

AP-42 Section 12-2
Reference _____
Report Sect. 4
Reference 110

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

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

PARTICULATE MATTER COMPLIANCE TESTS

CONDUCTED AT

U S Steel - Geneva Works

Coke Pushing Baghouse System

#1 & 2 batteries

October 19-20, 1982

#1 battery idle lot

#2 battery - 18 hr. coke

by:

TETCO

Temp Environmental Testing Company

350 East 400 South

American Fork, Utah 84003

TECHNICAL TEAM:

Director	Melvin Kitchen
Consultant	Jack Ruckman
Consultant	Arthur Holloman
Technician	Boyd Davis
Technician	Cory Colledge
Technician	Travis Fraughton
VEO	Susan Ferguson
VEO	Newell Kitchen
VEO	Keith B. Smith
VEO	James Wilson
VEO	Norman B. Johnson

Prepared for:
Mikropul Corporation
10 Chatham Road
Summit, New Jersey
07901

date of report Oct. 29, 1982

GENEVA WORKS



United
States
Steel
Corporation

P. O. BOX 510
PROVO, UTAH 84603

November 10, 1982

~~RECEIVED~~

NOV 15 1982

AIR & WASTE
MATERIALS DIVISION

Kitcher

*METTS
Connally*

WITHDRAWN *not done that test*

Mr. Brent C. Bradford
Director Air Quality
Utah State Department of Health
150 West North Temple, Suite 426
P. O. Box 2500
Salt Lake City, Utah 84110

Mr. Robert L. Duprey, Director
Air and Waste Management Division (8AWM)
Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295

Dear Sirs,

Please find enclosed the test report for the compliance demonstration of Geneva's No. 2 battery coke pushing emission shed. These tests were performed on October 19, 20, 1982 with three modules in operation. The stack opacity limitation of not to exceed 20% and the particulate concentration of .010 Gr/DSCF were both met for the stacks. The flow weighted particulate concentration averaged .0054 Gr/DSCF for the four modules tested. The shed fugitive emission limitation of not to exceed 20% opacity was also met. The results of the test indicate this facility is in compliance with the consent decree limitations.

The requested process data is also enclosed and is listed on the following page.

separately

Yours very truly,

R. W. Pett

R. W. Pett
Chief Engineer
Geneva-Pittsburg Works

Enclosures

cc: D. R. Cronin wo/e
T. W. Goettge w/e
D. Wyse wo/e
W. R. Hawkins wo/e
J. Hawthorne w/e
R. W. Raybuck wo/e

NOV 16 1982

CERTIFICATION OF REPORT INTEGRITY

Timp Environmental Testing Company (TETCO) certifies that this report represents the truth as well as can be derived by the methods employed. Every effort was made to obtain accurate and representative data and to comply with procedures set forth in the Federal Register.

Melvin R. Kitchen, President

Reviewer: Melvin R. Kitchen

Title: President

Date: 11/1/82

Reviewer: Jack H. Ruckman

Title: Consultant

Date: 10-29-82

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INTRODUCTION

Test Purpose:

The purpose of the tests is to determine the particulate emissions from the stacks in terms of grains per dry standard cubic feet.

Test Location, Type of Process:

The test was conducted on the South shed and associated baghouse of the Geneva Works coke pushing operation. At the time of the test, battery No. 1 was on idle hot and battery No. 2 was on a pushing schedule of 22 ovens per 8 hr. turn. The emissions from the hot coke as it is pushed from the oven is captured in the shed and drawn through a duct system to the baghouse through which it passes prior to exit into the atmosphere. Each stack serves an individual module of the baghouse and works independently of the others.

