		70.0			106.0	88.0	97.0	1.00	991.350			
STOP	8.60		5.000						996.656			
CALCULATION	8.60	530.0	5.013	28.80			557.0	28.87	5.306		0.9903	1.634
START			0.000	28.80								
HALF		70.0			112.0	90.0	101.0	2.00	997.200			
STOP	6.20		5.000						1002.475			
CALCULATION	6.20	530.0	5.013	28.80			561.0	28.95	5.275		1.0007	1.686
AVERAGE											0.9915	1.618

POST TEST

BOX # 3 BP 28.90 in. Hg
 DATE 01-05-93 OPERATOR RPC

	WET TEST METER				DRY TEST METER						METER COEFFICIENT Y	ORIFICE COEFFICIENT Δ 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	28.90					1.25	126.900		
HALF		70.0			101.0	89.0	95.0					
STOP	7.70		5.000							131.974		
CALCULATION	7.70	530.0	5.013	28.90			555.0	28.99		5.074	1.0312	1.638
START			0.000	28.90					1.25	132.300		
HALF		70.0			104.0	90.0	97.0					
STOP	7.70		5.000							137.421		
CALCULATION	7.70	530.0	5.013	28.90			557.0	28.99		5.121	1.0254	1.632
START			0.000	28.90					1.25	137.800		
HALF		70.0			105.0	90.0	97.5					
STOP	7.78		5.000							142.930		
CALCULATION	7.78	530.0	5.013	28.90			557.5	28.99		5.130	1.0245	1.664
AVERAGE											1.0270	1.645
DIFFERENCE											-3.5%	-1.6%

PRE-TEST MAGNEHELIC CALIBRATION
 BOX# 3
 DATE 05-04-92
 OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC ΔP	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 ΔP	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

PRE-TEST LEAK CHECK

DATE 05-05-92
 OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	985.075	985.288	0.213	10.000	-0.010
WET	0.000	0.112	0.112		

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 05-04-92
 OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	69.0
1.29	90	89.0
1.74	110	109.0
2.66	150	150.0
3.82	200	201.0
6.09	300	301.0
8.31	400	401.0
10.57	500	501.0

POST-TEST MAGNEHELIC CALIBRATION

BOX# 3
DATE 01-05-93
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC ΔP	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 ΔP	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 01-05-93
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	125.610	125.856	0.246	10.000	-0.0004
WET	0.000	0.242	0.242		

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	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	400.0
10.57	500	500.0

QA ORIFICE AUDIT

ORIFICE OPERATOR BAPC-3 RPC

DATE BOX #

05-05-92 3

B.P.

28.80

RUN		1		2		3	
INITIAL CF FINAL CF DIFFERENCE		4.800		12.480		20.050	
		12.287		19.912		27.566	
		7.487		7.432		7.516	
TEMP INITIAL TEMP 5 MIN TEMP 10 MIN TEMP 15 MIN	IN	80	77	83	79	87	82
		81	78	84	80	87	83
		82	78	85	81	89	83
		83	79	87	82	89	84
TEMP AVG	TEMP R	79.75	539.75	82.625	542.625	85.5	545.5
	TIME (MIN.)	15.00		15.00		15.00	
ORIFICE	IN WATER	0.65	0.05	0.65	0.05	0.65	0.05
	IN HG						
METER PRESSURE		28.85		28.85		28.85	
AMBIENT TEMP.	°F	75.0	23.9	75.0	23.9	75.0	23.9
	°C						
VACUUM IN HG		19.0		19.0		19.0	
DGM CAL Y		0.9915		0.9915		0.9915	
STD CF		7.028		6.939		6.981	
STD CUBIC METERS		0.1990		0.1965		0.1977	

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX # 4 BP 28.9 in. Hg
DATE 06-03-92 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	28.90					0.50	525.800		
HALF		73.0			93.0	89.0	91.0					
STOP	12.17		5.000							531.165		
CALCULATION	12.17	533.0	5.013	28.90			551.0	28.94	5.365		0.9646	1.667
START			0.000	28.90					1.00	531.500		
HALF		73.0			94.0	90.0	92.0			536.800		
STOP	8.85		5.000									
CALCULATION	8.85	533.0	5.013	28.90			552.0	28.97	5.300		0.9770	1.760
START			0.000	28.90					2.00	537.600		
HALF		73.0			94.0	90.0	92.0			542.899		
STOP	6.40		5.000									
CALCULATION	6.40	533.0	5.013	28.90			552.0	29.05	5.299		0.9747	1.841
AVERAGE											0.9721	1.756



Keystone Environmental Resources

Air Quality Engineering

POST TEST

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

	WET TEST METER				DRY TEST METER						METER COEFFICIENT Y	ORIFICE COEFFICIENT Δ H@
	TIME (min)	TEMP TW	VOLUME VM	PRESSURE PW	TEMP IN TI	TEMP OUT TO	TEMP AVG TA	ORIFICE PD	VOLUME VD			
START HALF STOP	8.63	70.0	0.000 5.000	29.05	77.0	76.0	76.5	1.00	494.100 499.250			1.694
CALCULATION	8.63	530.0	5.013	29.05			536.5	29.12	5.150	0.9828		
START HALF STOP	8.65	70.0	0.000 5.000	29.05	80.0	79.0	79.5	1.00	499.600 504.766			
CALCULATION	8.65	530.0	5.013	29.05			539.5	29.12	5.166	0.9852		1.692
START HALF STOP	8.61	70.0	0.000 5.000	29.05	83.0	81.0	82.0	1.00	505.100 510.247			1.669
CALCULATION	8.61	530.0	5.013	29.05			542.0	29.12	5.147	0.9934		
AVERAGE										0.9871		1.685
DIFFERENCE										-1.5%		4.2%



PRE-TEST MAGNEHELIC CALIBRATION

BOX# 4
DATE 06-03-92
OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC ΔP	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 ΔP	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

PRE-TEST LEAK CHECK

DATE 06-03-92
OPERATOR RPC

	START CF	STOP CF	VOLUME CF	TIME (min)	LEAK RATE
DRY	508.320	508.433	0.113	10.000	-0.000
WET	0.000	0.111	0.111		

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 06-03-92
OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40.0
0.40	50	50.0
0.84	70	69.0
1.29	90	90.0
1.74	110	109.0
2.66	150	150.0
3.82	200	200.0
6.09	300	300.0
8.31	400	400.0
10.57	500	500.0



Keystone Environmental Resources

Air Quality Engineering

POST-TEST MAGNEHELIC CALIBRATION

BOX# 4

DATE 01-07-93

OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC ΔP	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 ΔP	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



Keystone Environmental Resources

Air Quality Engineering

QA ORIFICE AUDIT

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

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
TEMP INITIAL	IN 71 OUT 69	IN 78 OUT 75	IN 82 OUT 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 AVG	TEMP R 73.75 533.75	TEMP R 78.25 538.25	TEMP R 82.375 542.375
TIME (MIN.)	15.00	15.00	15.00
ORIFICE	IN WATER 0.65 IN HG 0.05	IN WATER 0.65 IN HG 0.05	IN WATER 0.65 IN HG 0.05
METER PRESSURE	28.90	28.90	28.90
AMBIENT TEMP.	°F 75.0 °C 23.9	°F 75.0 °C 23.9	°F 75.0 °C 23.9
VACUUM IN HG	19.0	19.0	19.0
DGM CAL Y	0.9721	0.9721	0.9721
STD CF	6.992	6.943	6.900
STD CUBIC METERS	0.1980	0.1966	0.1954

CONTROL BOX CALIBRATION

METERING SYSTEM THREE POINT CALIBRATION

CONTROL BOX NO. 7
 CALIBRATION DATE 9-14-92
 BAROMETRIC PRESSURE 29.10 in. Hg
 OPERATOR T.JM

	WET TEST METER				DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT $\Delta H@$
	ELAPSED TIME (min)	METER TEMP Tw (°F/°R)	VOLUME Vw (CF)	METER PRESSURE Pw (in. Hg)	TEMP IN Ti (°F)	TEMP OUT To (°F)	AVERAGE TEMP Ta (°F/°R)	ORIFICE PRESSURE DIFFERENTIAL ΔH (in. H2O/in. Hg)	VOLUME Vd (DCF)		
START MIDWAY STOP	11.55	70	0.000	29.10	108	84	96	0.50	837.072		
CALCULATION	11.55	530	5.013	29.10			556	29.14	841.999		
START MIDWAY STOP	8.23	82	0.000	29.10	108	85	97	1.00	842.750	1.0659	1.461
CALCULATION	8.23	542	5.013	29.10			557	29.17	847.678		
START MIDWAY STOP	5.92	82	0.000	29.10	115	85	100	2.00	851.820	1.0417	1.550
CALCULATION	5.92	542	5.013	29.10			560	29.25	856.742		
AVERAGE									4.922	1.0469	1.594
										1.0515	1.535

METERING SYSTEM POST-TEST CALIBRATION

CONTROL BOX NO. 7 BAROMETRIC PRESSURE 28.95 in. Hg
 CALIBRATION DATE 01-08-93 OPERATOR RPC

	WET TEST METER			DRY TEST METER					METER COEFFICIENT Y	ORIFICE COEFFICIENT $\Delta H @$
	ELAPSED TIME (min)	METER TEMP Tw (°F/°R)	VOLUME Vw (CF)	METER PRESSURE Pw (in. Hg)	TEMP IN Ti (°F)	TEMP OUT To (°F)	AVERAGE TEMP Ta (°F/°R)	ORIFICE PRESSURE DIFFERENTIAL ΔH (in. H2O/in. Hg)	VOLUME Vd (DCF)	
START			0.000	28.95	103	79	91	1.00	430.300	
MIDWAY										
STOP	8.75	70	5.000						435.480	
CALCULATION	8.75	530	5.013	28.95			551	29.02	5.180	1.701
START			0.000	28.95	108	81	95	1.00	435.700	
MIDWAY										
STOP	8.78	82	5.000						440.909	
CALCULATION	8.78	542	5.013	28.95			555	29.02	5.209	1.780
START			0.000	28.95	110	84	97	1.00	441.300	
MIDWAY										
STOP	8.75	82	5.000						446.491	
CALCULATION	8.75	542	5.013	28.95			557	29.02	5.191	1.760
AVERAGE									0.9898	
DIFFERENCE									0.9918	1.747
									6.03%	-12.12%

PRE-TEST MAGNEHELIC CALIBRATION
CONTROL BOX 7

DATE 9-14-92

OPERATOR TJM

0 to 2.0" H2O RANGE

MAGNEHELIC Δ P (in. H2O)	MANOMETER (in. H2O)
0.50	0.50
0.75	0.75
1.00	1.00
1.50	1.50
2.00	2.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P (in. H2O)	MANOMETER (in. H2O)
0.50	0.48
0.40	0.40
0.30	0.28
0.20	0.19
0.10	0.10

0 to 3.0" H2O RANGE

MAGNEHELIC Δ H (in. H2O)	MANOMETER (in. H2O)
3.00	2.90
2.00	1.90
1.00	0.97
0.50	0.49

PRE-TEST METERING SYSTEM LEAK CHECK

DATE 9-14-92

OPERATOR TJM

METER	INITIAL VOLUME (CF)	FINAL VOLUME (CF)	VOLUME DIFF. (CF)	ELAPSED TIME (min)	LEAK RATE (CFM)
DRY	831.640	831.809	0.169	10.00	0.0031
WET	0.000	0.200	0.200		

PYROMETER CALIBRATION

DATE 04-28-88

OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40
0.40	50	50
0.84	70	70
1.29	90	90
1.74	110	110
2.66	150	150
3.82	200	200
6.09	300	301
8.31	400	400
10.57	500	500

PRE-TEST PYROMETER CALIBRATION

DATE 9-14-92

OPERATOR MG

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40
0.40	50	50
0.84	70	69
1.29	90	89
1.74	110	109
2.66	150	149
3.82	200	200
6.09	300	300
8.31	400	398
10.57	500	498

POST-TEST MAGNEHELIC CALIBRATION

CONTROL BOX 7

DATE 01-08-93

OPERATOR RPC

0 to 10" H2O RANGE

MAGNEHELIC Δ P (in. H2O)	MANOMETER (in. H2O)
0.50	0.50
0.75	0.75
1.00	1.00
1.50	1.50
2.00	2.00

0 to 0.50" H2O RANGE

MAGNEHELIC Δ P (in. H2O)	MANOMETER (in. H2O)
0.50	0.50
0.40	0.40
0.30	0.30
0.20	0.20
0.10	0.10

0 to 3.0" H2O RANGE

MAGNEHELIC Δ H (in. H2O)	MANOMETER (in. H2O)
3.00	3.00
2.00	2.00
1.00	1.00
0.50	0.50

POST-TEST METERING SYSTEM LEAK CHECK

DATE 01-8-93

OPERATOR RPC

METER	INITIAL VOLUME (CF)	FINAL VOLUME (CF)	VOLUME DIFF. (CF)	ELAPSED TIME (min)	LEAK RATE (CFM)
DRY	429.340	429.639	0.299	10.00	-0.0135
WET	0.000	0.164	0.164		

PYROMETER CALIBRATION

DATE 04-28-88

OPERATOR AGL

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	40
0.40	50	50
0.84	70	70
1.29	90	90
1.74	110	110
2.66	150	150
3.82	200	200
6.09	300	301
8.31	400	400
10.57	500	500

POST-TEST PYROMETER CALIBRATION

DATE 01-08-93

OPERATOR RPC

VOLTAGE INPUT (mV)	TARGET TEMP (°F)	TEMP READING (°F)
0.18	40	39
0.40	50	50
0.84	70	70
1.29	90	89
1.74	110	109
2.66	150	149
3.82	200	199
6.09	300	299
8.31	400	398
10.57	500	499

QA ORIFICE AUDIT

ORIFICE OPERATOR BAPC-3 RPC DATE 10-27-92 BOX # 7 B.P. 28.80

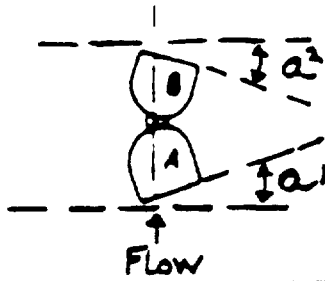
RUN		1		2		3	
INITIAL CF FINAL CF DIFFERENCE		791.800		799.400		807.100	
		799.222		806.850		814.566	
		7.422		7.450		7.466	
TEMP INITIAL TEMP 5 MIN TEMP 10 MIN TEMP 15 MIN	IN	78	OUT	81	OUT	85	OUT
		79	73	83	75	86	78
		80	74	84	76	87	78
		80	75	85	76	88	78
		80	75		78		79
TEMP AVG	TEMP R	76.75	536.75	79.75	539.75	82.375	542.375
TIME MINUTES		15.00		15.00		15.00	
ORIFICE	IN WATER	0.65	IN HG	0.65	IN HG	0.65	IN HG
METER PRESSURE		28.85		28.85		28.85	
AMBIENT TEMP.	°F	75.0	°C	23.9	°F	75.0	°C
VACUUM IN HG		18.0		18.0		18.0	
DGM CAL Y		1.0515		1.0515		1.0515	
STD CF		7.430		7.417		7.396	
STD CUBIC METERS		0.2104		0.2100		0.2095	

GEOMETRIC PITOT CALIBRATION

Caliper # XEF-59
 Precheck ✓
 Post Check _____

Probe #: J-1
 Date: 11-2-92
 Initials: [Signature]

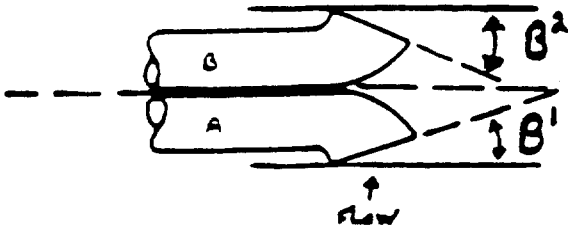
①



$a^1 = 3.0^\circ$
 $a^2 = 4.0^\circ$
 $B^1 = 2.5^\circ$
 $B^2 = 3.0^\circ$
 $F = 1.025''$

$a^1, a^2 = < 10^\circ$
 $B^1, B^2 = < 5^\circ$

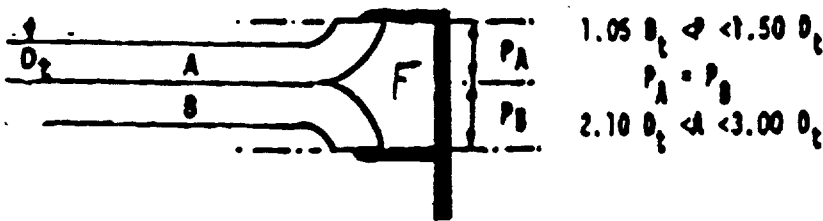
②



$\mu = 0.0241$
 $V = 0.0241$
 $W = 0.528$

$\mu \leq 0.1250'' (\mu = F \tan \theta)$
 $V \leq 0.03125'' (V = F \tan \theta)$
 $W \geq 0''$

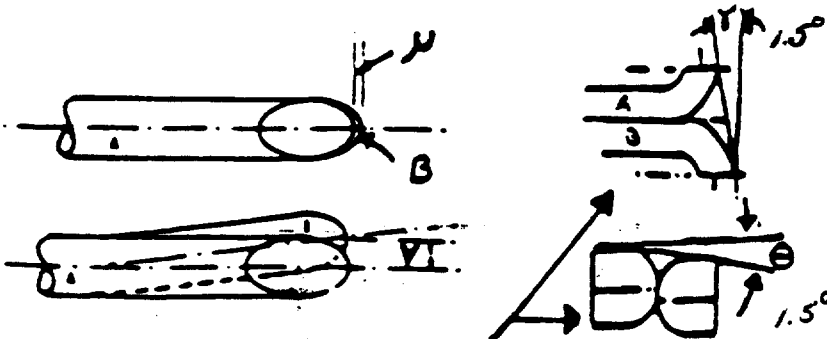
③



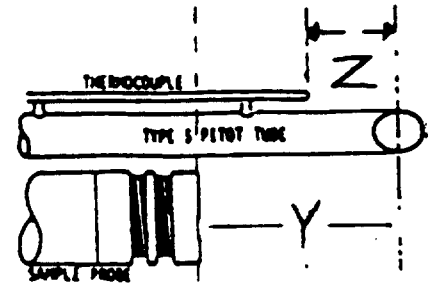
$Y = 5.946$
 $Z = 3.372$
 $D_t = 0.375$

$Y \geq 3.0''$
 $Z \geq 2.0''$
 $D_t > .1875'' \text{ to } .375''$
 (3/16" to 3/8")

④

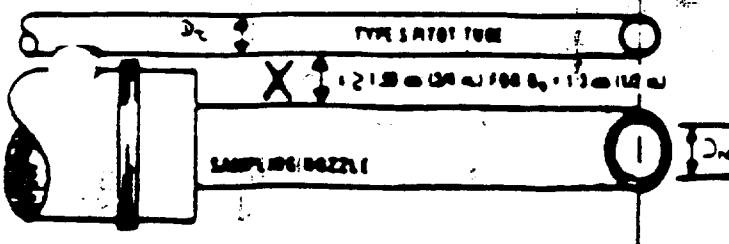


⑤

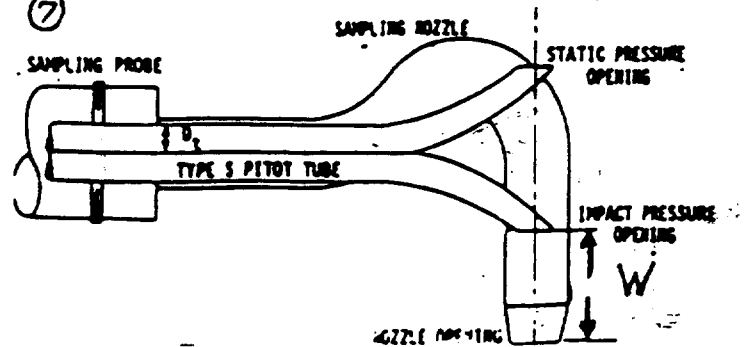


(θ, θ EXPRESSED IN DEGREES)

⑥



⑦

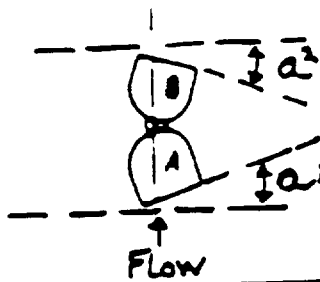


GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68
 Precheck _____
 Post Check X

Probe #: 5-1
 Date: 12-11-78
 Initials: TJM

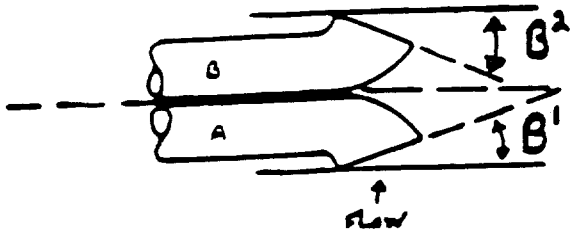
①



$a^1 = 2.0$
 $a^2 = 4.0$
 $B^1 = 3.0$
 $B^2 = 3.0$
 $F = 1.025"$

$a^1, a^2 < 10^\circ$
 $B^1, B^2 < 5^\circ$

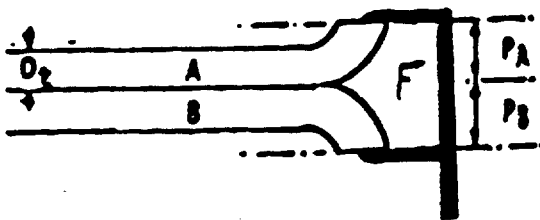
②



$\mu = 0.0179$
 $V = 0.0179$
 $W = 0.361$

$\mu \leq 0.1250" (\mu = F \tan \theta)$
 $V \leq 0.03125" (V = F \tan \theta)$
 $W \geq 0"$

③

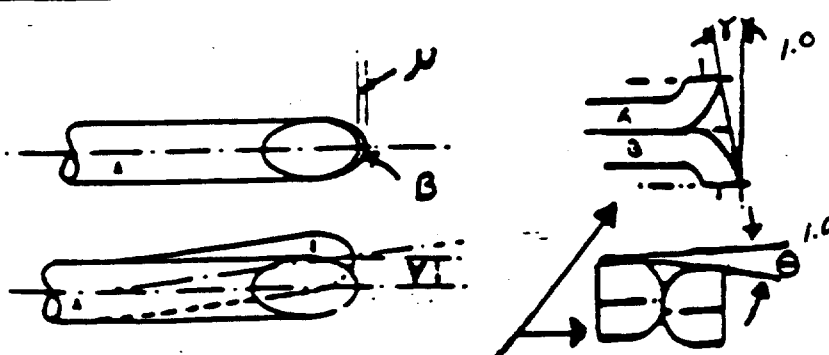


$1.05 D_1 \leq 1.50 D_2$
 $P_A = P_B$
 $2.10 D_1 \leq 3.00 D_2$

$Y = 6.184$
 $Z = 3.168$
 $D_1 = 0.375$

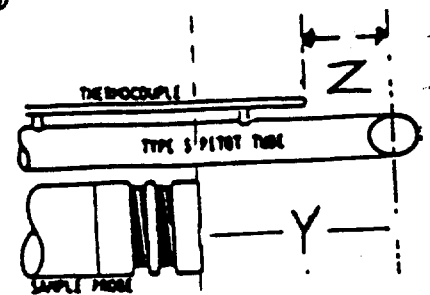
$Y \geq 3.0"$
 $Z > 2.0"$
 $D_1 > .1875" \text{ to } .375"$
 (3/16" to 3/8")

④

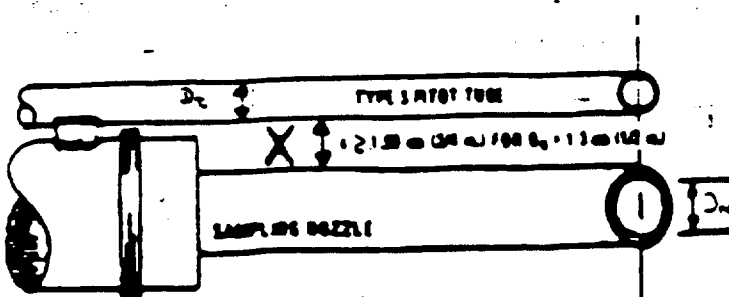


(θ, θ EXPRESSED IN DEGREES)

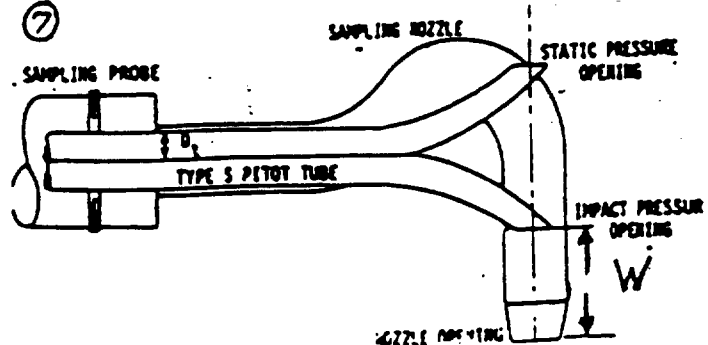
⑥



⑤



⑦

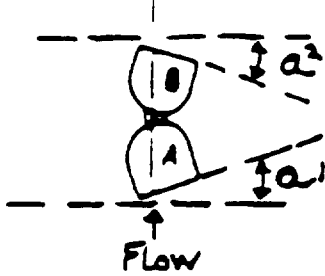


GEOMETRIC PITOT CALIBRATION

Caliper # VER-59
 Precheck ✓
 Post Check ✓

Probe #: J-3
 Date: 7-27-72
 Initials: FM

①

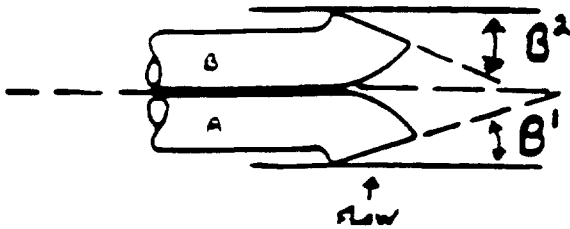


$a^1 = 1.0^\circ$
 $a^2 = 1.5^\circ$
 $B^1 = 0^\circ$
 $B^2 = 1.5^\circ$

$a^1, a^2 = < 10^\circ$
 $B^1, B^2 = < 5^\circ$

$F = 0.869"$

②



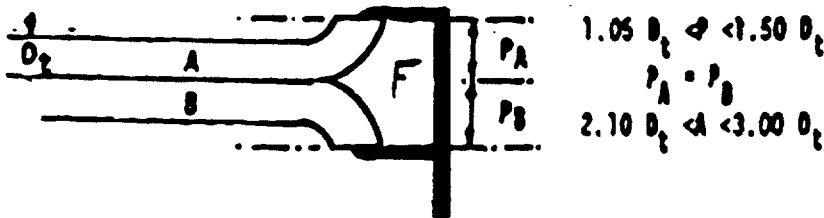
$\mu = 0$
 $V = 0$
 $W = 0.495$

$\mu = \leq 0.1250" (\mu = F \tan \gamma)$
 $V = \leq 0.03125" (V = F \tan \theta)$
 $W \geq 0"$

$X = 0.775$

$X \geq 0.750"$
 (3/4" using 1/2" nozzle)

③



$Y = 5.678$

$Y \geq 3.0"$

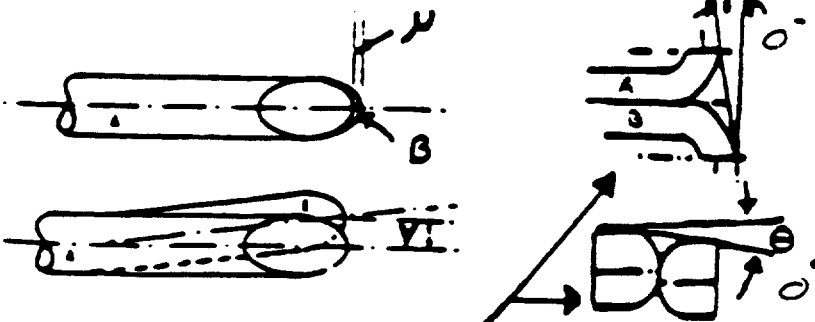
$Z = 2.120$

$Z > 2.0"$

$D_t = 0.375$

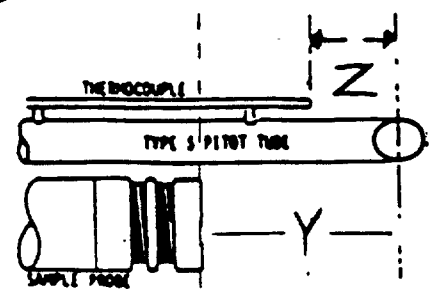
$D_t > .1875" \text{ to } .375"$
 (3/16" to 3/8")

④

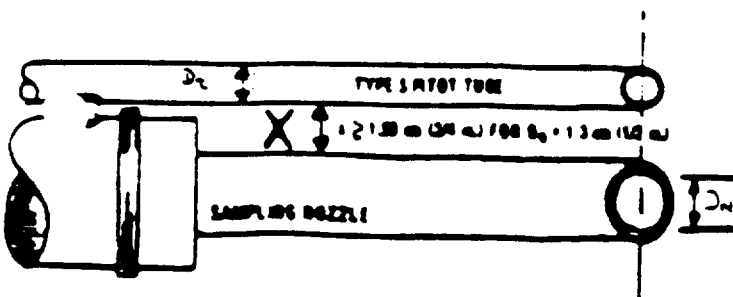


(γ, θ EXPRESSED IN DEGREES)

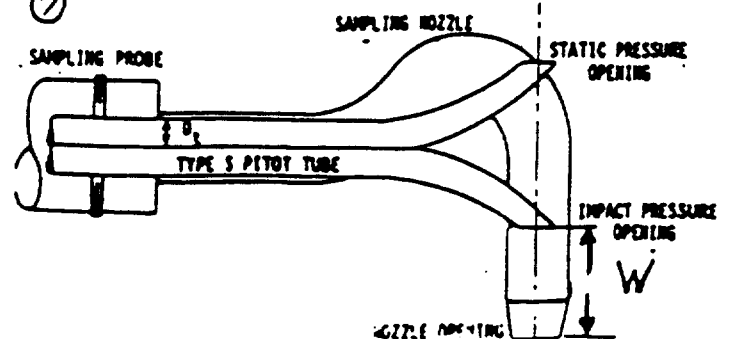
⑤



⑥



⑦

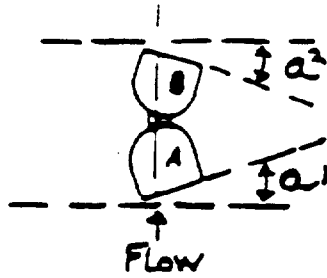


GEOMETRIC PITOT CALIBRATION

Caliper # XFS-68
 Precheck _____
 Post Check ✓

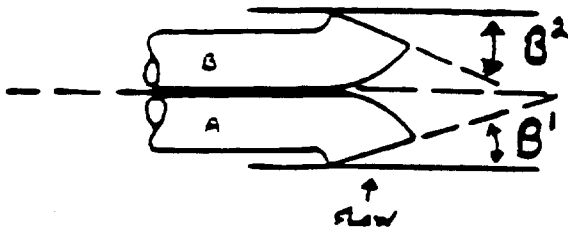
Probe #: 5-3
 Date: 12-11-73
 Initials: gm

①



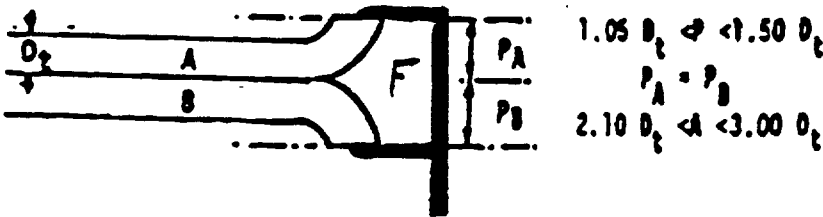
$a^1 = 0$
 $a^2 = 3.0$ $\angle$ $a^1, a^2 = < 10^\circ$
 $B^1 = 1.0$
 $B^2 = 1.0$ $\angle$ $B^1, B^2 = < 5^\circ$
 $F = 0.875"$

②



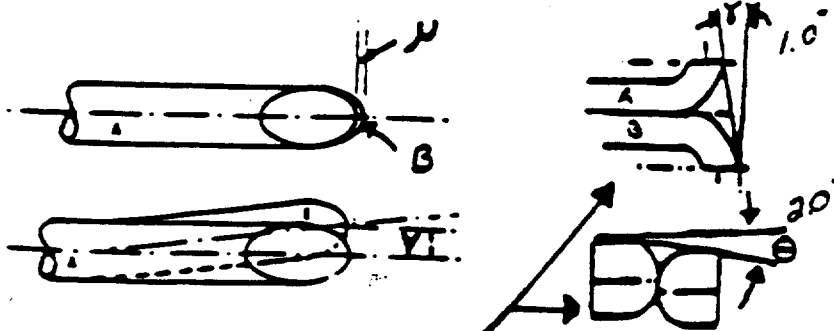
$\mu = 0.0152$ $\mu \leq 0.1250" (\mu = F \tan \delta)$
 $V = 0.0305$ $V \leq 0.03125" (V = F \tan \theta)$
 $W = 0.405$ $W \geq 0"$

③



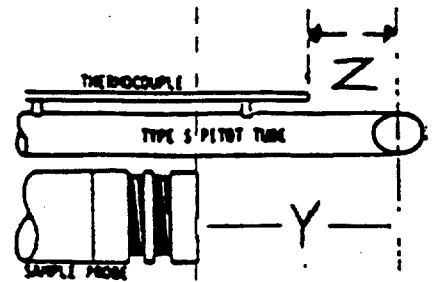
$Y = 5.656$ $Y \geq 3.0"$
 $Z = 2.051$ $Z > 2.0"$
 $D_1 = 0.376$ $D_1 > .1875" \text{ to } .375" (3/16" \text{ to } 3/8")$

④

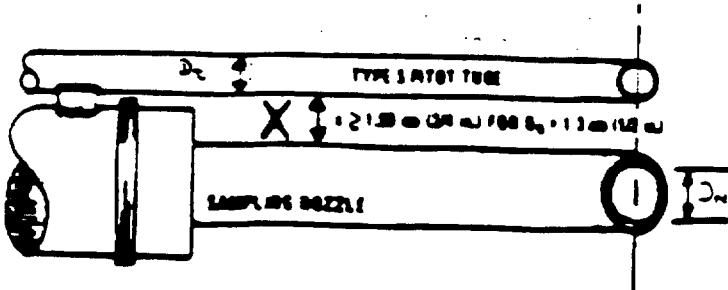


(δ, θ EXPRESSED IN DEGREES)

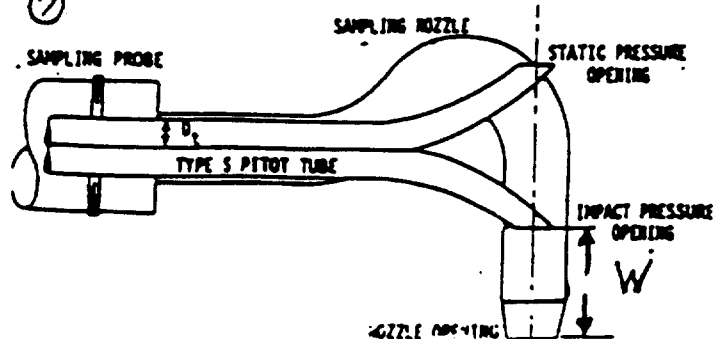
⑤



⑥



⑦

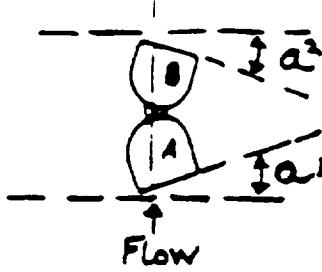


GEOMETRIC PITOT CALIBRATION

Caliper # REF. 59
 Precheck ✓
 Post Check X

Probe #: 5-4
 Date: 7-27-92
 Initials: 74/1

①



$$a^1 = 1.0^\circ$$

$$a^2 = 2.5^\circ$$

$$B^1 = 1.5^\circ$$

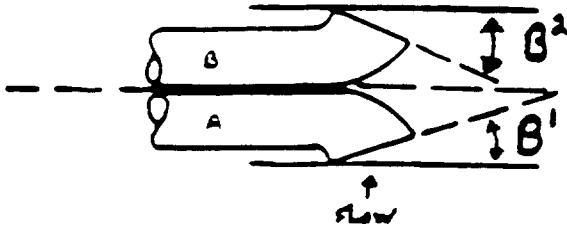
$$B^2 = 0.5^\circ$$

$$a^1, a^2 = < 10^\circ$$

$$B^1, B^2 = < 5^\circ$$

$$F = 0.854''$$

②



$$\mu = 0.0149$$

$$V = 0.0074$$

$$W = 0.741$$

$$\mu \leq 0.1250'' (\mu = F \tan \gamma)$$

$$V \leq 0.03125'' (V = F \tan \theta)$$

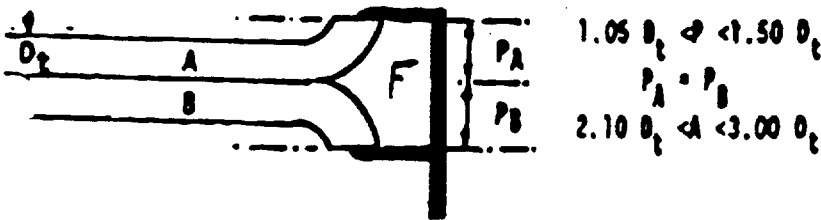
$$W \geq 0''$$

$$X = 0.762$$

$$X \geq 0.750''$$

$$(3/4'' \text{ using } 1/2'' \text{ nozzle})$$

③



$$Y = 5.826$$

$$Z = 2.831$$

$$D_t = 0.376$$

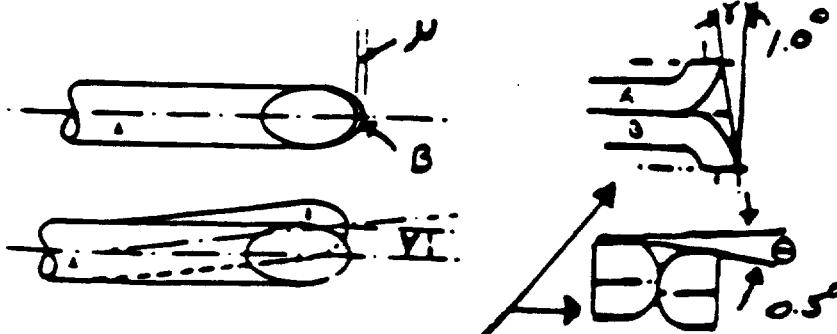
$$Y \geq 3.0''$$

$$Z > 2.0''$$

$$D_t > .1875'' \text{ to } .375''$$

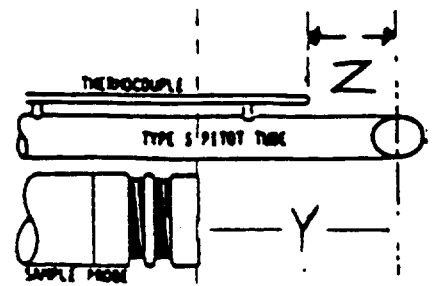
$$(3/16'' \text{ to } 3/8'')$$

④

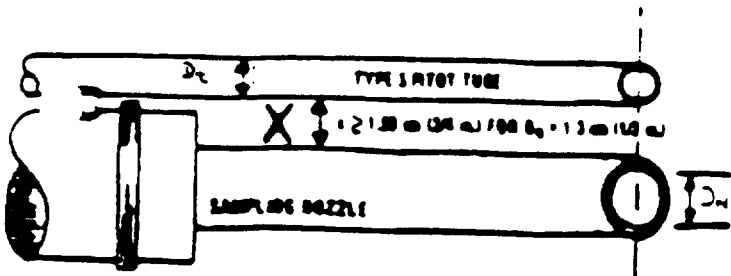


(γ, θ EXPRESSED IN DEGREES)

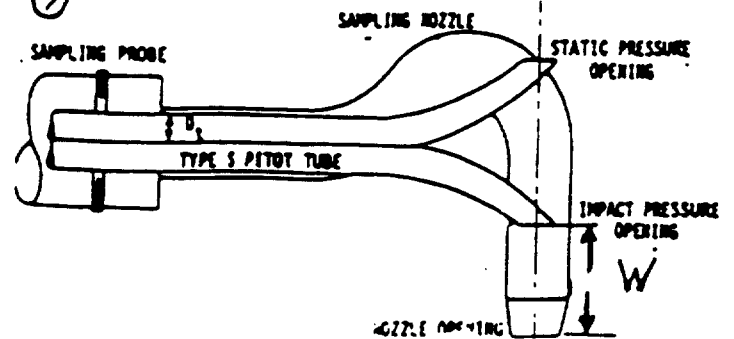
⑤



⑥



⑦

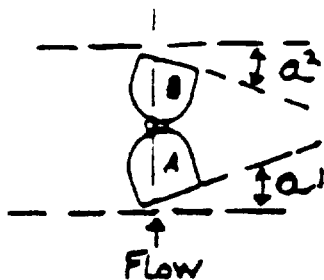


GEOMETRIC PITOT CALIBRATION

Caliper # XPS-68
 Precheck _____
 Post Check UK

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

①



$$a^1 = 1.0$$

$$a^2 = 3.0$$

$$B^1 = 2.0$$

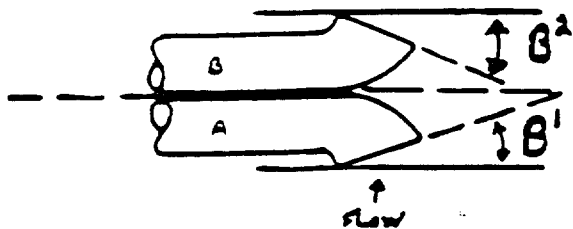
$$B^2 = 1.0$$

$$F = 0.869$$

$$a^1, a^2 = < 10^\circ$$

$$B^1, B^2 = < 5^\circ$$

②



$$\mu = 0.0131$$

$$V = 0.0151$$

$$W = 0.464$$

$$X = 0.791$$

$$Y = 5.671$$

$$Z = 2.104$$

$$D_t = 0.371$$

$$\mu \leq 0.1250^\circ (\mu = F \tan \gamma)$$

$$V \leq 0.03125^\circ (V = F \tan \epsilon)$$

$$W \geq 0^\circ$$

$$X \geq 0.750^\circ$$

 (3/4" using 1/2" nozzle)

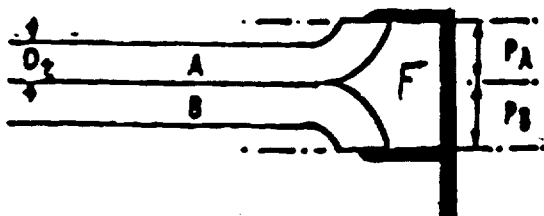
$$Y \geq 3.0^\circ$$

$$Z > 2.0^\circ$$

$$D_t > .1875 \text{ to } .375^\circ$$

 (3/16" to 3/8")

③

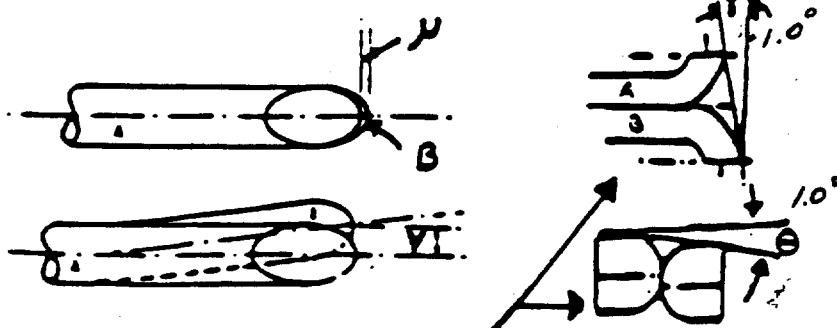


$$1.05 D_t < \theta < 1.50 D_t$$

$$P_A = P_B$$

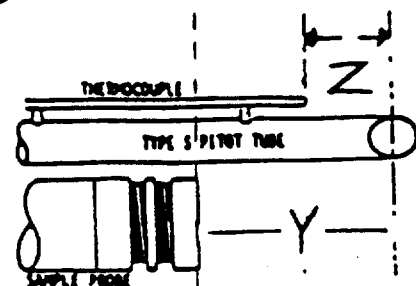
$$2.10 D_t < \theta < 3.00 D_t$$

④

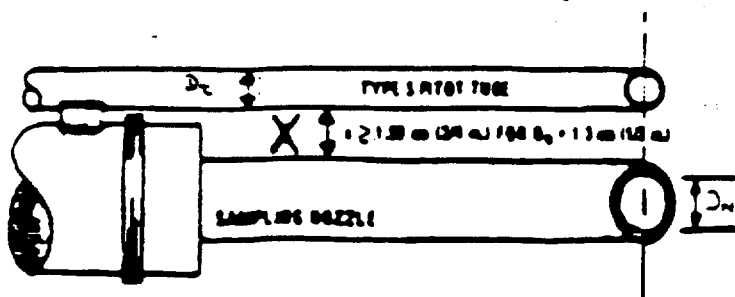


(γ, θ EXPRESSED IN DEGREES)

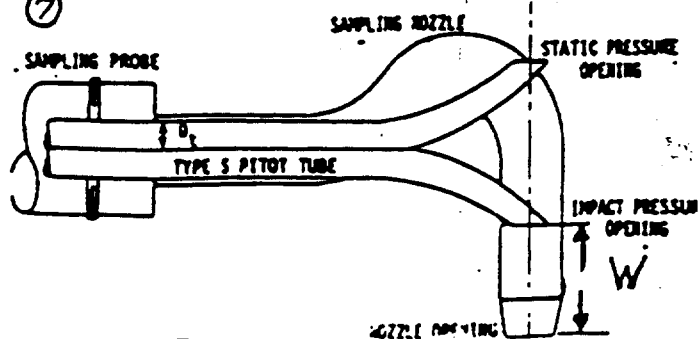
⑤



⑥



⑦

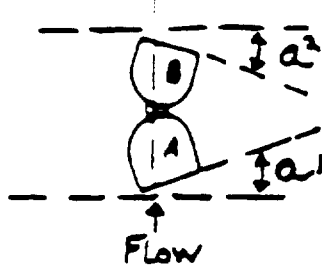


GEOMETRIC PITOT CALIBRATION

Caliper # XEF-59
 Precheck _____
 Post Check IX

Probe #: 5-5
 Date: 8-24-72
 Initials: RM

①



$$a^1 = 1.0^\circ$$

$$a^2 = 1.0^\circ$$

$$B^1 = 1.5^\circ$$

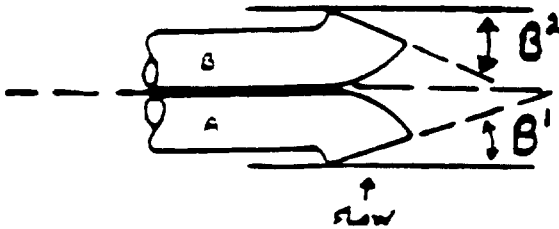
$$B^2 = 0$$

$$a^1, a^2 = < 10^\circ$$

$$B^1, B^2 = < 5^\circ$$

$$F = 0.894''$$

②



$$\mu = 0.0234$$

$$V = 0.0156$$

$$W = 0.210$$

$$\mu \leq 0.1250'' (\mu = F \tan \theta)$$

$$V \leq 0.03125'' (V = F \tan \theta)$$

$$W \geq 0''$$

$$X = 0.782$$

$$X \geq 0.750''$$

(3/4" using 1/2" nozzle)

$$Y = 5.715$$

$$Y \geq 3.0''$$

$$Z = 2.144$$

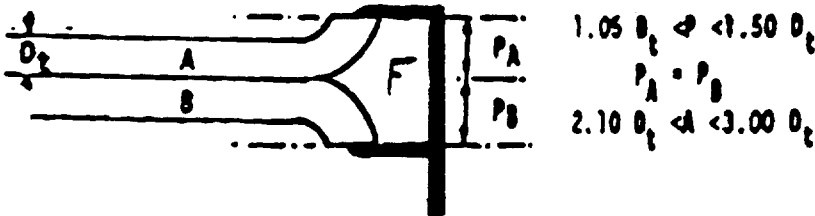
$$Z > 2.0''$$

$$D_t = 0.375$$

$$D_t > .1875'' \text{ to } .375''$$

(3/16" to 3/8")

③

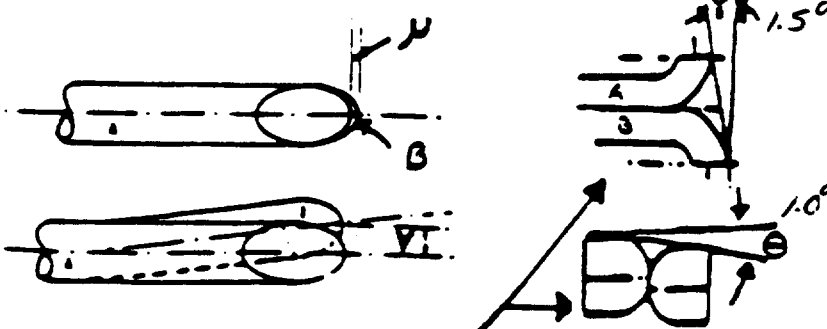


$$1.05 D_t \leq \theta < 1.50 D_t$$

$$P_A = P_B$$

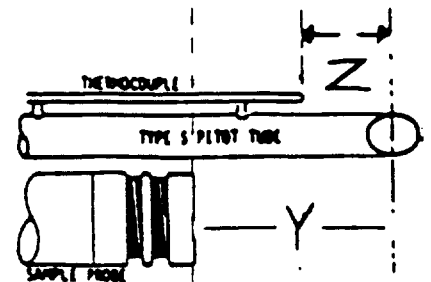
$$2.10 D_t \leq \theta < 3.00 D_t$$

④

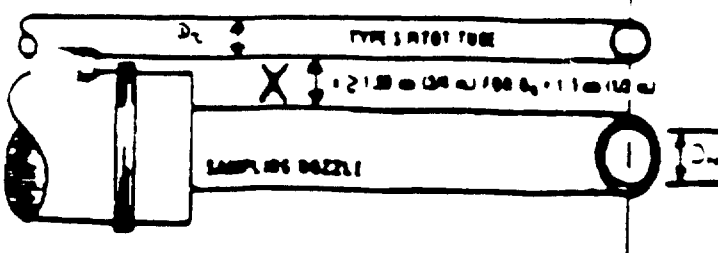


(θ, θ EXPRESSED IN DEGREES)

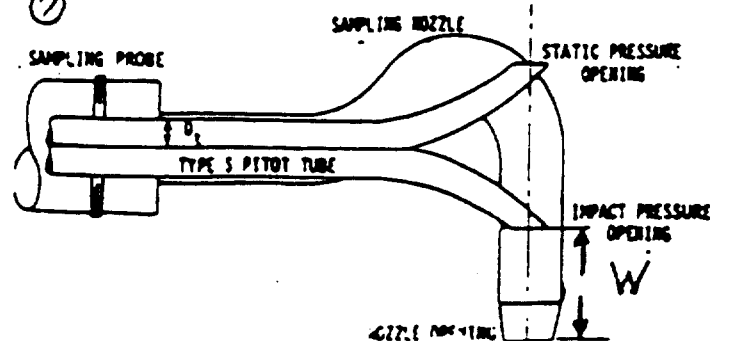
⑥



⑤



⑦



**COMPLIANCE DEMONSTRATION
1, 2, AND 3 BATTERY PUSHING EMISSIONS CONTROL**

**USS CLAIRTON WORKS
CLAIRTON, PA**

APPENDIX D

ANALYTICAL RESULTS, EMISSIONS CALCULATIONS

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

Page / of /

ANALYTICAL REPORTING FORM

CLIENT USX - Clairton Steel TEST DATE 11/3, 11/4 AND 11/5/92
 PLANT LOCATION 1, 2 + 3 REC DATE RECEIVED 11/3, 11/4 AND 11/5/92
 PROJECT NUMBER 300196-01 DATE ANALYZED 11/6/92
 UNIT TESTED REC 1, 2 + 3 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-1-1-1	QTE.137	Particulate		0.0012	0.0018	0.0020	0.0046	0.0032	0.0001
CLR-1-2-1	QTE.134	Particulate		0.0007	0.0014	0.0020	0.0118	0.0033	0.0002
CLR-1-3-1	QTE.136	Particulate		0.0009	0.0033	0.0040	0.0071	0.0037	0.0001
CLR-1-4-1	QTE.135	Particulate		0.0020	0.0027	0.0013	0.0112	0.0024	0.0002
CLR-1-1-2	QTE.138	Particulate		0.0011	0.0021	0.0049	0.0068	0.0030	0.0001
CLR-1-2-2	QTE.139	Particulate		0.0013	0.0013	0.0025	0.0077	0.0019	0.0003
CLR-1-3-2	QTE.140	Particulate		0.0012	0.0014	0.0039	0.0077	0.0084	0.0013
CLR-1-4-2	QTE.141	Particulate		0.0012	0.0017	0.0035	0.0035	0.0017	0.0002
CLR-1-1-3	QTE.143	Particulate		0.0007	0.0009	0.0015	0.0034	0.0010	0.0001
CLR-1-2-3	QTE.144	Particulate		0.0015	0.0002	0.0004	0.0042	0.0008	0.0001
CLR-1-3-3	QTE.145	Particulate		0.0013	0.0007	0.0011	0.0091	0.0016	0.0010
CLR-1-4-3	QTE.142	Particulate		0.0012	0.0003	0.0019	0.0050	0.0003	0.0003
CLR-REC 1, 2 + 3 - Blank		Particulate			0.0000	0.0001			

Analyst's Signature Patricia J. Stockton
 Date 11/11/92

Comments

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
1,2,3 BATTERY PEC STACK 1-1

DATE:11-3-92
CHARGE #: ...150-300196
TEST #:CLR-1-1-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00230	.42876

2. STACK CONDITIONS

FLOW (ACFM)	25807.
(SCFM)	22227.
MOISTURE CONTENT (%)	1.96
STACK TEMPERATURE (F)	142.0

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	34.216
PERCENT ISOKINETIC	104.68

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-1 11-3-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN. H ₂ O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN. HG.	STACK TEMP DEG	CORRECTED VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
35.0E	900.0	512.407	1.500	1.46	1.46	61.	60.	8.0	128.	73.4
33.6			1.550	1.50	1.50	61.	61.	8.0	130.	74.7
31.7			1.550	1.50	1.50	62.	61.	8.0	132.	74.8
29.6			1.450	1.40	1.40	64.	63.	8.0	134.	72.5
27.0			1.400	1.33	1.33	65.	64.	7.0	135.	71.3
23.2			1.300	1.25	1.25	65.	65.	7.0	139.	68.9
12.8			1.000	.97	.97	65.	65.	5.5	140.	60.5
9.0			1.000	.94	.94	68.	67.	5.5	142.	60.6
6.4			.950	.89	.89	68.	67.	5.5	144.	59.2
4.3			.900	.84	.84	68.	67.	5.0	140.	57.4
2.4			.950	.89	.89	69.	67.	5.5	135.	58.7
1.0E	912.0	520.604	.850	.80	.80	70.	68.	5.0	129.	55.3
1.0E	912.0	520.604	.900	.84	.84	70.	69.	5.0	128.	56.8
2.4			.950	.89	.89	70.	69.	5.5	130.	58.5
4.3			.950	.89	.89	71.	70.	5.5	141.	59.0
6.4			.900	.86	.86	72.	70.	5.0	140.	57.4
9.0			1.000	.96	.96	73.	71.	5.5	144.	60.7
12.8			1.000	.96	.96	74.	73.	5.5	145.	60.8
23.2			1.100	1.06	1.06	74.	73.	6.0	144.	63.7
27.0			1.000	.96	.96	75.	73.	5.5	142.	60.6
29.6			1.000	.96	.96	74.	74.	5.5	141.	60.6
31.7			.900	.84	.84	75.	74.	5.0	137.	57.3
33.6			.900	.84	.84	75.	75.	5.0	140.	57.4
35.0E	924.0	527.756	.750	.72	.72	75.	75.	5.0	141.	52.4
35.0E	924.0	527.756	.800	.77	.77	75.	75.	5.0	145.	54.3
33.6			.800	.77	.77	75.	75.	5.0	144.	54.3
31.7			1.200	1.15	1.15	76.	75.	6.0	146.	66.6
29.6			1.000	.96	.96	76.	75.	5.5	146.	60.8
27.0			1.100	1.06	1.06	76.	75.	5.5	144.	63.7
23.2			1.000	.96	.96	77.	76.	5.5	142.	60.6
12.8			1.000	.96	.96	77.	76.	5.5	141.	60.6
9.0			1.000	.96	.96	78.	77.	5.5	137.	60.4
6.4			1.000	.96	.96	78.	77.	5.5	143.	60.7
4.3			.950	.89	.89	78.	78.	5.0	135.	58.7
2.4			.900	.84	.84	78.	78.	5.0	136.	57.2
1.0E	936.0	534.961	1.000	.96	.96	78.	78.	5.5	133.	60.1
35.0S	936.0	534.961	1.000	.96	.96	79.	78.	5.5	143.	60.7
33.6			1.000	.96	.96	80.	79.	5.5	145.	60.8
31.7			1.100	1.06	1.06	80.	79.	6.0	146.	63.8
29.6			1.100	1.06	1.06	80.	79.	6.0	144.	63.7
27.0			1.100	1.06	1.06	80.	80.	6.0	147.	63.8
23.2			1.100	1.06	1.06	81.	80.	6.0	146.	63.8
12.8			.900	.84	.84	82.	81.	5.0	149.	57.8
9.0			.800	.77	.77	82.	81.	5.0	147.	54.4

6.4			.900	.86	.86	82.	81.	5.0	149.	57.8
4.3			1.000	.96	.96	82.	82.	5.5	143.	60.7
2.4			.800	.77	.77	83.	82.	5.0	142.	54.2
1.0S	948.0	541.927	.500	.48	.48	84.	82.	4.0	142.	42.9

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-1 11-3-92

POINT	TIME	METER READING (DRY) CF	DELTA P IN. H2O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN. HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
1.0S	948.0	541.927	.750	.72	.72	84.	84.	5.0	138.	52.3
2.4			.800	.77	.77	84.	84.	5.0	142.	54.2
4.3			1.000	.96	.96	84.	84.	5.5	134.	60.2
6.4			.900	.86	.86	85.	84.	5.0	146.	57.7
9.0			.900	.86	.86	85.	84.	5.0	149.	57.8
12.8			.900	.86	.86	85.	83.	5.0	154.	58.1
23.2			1.100	1.06	1.06	85.	84.	6.0	153.	64.1
27.0			1.200	1.15	1.15	85.	84.	6.0	152.	66.9
29.6			1.300	1.25	1.25	85.	84.	6.5	154.	69.8
31.7			1.200	1.15	1.15	85.	84.	6.0	151.	66.9
33.6			1.100	1.06	1.06	85.	84.	6.0	155.	64.2
35.0S	1000.0	548.748	1.100	1.06	1.06	85.	84.	6.0	153.	64.1

O R S A T			
CO2	.0	IMPINGER NO.	1 7.1
O2	20.5		2 1.1
CO	.0		3 .2
N	79.5		4 .0
		ABSORBED H2O	6.1

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.756	6-3-92
METER	0.9721	6-3-92
PITOT	0.84	5-1-92

LEAK CHECK

		RATE	IN. HG
INITIAL	LT	0.02CFM	5.0
FINAL	LT	0.02CFM	8.0

CONTROL BOX NO. 4

PROBE NO. 5-1

NOZZLE NO. 22

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-1 11-3-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.32
B.	AVG. DELTA H (IN H2O).....	.97
C.	METER PRESSURE (IN. HG.).....	29.39
D.	STATIC PRESSURE (IN. H2O).....	.80
E.	STATIC PRESSURE (IN. HG.).....	.059
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.38
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.).....	602.0
K.	AVG. METER TEMP (DEG. R.).....	535.9
L.	CONDENSATE VOL. (ML).....	8.4
M.	ABSORBED H2O (ML).....	6.1
N.	TOTAL H2O (ML).....	14.5
O.	METERED GAS (CF).....	36.341
P.	GAS METER CORRECTION.....	.9721
Q.	CORRECTED METERED GAS (CF).....	35.327
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)).....	.706
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	36.033
T.	PERCENT H2O (100R/S).....	1.96
	THEORETICAL MAXIMUM.....	21.09
	PERCENT WATER USED.....	1.96
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	34.216
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	.9804	X	44.0	=	.00
CO	.000	X	.9804	X	28.0	=	.00
O2	.205	X	.9804	X	32.0	=	6.43
N2	.795	X	.9804	X	28.2	=	21.98
H2O		X	T/100= .0196	X	18.0	=	.35
MOLECULAR WEIGHT OF STACK GAS							= 28.76

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	60.85
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	25807.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	22227.
	STACK FLOW RATE (DRY).....	21792.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	104.68
	(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 1,2,3 BATTERY PEC
CLR-1-1-1 11-3-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00120	.00000	.00380

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00010	.00780

PARTICULATE	.01290
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ALL MATLS.	.01290
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00230	.42876

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
1,2,3 BATTERY PEC STACK 1-2

DATE:11-3-92
CHARGE #: ...150-300196
TEST #:CLR-1-2-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00197	.38400

2. STACK CONDITIONS

FLOW (ACFM)	26687.
(SCFM)	23197.
MOISTURE CONTENT (%)	1.82
STACK TEMPERATURE (F)	136.5

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	33.665
PERCENT ISOKINETIC	98.54

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-1 11-3-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN. H2O	ORIFICE DELTA H REQ ACT	METER TEMP DEG F IN OUT	VACUUM IN. HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
35.0E	900.0	897.511	1.800	1.60 1.60	69. 61.	8.0	124.	80.1
33.6			1.700	1.51 1.51	72. 64.	8.0	124.	77.8
31.7			1.800	1.60 1.60	74. 63.	8.0	126.	80.2
29.6			1.600	1.43 1.43	75. 65.	7.0	128.	75.7
27.0			1.500	1.34 1.34	76. 66.	7.0	130.	73.5
23.2			1.300	1.15 1.15	77. 67.	6.0	130.	68.4
12.8			1.100	.97 .97	77. 67.	5.0	134.	63.1
9.0			1.100	.97 .97	78. 70.	5.0	134.	63.1
6.4			1.100	.97 .97	79. 69.	5.0	135.	63.2
4.3			1.100	.97 .97	79. 71.	5.0	131.	63.0
2.4			.900	.80 .80	80. 71.	4.0	130.	56.9
1.0E	912.0	905.035	.700	.62 .62	82. 73.	3.5	130.	50.2
1.0E	912.0	905.035	.700	.62 .62	81. 72.	3.5	130.	50.2
2.4			1.000	.90 .90	82. 74.	4.5	130.	60.0
4.3			1.100	.99 .99	83. 74.	5.0	131.	63.0
6.4			1.100	.99 .99	84. 74.	5.0	135.	63.2
9.0			1.100	.99 .99	84. 76.	5.0	136.	63.2
12.8			1.100	.99 .99	85. 76.	5.0	137.	63.3
23.2			1.200	1.08 1.08	85. 77.	5.0	134.	65.9
27.0			1.200	1.08 1.08	86. 76.	5.0	135.	66.0
29.6			1.200	1.08 1.08	86. 78.	5.0	136.	66.0
31.7			.800	.72 .72	85. 77.	4.0	137.	54.0
33.6			.800	.72 .72	85. 79.	4.0	137.	54.0
35.0E	924.0	911.927	1.000	.90 .90	88. 78.	4.5	136.	60.3
35.0E	924.0	911.927	1.000	.90 .90	87. 79.	4.5	136.	60.3
33.6			.900	.81 .81	87. 79.	4.0	136.	57.2
31.7			.900	.81 .81	87. 80.	4.0	136.	57.2
29.6			1.000	.90 .90	88. 79.	4.5	137.	60.3
27.0			1.100	.99 .99	88. 80.	5.0	137.	63.3
23.2			1.100	.99 .99	88. 79.	5.0	139.	63.4
12.8			1.100	.99 .99	88. 82.	5.0	135.	63.2
9.0			1.200	1.08 1.08	90. 82.	5.0	135.	66.0
6.4			1.200	1.08 1.08	90. 83.	5.0	136.	66.0
4.3			1.200	1.08 1.08	90. 81.	5.0	133.	65.9
2.4			1.000	.90 .90	90. 83.	4.5	131.	60.0
1.0E	936.0	918.958	.800	.72 .72	91. 82.	4.0	130.	53.6
35.0S	936.0	918.958	1.000	.90 .90	90. 83.	4.5	137.	60.3
33.6			1.300	1.17 1.17	92. 83.	6.0	139.	68.9
31.7			1.300	1.17 1.17	92. 84.	6.0	140.	69.0
29.6			1.300	1.17 1.17	92. 83.	6.0	141.	69.0
27.0			1.400	1.26 1.26	92. 85.	6.0	140.	71.6
23.2			1.300	1.17 1.17	93. 85.	6.0	141.	69.0
12.8			.900	.81 .81	93. 88.	4.0	141.	57.4
9.0			.900	.81 .81	94. 88.	4.0	142.	57.5

6.4			.900	.82	.82	93.	87.	4.0	144.	57.6
4.3			.900	.82	.82	93.	85.	4.0	137.	57.2
2.4			.900	.82	.82	93.	86.	4.0	135.	57.1
1.0S	948.0	926.020	.800	.73	.73	94.	86.	4.0	134.	53.8

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-1 11-3-92

POINT	TIME	METER	DELTA P IN.H2O	ORIFICE		METER		VACUUM IN.HG.	STACK	CORRECTE
		READING (DRY)CF		DELTA H REQ ACT	TEMP DEG F IN OUT	TEMP DEG	VELOCITY FFT/SEC			
1.0S	948.0	926.020	.800	.73	.73	94.	86.	4.0	130.	53.6
2.4			.900	.82	.82	94.	88.	4.0	133.	57.0
4.3			1.000	.91	.91	95.	89.	4.5	137.	60.3
6.4			1.000	.91	.91	95.	90.	4.5	145.	60.7
9.0			.900	.82	.82	95.	90.	4.0	148.	57.8
12.8			.900	.82	.82	95.	90.	4.0	147.	57.7
23.2			1.300	1.18	1.18	95.	88.	5.5	147.	69.4
27.0			1.300	1.18	1.18	95.	89.	5.5	146.	69.3
29.6			1.300	1.18	1.18	95.	88.	5.5	148.	69.4
31.7			1.100	1.00	1.00	95.	89.	5.0	147.	63.8
33.6			1.300	1.18	1.18	94.	87.	5.5	151.	69.6
35.0S	1000.0	933.063	.900	.82	.82	94.	90.	4.0	147.	57.7

O R S A T

CO2	.0	IMPINGER NO. 1	6.8
O2	20.5	2	.7
CO	.0	3	.2
N	79.5	4	.0
		ABSORBED H2O	5.5

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.618	5-5-92
METER	0.9915	5-5-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	8.0

CONTROL BOX NO. 3

PROBE NO. 5-4

NOZZLE NO. 11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-1 11-3-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.32
B.	AVG. DELTA H (IN H2O).....	.99
C.	METER PRESSURE (IN. HG.).....	29.39
D.	STATIC PRESSURE (IN. H2O).....	.80
E.	STATIC PRESSURE (IN. HG.).....	.059
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.38
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.).....	596.5
K.	AVG. METER TEMP (DEG. R.).....	543.5
L.	CONDENSATE VOL. (ML).....	7.7
M.	ABSORBED H2O (ML).....	5.5
N.	TOTAL H2O (ML).....	13.2
O.	METERED GAS (CF).....	35.552
P.	GAS METER CORRECTION.....	.9915
Q.	CORRECTED METERED GAS (CF).....	35.250
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)).....	.652
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	35.901
T.	PERCENT H2O (100R/S).....	1.82
	THEORETICAL MAXIMUM.....	18.07
	PERCENT WATER USED.....	1.82
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	33.665
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	.9818	X	44.0	=	.00
CO	.000	X	.9818	X	28.0	=	.00
O2	.205	X	.9818	X	32.0	=	6.44
N2	.795	X	.9818	X	28.2	=	22.01
H2O		X	T/100= .0182	X	18.0	=	.33
MOLECULAR WEIGHT OF STACK GAS							= 28.78

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	62.92
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	26687.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	23197.
	STACK FLOW RATE (DRY).....	22776.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	98.54
	(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 1,2,3 BATTERY PEC
CLR-1-2-1 11-3-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00070	.00000	.00340

PARAMETER	INSOL.MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00020	.01510

PARTICULATE	.01940
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ALL MATLS.	.01940
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00197	.38400

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
1,2,3 BATTERY PEC STACK 1-3

DATE:11-3-92
CHARGE #: ...150-300196
TEST #:CLR-1-3-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00494	.88610

2. STACK CONDITIONS

FLOW (ACFM)	24216.
(SCFM)	21357.
MOISTURE CONTENT (%)	1.92
STACK TEMPERATURE (F)	128.2

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	26.211
PERCENT ISOKINETIC	108.27

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-3-1 11-3-92

POINT	TIME	METER	DELTA P IN.H2O	ORIFICE		METER		VACUUM IN.HG.	STACK		CORRECTE VELOCITY FFT/SEC
		READING (DRY) CF		DELTA H REQ ACT	TEMP DEG F IN OUT	TEMP DEG	TEMP FFT/SEC				
35.0E	900.0	659.354	2.000	1.15	1.15	63.	64.	5.0	118.	84.0	
33.6			1.300	.74	.74	63.	65.	5.0	120.	67.8	
31.7			1.400	.80	.80	64.	66.	5.0	120.	70.4	
29.6			1.300	.74	.74	64.	68.	4.5	120.	67.8	
27.0			1.500	.86	.86	65.	69.	5.0	122.	73.0	
23.2			1.300	.74	.74	66.	71.	4.5	123.	68.0	
12.8			.700	.40	.40	67.	71.	3.0	124.	49.9	
9.0			.700	.40	.40	68.	73.	3.0	123.	49.9	
6.4			.700	.40	.40	69.	73.	3.0	125.	50.0	
4.3			.600	.34	.34	70.	74.	2.5	124.	46.2	
2.4			.900	.52	.52	71.	75.	3.0	125.	56.7	
1.0E	912.0	665.015	.900	.52	.52	72.	75.	3.0	125.	56.7	
1.0E	912.0	665.015	.700	.41	.41	73.	77.	3.0	126.	50.0	
2.4			.700	.41	.41	73.	78.	3.0	124.	49.9	
4.3			.700	.41	.41	74.	78.	3.0	125.	50.0	
6.4			.900	.52	.52	74.	79.	3.5	125.	56.7	
9.0			.900	.52	.52	75.	79.	3.0	125.	56.7	
12.8			.800	.47	.47	76.	80.	3.0	125.	53.4	
23.2			.900	.52	.52	76.	80.	3.5	125.	56.7	
27.0			1.000	.58	.58	76.	81.	4.0	124.	59.7	
29.6			1.000	.58	.58	77.	81.	4.0	126.	59.8	
31.7			1.100	.65	.65	77.	81.	4.0	125.	62.6	
33.6			1.100	.65	.65	77.	81.	4.0	125.	62.6	
35.0E	924.0	670.517	1.000	.59	.59	78.	81.	4.0	127.	59.8	
35.0E	924.0	670.517	1.000	.59	.59	78.	82.	4.0	126.	59.8	
33.6			1.000	.59	.59	78.	82.	4.0	127.	59.8	
31.7			1.000	.59	.59	78.	82.	4.0	127.	59.8	
29.6			.800	.47	.47	78.	82.	3.5	127.	59.8	
27.0			.900	.53	.53	79.	82.	3.0	127.	53.5	
23.2			.900	.53	.53	78.	83.	3.5	128.	56.8	
12.8			.800	.47	.47	79.	82.	3.5	127.	56.8	
9.0			.700	.41	.41	79.	82.	3.0	125.	53.4	
6.4			.700	.41	.41	79.	83.	3.0	122.	49.8	
4.3			.700	.41	.41	80.	83.	3.0	123.	49.9	
2.4			.700	.41	.41	80.	83.	3.0	125.	50.0	
1.0E	936.0	675.730	.600	.35	.35	80.	84.	2.5	127.	50.1	
35.0S	936.0	675.730	1.200	.71	.71	80.	85.	4.5	126.	65.5	
33.6			1.100	.65	.65	81.	86.	4.0	127.	62.7	
31.7			1.100	.65	.65	81.	85.	4.0	128.	62.8	
29.6			1.000	.59	.59	81.	85.	4.0	130.	60.0	
27.0			1.000	.59	.59	81.	86.	3.5	130.	60.0	
23.2			.900	.53	.53	82.	86.	3.5	130.	56.9	
12.8			.700	.41	.41	82.	85.	3.0	130.	50.2	
9.0			.700	.41	.41	82.	86.	3.0	133.	50.3	

6.4											
4.3		.700	.41	.41	83.	86.					
2.4		.700	.41	.41	82.	87.	3.0	133.		50.3	
1.0S	948.0	680.654	.600	.35	.35	83.	87.	3.0	134.		50.4
		.600	.35	.35	83.	87.	2.5	135.		46.7	
							2.5	134.		46.6	

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-3-1 11-3-92

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN.HG.	STACK TEMP DEG F	CORRECTE VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
1.0S	948.0	680.654	.600	.35	.35	84.	87.	2.5	135.	46.7
2.4			.900	.53	.53	83.	88.	3.5	136.	57.2
4.3			.800	.47	.47	84.	88.	3.0	135.	53.9
6.4			.900	.53	.53	84.	88.	3.5	136.	57.2
9.0			.800	.47	.47	84.	88.	3.0	135.	53.9
12.8			.900	.53	.53	84.	88.	3.0	135.	57.1
23.2			.900	.53	.53	85.	88.	3.5	136.	57.2
27.0			1.000	.58	.58	84.	89.	3.5	138.	60.4
29.6			1.100	.64	.64	85.	88.	4.0	137.	63.3
31.7			1.100	.64	.64	84.	89.	4.0	138.	63.3
33.6			1.200	.70	.70	84.	88.	4.5	138.	66.1
35.0S	1000.0	685.840	1.100	.64	.64	85.	89.	4.0	138.	63.3

O R S A T
CO2 .0
O2 20.5
CO .0
N 79.5

IMPINGER NO. 1 5.4
2 1.1
3 .3
4 .0
ABSORBED H2O 4.1

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.768	10-16-92
METER	1.0295	10-16-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	5.5

CONTROL BOX NO. 1

PROBE NO. 5-3

NOZZLE NO. 16

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-3-1 11-3-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.32
B.	AVG. DELTA H (IN H2O).....	.54
C.	METER PRESSURE (IN. HG.).....	29.36
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.39
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.).....	588.2
K.	AVG. METER TEMP (DEG. R.).....	539.4
L.	CONDENSATE VOL. (ML).....	6.8
M.	ABSORBED H2O (ML).....	4.1
N.	TOTAL H2O (ML).....	10.9
O.	METERED GAS (CF).....	26.486
P.	GAS METER CORRECTION.....	1.0295
Q.	CORRECTED METERED GAS (CF).....	27.267
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.535
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	27.802
T.	PERCENT H2O (100R/S).....	1.92
	THEORETICAL MAXIMUM.....	14.61
	PERCENT WATER USED.....	1.92
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	26.211
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	.9808	X	44.0	=	.00
CO	.000	X	.9808	X	28.0	=	.00
O2	.205	X	.9808	X	32.0	=	6.43
N2	.795	X	.9808	X	28.2	=	21.99
H2O		X	T/100= .0192	X	18.0	=	.35
MOLECULAR WEIGHT OF STACK GAS							= 28.77

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	57.10
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	24216.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	21357.
	STACK FLOW RATE (DRY).....	20946.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	108.27
	(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 1,2,3 BATTERY PEC
CLR-1-3-1 11-3-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00090	.00000	.00730

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00020	.01080

PARTICULATE	.01920
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ALL MATLS.	.01920
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00494	.88610

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

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-1 11-3-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN. H2O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN. HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
35.0E	900.0	895.396	1.700	.85	.85	73.	66.	4.0	116.	77.2
33.6			1.700	.85	.85	70.	67.	4.0	118.	77.4
31.7			1.600	.80	.80	72.	67.	4.0	117.	75.0
29.6			1.400	.70	.70	74.	67.	3.5	116.	70.1
27.0			1.500	.75	.75	75.	68.	3.5	119.	72.7
23.2			1.000	.50	.50	76.	70.	1.0	122.	59.6
12.8			1.000	.50	.50	76.	70.	1.5	126.	59.8
9.0			1.000	.51	.51	76.	70.	2.5	124.	59.7
6.4			1.000	.51	.51	77.	71.	2.5	131.	60.0
4.3			1.000	.51	.51	77.	72.	2.5	130.	60.0
2.4			.900	.46	.46	82.	74.	2.0	124.	56.6
1.0E	912.0	901.257	.700	.36	.36	84.	74.	1.0	117.	49.6
1.0E	912.0	901.257	.700	.36	.36	82.	75.	1.5	119.	49.7
2.4			.900	.46	.46	82.	76.	2.0	128.	56.8
4.3			1.000	.51	.51	82.	77.	2.5	135.	60.2
6.4			1.000	.51	.51	82.	76.	2.5	134.	60.2
9.0			1.000	.51	.51	82.	77.	2.5	129.	59.9
12.8			1.000	.51	.51	82.	78.	2.5	134.	60.2
23.2			.900	.36	.36	84.	78.	2.0	132.	57.0
27.0			.800	.41	.41	88.	78.	2.0	132.	53.7
29.6			.800	.41	.41	86.	80.	2.0	129.	53.6
31.7			.800	.41	.41	86.	80.	2.0	128.	53.5
33.6			.800	.41	.41	84.	80.	2.0	130.	53.6
35.0E	924.0	906.357	.800	.41	.41	83.	78.	2.0	135.	53.9
35.0E	924.0	906.357	1.100	.57	.57	88.	80.	2.5	132.	63.0
33.6			.900	.46	.46	86.	79.	2.0	132.	57.0
31.7			.900	.46	.46	85.	80.	2.0	133.	57.0
29.6			.700	.36	.36	87.	81.	2.0	133.	50.3
27.0			.800	.41	.41	87.	81.	2.0	134.	53.8
23.2			.900	.46	.46	86.	81.	2.2	138.	57.3
12.8			1.000	.51	.51	86.	82.	2.5	136.	60.3
9.0			1.000	.51	.51	87.	82.	2.5	132.	60.1
6.4			1.000	.51	.51	88.	83.	2.5	134.	60.2
4.3			1.000	.51	.51	88.	82.	2.5	134.	60.2
2.4			.900	.46	.46	90.	82.	2.0	132.	57.0
1.0E	936.0	911.676	.800	.41	.41	90.	83.	2.0	129.	53.6
35.0S	936.0	911.676	1.000	.51	.51	90.	83.	2.5	134.	60.2
33.6			1.000	.51	.51	93.	84.	2.5	134.	60.2
31.7			1.200	.62	.62	93.	85.	3.0	134.	65.9
29.6			1.200	.62	.62	91.	86.	3.0	136.	66.0
27.0			1.200	.62	.62	90.	85.	3.0	137.	66.1
23.2			1.000	.51	.51	93.	85.	2.5	136.	60.3
12.8			.800	.41	.41	92.	84.	2.0	137.	53.9
9.0			.800	.41	.41	92.	85.	2.0	140.	54.1

KEYSTONE ENVIRONMENTAL RESOURCES
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA
1,2,3 BATTERY PEC STACK 1-4

DATE:11-3-92
CHARGE #: ...150-300196
TEST #:CLR-1-4-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00372	.68949

2. STACK CONDITIONS

FLOW (ACFM)	25123.
(SCFM)	22024.
MOISTURE CONTENT (%)	1.77
STACK TEMPERATURE (F)	131.7

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	25.679
PERCENT ISOKINETIC	102.70

6.4			.800	.41	.41	92.	84.	2.0	140.	54.1
4.3			.800	.41	.41	92.	86.	2.0	137.	53.9
2.4			.900	.46	.46	92.	86.	2.0	124.	56.6
1.0S	948.0	917.030	.800	.41	.41	94.	86.	2.0	120.	53.2

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-1 11-3-92

POINT	TIME	METER	DELTA P	ORIFICE		METER		VACUUM	STACK	CORRECTE
		READING (DRY) CF		DELTA H	TEMP	IN OUT	TEMP			
			IN.H2O	REQ	ACT	DEG F		IN.HG.	DEG F	FT/SEC
1.0S	948.0	917.030	.800	.41	.41	94.	86.	2.0	123.	53.3
2.4			.800	.41	.41	96.	97.	2.0	125.	53.4
4.3			.900	.46	.46	96.	88.	2.0	139.	57.3
6.4			.800	.41	.41	97.	87.	2.0	141.	54.1
9.0			.800	.41	.41	96.	87.	2.0	144.	54.3
12.8			.800	.41	.41	97.	87.	2.0	141.	54.1
23.2			.900	.46	.46	96.	87.	2.5	140.	57.4
27.0			1.100	.57	.57	96.	87.	2.5	142.	63.5
29.6			1.200	.62	.62	96.	88.	3.0	143.	66.4
31.7			1.200	.62	.62	97.	88.	3.0	142.	66.3
33.6			1.200	.62	.62	95.	88.	3.0	145.	66.5
35.0S	1000.0	922.550	1.100	.57	.57	97.	88.	3.0	144.	63.6

O R S A T

CO2 .0
O2 20.5
CO .0
N 79.5

IMPINGER NO. 1 59.0
2 -53.4
3 .8
4 .0
ABSORBED H2O 3.4

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.535	9-14-92
METER	1.0515	9-14-92
PITOT	0.84	8-24-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	5.5

CONTROL BOX NO. 7

PROBE NO. 5-5

NOZZLE NO. 18

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-1 11-3-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.32
B.	AVG. DELTA H (IN H2O).....	.50
C.	METER PRESSURE (IN. HG.).....	29.36
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.39
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.).....	591.7
K.	AVG. METER TEMP (DEG. R.).....	543.7
L.	CONDENSATE VOL. (ML).....	6.4
M.	ABSORBED H2O (ML).....	3.4
N.	TOTAL H2O (ML).....	9.8
O.	METERED GAS (CF).....	27.154
P.	GAS METER CORRECTION.....	.9918
Q.	CORRECTED METERED GAS (CF).....	26.931
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.485
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	27.416
T.	PERCENT H2O (100R/S).....	1.77
	THEORETICAL MAXIMUM.....	16.26
	PERCENT WATER USED.....	1.77
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	25.679
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	.9823	X	44.0	=	.00
CO	.000	X	.9823	X	28.0	=	.00
O2	.205	X	.9823	X	32.0	=	6.44
N2	.795	X	.9823	X	28.2	=	22.02
H2O		X	T/100= .0177	X	18.0	=	.32
MOLECULAR WEIGHT OF STACK GAS							= 28.78

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	59.24
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	25123.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	22024.
	STACK FLOW RATE (DRY).....	21635.
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 1,2,3 BATTERY PEC
CLR-1-4-1 11-3-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00200	.00000	.00400

PARAMETER	INSOL.MATL. IN IMP.(G)	SOLUBLE MATL. IN IMP.(G)
PARTICULATE	.00020	.01360

PARTICULATE	.01980
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ALL MATLS.	.01980
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00372	.68949

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
1,2,3 BATTERY PEC STACK 1-1

DATE:11-4-92
CHARGE #: ...150-300196
TEST #:CLR-1-1-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00350	.71624

2. STACK CONDITIONS

FLOW (ACFM)	28656.
(SCFM)	24398.
MOISTURE CONTENT (%)	2.23
STACK TEMPERATURE (F)	144.2

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	36.051
PERCENT ISOKINETIC	100.75

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-2 11-4-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN.HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
35.0S	900.0	549.033	1.100	1.04	1.04	65.	64.	3.5	139.	63.7
33.6			1.400	1.32	1.32	66.	65.	4.0	137.	71.7
31.7			1.400	1.32	1.32	67.	67.	4.0	138.	71.8
29.6			1.400	1.32	1.32	67.	67.	4.0	140.	71.9
27.0			1.300	1.23	1.23	68.	67.	3.5	142.	69.4
23.2			1.300	1.23	1.23	68.	68.	3.5	141.	69.3
12.8			1.000	.94	.94	69.	68.	3.0	143.	60.9
9.0			1.100	1.04	1.04	71.	70.	3.0	143.	63.9
6.4			1.100	1.04	1.04	72.	71.	3.0	141.	63.8
4.3			1.200	1.13	1.13	72.	72.	3.5	139.	66.5
2.4			1.100	1.04	1.04	73.	72.	3.0	139.	63.7
1.0S	912.0	557.011	1.100	1.04	1.04	74.	74.	3.0	140.	63.7
1.0S	912.0	557.011	1.100	1.05	1.05	75.	74.	3.0	138.	63.6
2.4			1.100	1.05	1.05	76.	75.	3.0	140.	63.7
4.3			1.200	1.15	1.15	77.	75.	3.5	143.	66.7
6.4			1.100	1.05	1.05	78.	77.	3.0	146.	64.1
9.0			1.100	1.05	1.05	79.	78.	3.0	146.	64.1
12.8			1.000	.96	.96	79.	79.	3.0	147.	61.1
23.2			1.200	1.15	1.15	79.	79.	3.5	147.	67.0
27.0			1.400	1.34	1.34	80.	80.	4.0	149.	72.4
29.6			1.400	1.34	1.34	81.	80.	4.0	148.	72.4
31.7			1.300	1.25	1.25	82.	81.	4.0	149.	69.8
33.6			1.500	1.44	1.44	83.	82.	4.0	150.	75.0
35.0S	924.0	564.743	1.500	1.44	1.44	85.	83.	4.0	150.	75.0
35.0S	924.0	564.743	1.200	1.15	1.15	85.	84.	3.5	151.	67.2
33.6			1.400	1.34	1.34	86.	85.	4.0	150.	72.5
31.7			1.300	1.25	1.25	87.	86.	3.5	148.	69.7
29.6			1.500	1.45	1.45	87.	87.	4.0	149.	75.0
27.0			1.400	1.34	1.34	89.	88.	4.0	138.	71.8
23.2			1.300	1.25	1.25	89.	89.	3.5	137.	69.1
12.8			1.100	1.05	1.05	90.	89.	3.0	139.	63.7
9.0			1.200	1.15	1.15	90.	89.	3.5	141.	66.6
6.4			1.200	1.15	1.15	90.	90.	3.5	141.	66.6
4.3			1.200	1.15	1.15	89.	89.	3.5	139.	66.5
2.4			1.100	1.05	1.05	90.	89.	3.0	138.	63.6
1.0S	936.0	572.515	1.100	1.05	1.05	90.	89.	3.0	136.	63.5
35.0E	936.0	572.515	1.500	1.44	1.44	89.	88.	4.0	143.	74.6
33.6			1.500	1.44	1.44	89.	89.	4.0	145.	74.7
31.7			1.500	1.44	1.44	90.	89.	4.0	147.	74.9
29.6			1.400	1.33	1.33	90.	89.	4.0	146.	72.3
27.0			1.400	1.33	1.33	90.	90.	4.0	148.	72.4
23.2			1.300	1.25	1.25	90.	90.	3.5	147.	69.7
12.8			1.000	.96	.96	91.	90.	3.0	148.	61.2
9.0			1.000	.96	.96	91.	91.	3.0	147.	61.1

6.4			1.100	1.05	1.05	91.	90.	3.0	149.	64.2
4.3			1.000	.96	.96	90.	90.	3.0	146.	61.1
2.4			1.100	1.05	1.05	91.	90.	3.0	145.	64.0
1.0E	948.0	580.392	1.000	.96	.96	91.	90.	3.0	144.	61.0

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-2 11-4-92

POINT	TIME	METER	DELTA P	ORIFICE		METER		VACUUM	STACK	CORRECTE
		READING (DRY) CF		IN.H2O	REQ	ACT	TEMP DEG F		IN OUT	TEMP DEG
1.0E	948.0	580.392	1.000	.96	.96	92.	91.	3.0	142.	60.9
2.4			1.000	.97	.97	92.	90.	3.0	139.	60.7
4.3			1.000	.97	.97	92.	90.	3.0	146.	61.1
6.4			1.100	1.07	1.07	91.	90.	3.0	148.	64.2
9.0			1.100	1.07	1.07	90.	90.	3.0	148.	64.2
12.8			1.100	1.07	1.07	90.	88.	3.0	147.	64.1
23.2			1.300	1.26	1.26	89.	88.	4.0	148.	69.7
27.0			1.400	1.36	1.36	88.	87.	4.0	146.	72.3
29.6			1.500	1.46	1.46	87.	86.	4.0	149.	75.0
31.7			1.500	1.46	1.46	86.	86.	4.0	148.	74.9
33.6			1.500	1.46	1.46	85.	85.	4.0	148.	74.9
35.0E	1000.0	588.139	1.300	1.26	1.26	85.	84.	4.0	146.	69.6

O R S A T

CO2	.0	IMPINGER NO. 1	9.7
O2	20.5	2	.9
CO	.0	3	.0
N	79.5	4	.0
ABSORBED H2O		6.8	

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.756	6-3-92
METER	0.9721	6-3-92
PITOT	0.84	5-1-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	5.0

CONTROL BOX NO. 4

PROBE NO. 5-1

NOZZLE NO. 22

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-1-2 11-4-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.07
B.	AVG. DELTA H (IN H2O).....	1.18
C.	METER PRESSURE (IN. HG.).....	29.16
D.	STATIC PRESSURE (IN. H2O).....	1.10
E.	STATIC PRESSURE (IN. HG.).....	.081
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.15
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.).....	604.2
K.	AVG. METER TEMP (DEG. R.).....	542.9
L.	CONDENSATE VOL. (ML).....	10.6
M.	ABSORBED H2O (ML).....	6.8
N.	TOTAL H2O (ML).....	17.4
O.	METERED GAS (CF).....	39.106
P.	GAS METER CORRECTION.....	.9721
Q.	CORRECTED METERED GAS (CF).....	38.015
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.865
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	38.880
T.	PERCENT H2O (100R/S).....	2.23
	THEORETICAL MAXIMUM.....	22.37
	PERCENT WATER USED.....	2.23
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	36.051
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	.9777	X	44.0	=	.00
CO	.000	X	.9777	X	28.0	=	.00
O2	.205	X	.9777	X	32.0	=	6.41
N2	.795	X	.9777	X	28.2	=	21.92
H2O		X	T/100= .0223	X	18.0	=	.40
MOLECULAR WEIGHT OF STACK GAS							= 28.73

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	67.57
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	28656.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	24398.
	STACK FLOW RATE (DRY).....	23855.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	100.75
	(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 1,2,3 BATTERY PEC
CLR-1-1-2 11-4-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00110	.00000	.00700

PARAMETER	INSOL.MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00010	.00980

PARTICULATE	.01800
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ALL MATLS.	.01800
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00350	.71624

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
1,2,3 BATTERY PEC STACK 1-2

DATE:11-4-92
CHARGE #: ...150-300196
TEST #:CLR-1-2-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00221	.46854

2. STACK CONDITIONS

FLOW (ACFM)	29354.
(SCFM)	25293.
MOISTURE CONTENT (%)	2.38
STACK TEMPERATURE (F)	136.9

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	37.565
PERCENT ISOKINETIC	101.42

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-2 11-4-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H		METER TEMP DEG F		VACUUM IN.HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
				REQ	ACT	IN	OUT			
35.0S	900.0	933.249	1.400	1.30	1.30	72.	64.	3.0	128.	71.2
33.6			1.500	1.33	1.33	74.	66.	3.0	130.	73.8
31.7			1.500	1.34	1.34	77.	66.	3.0	130.	73.8
29.6			1.800	1.61	1.61	78.	66.	3.5	131.	81.0
27.0			1.500	1.34	1.34	79.	68.	3.0	132.	74.0
23.2			1.300	1.16	1.16	80.	71.	3.0	133.	68.9
12.8			1.100	.98	.98	81.	71.	2.5	134.	63.4
9.0			1.000	.89	.89	81.	72.	2.0	135.	60.5
6.4			1.000	.89	.89	82.	73.	2.0	135.	60.5
4.3			1.300	1.16	1.16	85.	75.	2.8	133.	68.9
2.4			1.000	.89	.89	84.	75.	2.0	131.	60.3
1.0S	912.0	941.178	.900	.80	.80	85.	77.	2.0	130.	57.2
1.0S	912.0	941.178	1.100	.98	.98	86.	75.	2.0	129.	63.2
2.4			1.000	.89	.89	87.	79.	2.0	130.	60.3
4.3			1.200	1.07	1.07	88.	78.	2.5	134.	66.3
6.4			1.400	1.26	1.26	89.	78.	3.0	138.	71.8
9.0			1.100	.99	.99	89.	81.	2.5	137.	63.6
12.8			1.100	.99	.99	90.	81.	2.5	139.	63.7
23.2			1.200	1.08	1.08	91.	83.	2.5	138.	66.5
27.0			1.600	1.44	1.44	92.	84.	3.0	139.	76.8
29.6			1.600	1.44	1.44	94.	85.	3.0	140.	76.9
31.7			1.700	1.53	1.53	93.	86.	3.0	140.	79.3
33.6			1.600	1.44	1.44	94.	87.	3.0	142.	77.0
35.0S	924.0	949.251	1.500	1.35	1.35	95.	85.	3.0	143.	74.6
35.0S	924.0	949.251	1.500	1.35	1.35	95.	87.	3.0	140.	74.5
33.6			1.600	1.44	1.44	96.	86.	3.0	143.	77.1
31.7			1.600	1.44	1.44	97.	90.	3.0	139.	76.8
29.6			1.600	1.44	1.44	97.	90.	3.0	142.	77.0
27.0			1.500	1.37	1.37	97.	92.	3.0	126.	73.6
23.2			1.400	1.27	1.27	98.	91.	3.0	132.	71.5
12.8			1.100	1.00	1.00	98.	92.	2.5	132.	63.3
9.0			1.100	1.00	1.00	98.	91.	2.5	136.	63.5
6.4			1.300	1.18	1.18	99.	92.	2.8	134.	69.0
4.3			1.300	1.18	1.18	98.	91.	2.8	130.	68.7
2.4			.600	.55	.55	97.	92.	1.5	129.	46.7
1.0S	936.0	957.314	1.200	1.09	1.09	97.	90.	2.5	128.	65.9
35.0E	936.0	957.314	1.100	1.00	1.00	99.	92.	2.5	140.	63.8
33.6			1.800	1.64	1.64	100.	91.	3.5	138.	81.4
31.7			1.800	1.64	1.64	99.	92.	3.5	141.	81.6
29.6			1.500	1.37	1.37	100.	91.	3.0	139.	74.4
27.0			1.400	1.27	1.27	99.	94.	3.0	140.	71.9
23.2			1.200	1.09	1.09	99.	94.	2.5	141.	66.7
12.8			1.200	1.09	1.09	99.	93.	2.5	143.	66.8
9.0			1.300	1.18	1.18	99.	92.	2.5	142.	69.4

6.4			1.300	1.18	1.18	99.	93.	2.5	143.	69.5
4.3			1.200	1.09	1.09	99.	91.	2.5	141.	66.7
2.4			1.100	1.00	1.00	99.	93.	2.0	140.	63.8
1.0E	948.0	965.446	1.000	.91	.91	100.	92.	2.0	138.	60.7

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-2 11-4-92

POINT	TIME	METER	DELTA P	ORIFICE	DELTA H	METER	VACUUM	STACK	CORRECTE
		READING (DRY) CF		REQ		TEMP DEG F			
1.0E	948.0	965.446	1.100	1.00	1.00	98. 94.	2.0	139.	63.7
2.4			1.000	.91	.91	99. 94.	2.0	137.	60.6
4.3			1.200	1.09	1.09	98. 93.	2.5	141.	66.7
6.4			1.200	1.09	1.09	95. 91.	2.5	143.	66.8
9.0			1.300	1.18	1.18	93. 90.	3.0	142.	69.4
12.8			1.100	1.00	1.00	92. 88.	2.0	143.	63.9
23.2			1.300	1.18	1.18	91. 88.	2.8	139.	69.3
27.0			1.300	1.18	1.18	91. 86.	2.8	141.	69.4
29.6			1.500	1.37	1.37	89. 86.	3.0	140.	74.5
31.7			1.500	1.37	1.37	91. 84.	3.0	141.	74.5
33.6			1.700	1.53	1.53	88. 85.	3.2	140.	79.3
35.0E	1000.0	973.595	1.600	1.44	1.44	88. 83.	3.0	138.	76.8

O R S A T
CO2 .0
O2 20.5
CO .0
N 79.5

IMPINGER NO. 1 9.6
2 .6
3 .5
4 .0
ABSORBED H2O 8.7

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.618	5-5-92
METER	0.9915	5-5-92
PITOT	0.84	7-27-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	5.0

CONTROL BOX NO. 3

PROBE NO. 5-4

NOZZLE NO. 11

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-2-2 11-4-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.07
B.	AVG. DELTA H (IN H2O).....	1.19
C.	METER PRESSURE (IN. HG.).....	29.16
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
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.).....	596.9
K.	AVG. METER TEMP (DEG. R.).....	548.3
L.	CONDENSATE VOL. (ML).....	10.7
M.	ABSORBED H2O (ML).....	8.7
N.	TOTAL H2O (ML).....	19.4
O.	METERED GAS (CF).....	40.346
P.	GAS METER CORRECTION.....	.9915
Q.	CORRECTED METERED GAS (CF).....	40.003
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.974
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	40.977
T.	PERCENT H2O (100R/S).....	2.38
	THEORETICAL MAXIMUM.....	18.69
	PERCENT WATER USED.....	2.38
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	37.565
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	.9762	X	44.0	=	.00
CO	.000	X	.9762	X	28.0	=	.00
O2	.205	X	.9762	X	32.0	=	6.40
N2	.795	X	.9762	X	28.2	=	21.89
H2O		X	T/100= .0238	X	18.0	=	.43
MOLECULAR WEIGHT OF STACK GAS							= 28.72

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	69.21
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	29354.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	25293.
	STACK FLOW RATE (DRY).....	24692.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	101.42
	(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 1,2,3 BATTERY PEC
CLR-1-2-2 11-4-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00130	.00000	.00380

PARAMETER	INSOL.MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00030	.00960

PARTICULATE	.01500
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ALL MATLS.	.01500
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00221	.46854

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
1,2,3 BATTERY PEC STACK 1-3

DATE:11-4-92
CHARGE #: ...150-300196
TEST #:CLR-1-3-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00405	.84282

2. STACK CONDITIONS

FLOW (ACFM)	28359.
(SCFM)	24793.
MOISTURE CONTENT (%)	2.13
STACK TEMPERATURE (F)	128.3

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	29.641
PERCENT ISOKINETIC	105.70

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-3-2 11-4-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN. H2O	ORIFICE DELTA H REQ ACT	METER TEMP DEG F IN OUT	VACUUM IN. HG.	STACK TEMP DEG F	CORRECTE VELOCITY FFT/SEC
35.0S	900.0	686.110	1.300	.75 .75	65. 69.	2.5	123.	68.3
33.6			1.400	.81 .81	66. 71.	2.5	122.	70.8
31.7			1.400	.81 .81	67. 72.	2.5	123.	70.9
29.6			1.500	.87 .87	68. 74.	2.5	124.	73.4
27.0			1.500	.87 .87	70. 75.	2.5	128.	73.7
23.2			1.300	.75 .75	70. 75.	2.5	126.	68.5
12.8			1.000	.58 .58	71. 76.	2.0	127.	60.1
9.0			1.000	.58 .58	72. 77.	2.0	126.	60.1
6.4			1.300	.75 .75	74. 78.	2.5	127.	68.5
4.3			1.400	.81 .81	74. 79.	2.5	126.	71.1
2.4			1.300	.75 .75	75. 80.	2.0	128.	68.6
1.0S	912.0	692.036	1.200	.70 .70	75. 81.	2.0	127.	65.8
1.0S	912.0	692.036	1.200	.70 .70	77. 81.	2.5	127.	65.8
2.4			1.000	.59 .59	77. 82.	2.0	128.	60.2
4.3			1.100	.64 .64	78. 83.	2.0	130.	63.2
6.4			1.200	.70 .70	78. 83.	2.0	130.	66.0
9.0			1.300	.76 .76	79. 84.	2.5	131.	68.8
12.8			1.300	.76 .76	80. 85.	2.5	130.	68.7
23.2			1.300	.76 .76	80. 85.	2.5	132.	68.8
27.0			1.400	.82 .82	81. 86.	2.5	131.	71.4
29.6			1.500	.88 .88	82. 87.	2.5	133.	74.0
31.7			1.400	.82 .82	83. 87.	2.5	131.	71.4
33.6			1.300	.76 .76	83. 88.	2.5	133.	68.9
35.0S	924.0	698.105	1.300	.76 .76	83. 88.	2.5	131.	68.8
35.0S	924.0	698.105	1.300	.76 .76	83. 89.	2.5	133.	68.9
33.6			1.600	.94 .94	84. 89.	3.0	131.	76.3
31.7			1.500	.88 .88	84. 89.	3.0	132.	73.9
29.6			1.500	.88 .88	85. 89.	2.5	132.	73.9
27.0			1.500	.88 .88	83. 87.	2.5	116.	72.9
23.2			1.400	.82 .82	84. 87.	2.5	116.	70.4
12.8			1.300	.76 .76	84. 88.	2.5	120.	68.1
9.0			1.300	.76 .76	85. 88.	2.5	122.	68.2
6.4			1.400	.82 .82	85. 89.	2.5	125.	71.0
4.3			1.400	.84 .84	85. 89.	2.5	126.	71.1
2.4			1.200	.72 .72	85. 89.	2.0	125.	65.7
1.0S	936.0	704.533	1.200	.72 .72	85. 88.	2.5	125.	65.7
35.0E	936.0	704.533	1.400	.84 .84	85. 89.	2.5	126.	71.1
33.6			1.300	.78 .78	85. 88.	2.5	126.	68.5
31.7			1.300	.78 .78	85. 89.	3.0	130.	68.7
29.6			1.400	.84 .84	86. 89.	3.0	128.	71.2
27.0			1.300	.78 .78	85. 90.	2.5	130.	68.7
23.2			1.200	.71 .71	86. 89.	2.5	129.	66.0
12.8			.900	.53 .53	86. 89.	2.0	131.	57.2
9.0			.900	.53 .53	86. 89.	2.0	130.	57.2

6.4			1.000	.59	.59	86.	89.	2.0	132.	60.4
4.3			.900	.53	.53	86.	89.	2.0	131.	57.2
2.4			.800	.47	.47	86.	90.	2.0	133.	54.0
1.0E	948.0	710.343	.800	.47	.47	87.	90.	2.0	131.	53.9

6.4			1.400	.83	.83	57.	52.	3.0	102.	69.4
4.3			1.400	.83	.83	57.	52.	3.0	104.	69.6
2.4			1.200	.71	.71	58.	53.	2.5	103.	64.4
1.0S	948.0	742.230	1.100	.65	.65	58.	54.	2.5	102.	61.6

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-3-3 11-05-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.15
B.	AVG. DELTA H (IN H2O).....	.75
C.	METER PRESSURE (IN. HG.).....	29.21
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.22
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.).....	563.9
K.	AVG. METER TEMP (DEG. R.).....	517.8
L.	CONDENSATE VOL. (ML).....	5.3
M.	ABSORBED H2O (ML).....	7.4
N.	TOTAL H2O (ML).....	12.7
O.	METERED GAS (CF).....	31.871
P.	GAS METER CORRECTION.....	1.0295
Q.	CORRECTED METERED GAS (CF).....	32.811
R.	H2O GAS VOLUME (CF) (0.00267N(K/C).....	.601
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	33.412
T.	PERCENT H2O (100R/S).....	1.80
	THEORETICAL MAXIMUM.....	7.46
	PERCENT WATER USED.....	1.80
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	32.683
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	.9820	X	44.0	=	.00
CO	.000	X	.9820	X	28.0	=	.00
O2	.205	X	.9820	X	32.0	=	6.44
N2	.795	X	.9820	X	28.2	=	22.02
H2O		X	T/100= .0180	X	18.0	=	.32
					MOLECULAR WEIGHT OF STACK GAS	=	28.78

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	65.92
	[85.49*W*SQRT((J*DELTA P)/(V*F))]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	27958.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	25569.
	STACK FLOW RATE (DRY).....	25109.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	112.62
	(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 1,2,3 BATTERY PEC
CLR-1-3-3 11-05-92

PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00130	.00000	.00180

PARAMETER	INSOL.MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00100	.01070

PARTICULATE	.01480
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ALL MATLS.	.01480
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00193	.41579

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
1,2,3 BATTERY PEC STACK 1-4

DATE:11-05-92
CHARGE #: ...150-300196
TEST #:CLR-1-4-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00184	.41363

2. STACK CONDITIONS

FLOW (ACFM)	29036.
(SCFM)	26604.
MOISTURE CONTENT (%)	1.68
STACK TEMPERATURE (F)	102.8

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	60.0
SCFD GAS SAMPLED	30.884
PERCENT ISOKINETIC	102.16

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-3 11-05-92

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE		METER TEMP DEG F		VACUUM IN.HG.	STACK TEMP DEG	CORRECTE VELOCITY FFT/SEC
				DELTA H REQ	ACT	IN	OUT			
35.0E	900.0	954.035	1.600	.80	.80	83.	56.	3.0	98.	74.0
33.6			1.600	.84	.85	67.	57.	3.0	104.	74.4
31.7			1.600	.84	.85	65.	58.	3.0	101.	74.2
29.6			1.500	.79	.80	66.	58.	3.0	101.	71.8
27.0			1.400	.73	.75	65.	59.	2.5	102.	69.4
23.2			1.300	.68	.70	68.	60.	2.5	103.	67.0
12.8			1.200	.63	.65	65.	58.	2.5	104.	64.4
9.0			1.300	.68	.70	64.	57.	2.5	102.	66.9
6.4			1.300	.68	.70	63.	56.	2.5	106.	67.1
4.3			1.300	.68	.70	64.	57.	2.5	105.	67.1
2.4			1.200	.63	.65	63.	56.	2.5	104.	64.4
1.0E	912.0	960.482	1.200	.63	.65	62.	56.	2.5	104.	64.4
1.0E	912.0	960.482	1.200	.63	.65	64.	56.	2.5	103.	64.3
2.4			1.100	.58	.60	67.	58.	2.2	106.	61.8
4.3			1.200	.63	.65	66.	58.	2.5	107.	64.6
6.4			1.300	.68	.70	68.	59.	2.7	108.	67.3
9.0			1.200	.63	.65	64.	57.	2.5	108.	64.6
12.8			1.200	.63	.65	63.	55.	2.5	108.	64.6
23.2			1.200	.63	.65	63.	56.	2.5	108.	64.6
27.0			1.300	.68	.68	65.	56.	2.5	111.	67.4
29.6			1.500	.79	.80	65.	56.	3.0	108.	72.3
31.7			1.400	.73	.75	67.	57.	3.0	107.	69.7
33.6			1.800	.94	.95	67.	56.	3.2	106.	79.0
35.0E	924.0	966.889	1.800	.94	.95	67.	57.	3.5	108.	79.1
35.0E	924.0	966.889	1.800	.94	.95	68.	58.	3.5	107.	79.1
33.6			1.800	.94	.95	67.	57.	3.5	109.	79.2
31.7			1.800	.94	.95	66.	57.	3.5	108.	79.1
29.6			1.700	.89	.90	66.	58.	3.2	106.	76.8
27.0			1.300	.68	.70	67.	58.	2.7	106.	67.1
23.2			1.300	.68	.70	68.	58.	3.0	105.	67.1
12.8			1.100	.58	.60	67.	59.	2.5	107.	61.8
9.0			1.300	.68	.70	67.	58.	3.0	105.	67.1
6.4			1.200	.63	.65	68.	58.	2.5	106.	64.5
4.3			1.200	.63	.65	68.	58.	2.5	105.	64.5
2.4			1.100	.58	.60	68.	58.	2.5	103.	61.6
1.0E	936.0	973.176	1.200	.63	.65	67.	57.	2.5	101.	64.2
35.0S	936.0	973.176	1.600	.84	.85	66.	57.	3.0	103.	74.3
33.6			1.600	.84	.85	63.	56.	3.0	105.	74.4
31.7			1.600	.84	.85	64.	57.	3.0	104.	74.4
29.6			1.700	.89	.90	57.	51.	3.0	95.	76.0
27.0			1.600	.84	.85	58.	51.	3.0	96.	73.8
23.2			1.300	.68	.70	58.	51.	3.0	98.	66.7
12.8			1.000	.52	.50	60.	52.	2.0	99.	58.5
9.0			1.200	.63	.65	58.	52.	2.5	100.	64.2

6.4			1.200	.63	.65	59.	52.	2.5	101.	64.2
4.3			1.200	.63	.65	60.	52.	2.5	99.	64.1
2.4			1.100	.58	.60	62.	53.	2.2	91.	60.9
1.0S	948.0	979.309	1.100	.58	.60	61.	53.	2.0	93.	61.0

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-3 11-05-92

POINT	TIME	METER	DELTA P	ORIFICE		METER		VACUUM	STACK	CORRECTE
		READING		DELTA H	TEMP	TEMP	VELOCITY			
		(DRY) CF	IN.H2O	REQ	ACT	IN	OUT	IN.HG.	DEG	FFT/SEC
1.0S	948.0	979.309	1.000	.52	.50	60.	53.	2.0	92.	58.2
2.4			1.100	.58	.60	59.	52.	2.5	93.	61.0
4.3			1.300	.68	.70	61.	51.	2.5	102.	66.9
6.4			1.300	.68	.70	59.	50.	2.5	103.	67.0
9.0			1.200	.63	.65	59.	50.	2.5	102.	64.3
12.8			1.200	.63	.65	60.	50.	2.5	102.	64.3
23.2			1.200	.63	.65	59.	51.	2.5	102.	64.3
27.0			1.500	.79	.80	60.	52.	3.0	102.	71.9
29.6			1.500	.79	.80	62.	52.	3.0	101.	71.8
31.7			1.700	.89	.90	62.	53.	3.0	99.	76.3
33.6			1.700	.89	.90	62.	53.	3.0	99.	76.3
35.0S	1000.0	985.414	1.700	.89	.90	62.	54.	3.2	100.	76.4

O R S A T

CO2	.0	IMPINGER NO. 1	3.2
O2	20.5	2	.2
CO	.0	3	.1
N	79.5	4	.0
ABSORBED H2O		7.7	

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.535	09-14-91
METER	1.0515	09-14-92
PITOT	0.84	08-24-92

LEAK CHECK

	RATE	IN.HG
INITIAL LT	0.02CFM	5.0
FINAL LT	0.02CFM	5.0

CONTROL BOX NO. 7

PROBE NO. 5-5

NOZZLE NO. 18

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
AIR QUALITY ENGINEERING

USS CLAIRTON WORKS
CLAIRTON, PA 1,2,3 BATTERY PEC
CLR-1-4-3 11-05-92

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.....	29.15
B.	AVG. DELTA H (IN H2O).....	.73
C.	METER PRESSURE (IN. HG.).....	29.20
D.	STATIC PRESSURE (IN. H2O).....	1.00
E.	STATIC PRESSURE (IN. HG.).....	.074
F.	STACK PRESSURE (IN. HG.) (A+E).....	29.22
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.).....	562.8
K.	AVG. METER TEMP (DEG. R.).....	519.7
L.	CONDENSATE VOL. (ML).....	3.5
M.	ABSORBED H2O (ML).....	7.7
N.	TOTAL H2O (ML).....	11.2
O.	METERED GAS (CF).....	31.379
P.	GAS METER CORRECTION.....	.9918
Q.	CORRECTED METERED GAS (CF).....	31.122
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)).....	.532
S.	TOTAL SAMPLED VOLUME (CF) (Q+R).....	31.654
T.	PERCENT H2O (100R/S).....	1.68
	THEORETICAL MAXIMUM.....	7.24
	PERCENT WATER USED.....	1.68
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K)).....	30.884
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	.9832	X	44.0	=	.00
CO	.000	X	.9832	X	28.0	=	.00
O2	.205	X	.9832	X	32.0	=	6.45
N2	.795	X	.9832	X	28.2	=	22.04
H2O		X	T/100= .0168	X	18.0	=	.30
					MOLECULAR WEIGHT OF STACK GAS	=	28.79

W.	PITOT CORRECTION.....	.840
X.	AVERAGE CORRECTED VELOCITY (FPS).....	68.46
	[85.49*W*SQRT{(J*DELTA P)/(V*F)}]	
Y.	AVG. FLOW RATE (CFM) (X*H*60).....	29036.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92).....	26604.
	STACK FLOW RATE (DRY).....	26157.
AA.	SAMPLE TIME (SEC).....	3600.
BB.	PERCENT ISOKINETIC.....	102.16
	(J*100*U*29.92)/(528*X*AA*I*F*(1-T/100))	

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PARAMETER	CYCLONE WT. (G)	MATL.ON FILTER(G)	INSOL.MATL. IN PROBE(G)	SOL.MATL. IN PROBE(G)
PARTICULATE	.00000	.00120	.00000	.00220

PARAMETER	INSOL.MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00030	.00530

PARTICULATE	.00900
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ALL MATLS.	.00900
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PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00184	.41363

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