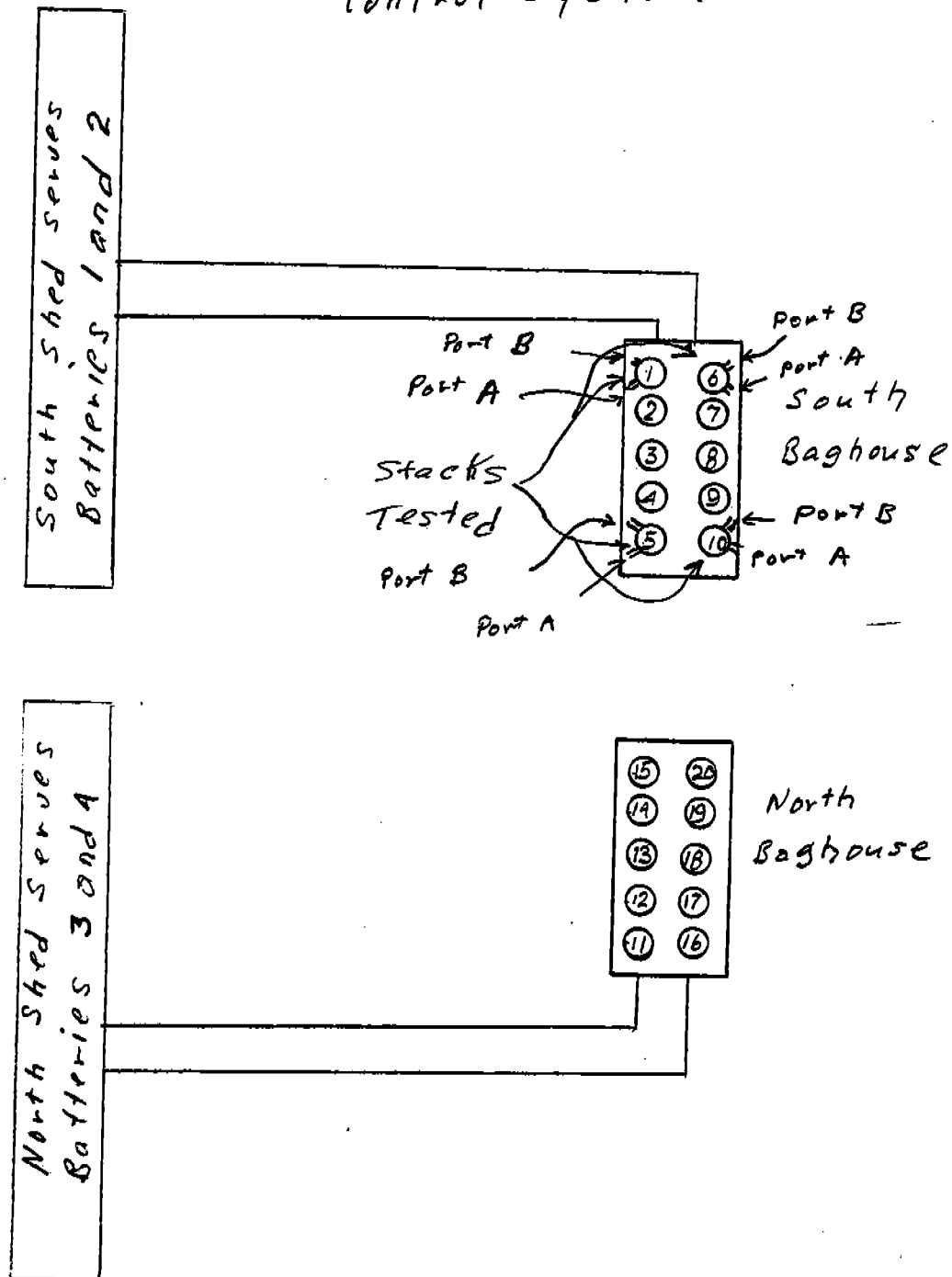
A schematic representation of the control system is given in Figure 1.

Test Dates:

Baghouse stacks No. 5 and 10 were tested Oct. 19 and stacks No. 1 and 6 were tested Oct. 20, 1982. Observations were made for stack and shed emissions simultaneous with the stack tests on both days.

Figure 1

Geneva Works
Coke Plant Shed - Baghouse
Control System



Pollutants Tested:

The tests were gravimetric determinations of particulates in accordance with EPA Method 5. Visual emissions were observed for the entire shed system and baghouse stacks in accordance with EPA Method 9.

Observers:

Test Facility

Boyd Erickson	Supt. Env. Control Eng.
James R. Starley	Sr. Env. Control Eng.
Patti Hatton	Env. Control Engineer
Ronald Harris	Env. Control Engineer
H.A. Brown	Supt. Coke Plant
Dave Torozo	USS Research
Mark Peotter	Mikropul Engineer

State Agency

Jim Stephens	State Air Quality
Dave Kopta	Utah Div. of Health
Dave McNeill	Utah Div. of Health

Federal Agency

Marius Gedgaudis	EPA
Paul Wolf	EPA Rep. GCA Corp.
Brian Hobbs	EPA Rep. GCA Corp.

Methods Applied:

EPA Methods 1-5 were used for each of the tests.

EPA Method 9 was used for visual emission observations.

Quality Assurance:

Testing procedures and sample recovery techniques were according to those outlined in the Federal Register and the Quality Assurance Handbook for Air Pollution Measurement Systems.

SUMMARY OF RESULTS

Emissions Results:

The allowable emissions for these stacks is 0.01 grain per dry standard cubic foot.

Visible emissions shall not exceed 20% opacity at any time.

Table I presents the results of gravimetric measurements. A simple average is given as well as a weighted average relative to the volume emitted from the respective stacks. The weighted average was obtained using the following equation:

$$\frac{Q_{sx} * \text{Minutes of Test } x * \text{Particulate Conc. Test } x}{\text{sum } (Q_{sn} * \text{Min. Test } n)}$$

= contribution to weighted average for Test x

TABLE I

Measured Emissions (gr/dscf)

Stack #	Date	Particulates	Volume Weighted Q _s (dscfm)	Average
60 min. (5	10/19	0.0076	35909.4	0.001618
10	10/19	0.0063	41458.8	0.001548
62.5 min. (1	10/20	0.0058	41062.4	0.001471
by mistake (6	10/20	0.0027	46612.4	0.000777
			<u>165,043.0</u>	
Simple Average		0.0056	Wtd. Av.	0.005414

Where the sum of (Q_{sn} * Minutes of test n) = 10121770 ✓

Process Data:

The oven number that was pushed is recorded on the particulate data sheet for each sampling period. Tester and agency personnel were furnished with a copy of the push schedule each day and these are included in the Appendix.

Description of Collected Samples:

There was no more than a small fleck or two of particulate observable on any of the filters.

Visible Emissions Summary:

There were no emissions observed from any of the stacks on the baghouse at any time. There were no emissions exceeding 10% observed on the East side of the shed. From

the West side of the shed, the North end observer noted 6 individual readings that exceeded 20% opacity but noted that the emissions were not coming from the shed but being blown over the top of the shed from the other side. There were 2 readings from the observer on the South end of the West side that exceeded 20% opacity. When these occurred an inspection of the area was made and 2 doors were found open in that area. The doors were closed and no further emissions exceeded the 20% opacity standard.

Discussion of Irregularities:

During the time in between the first and second pushes while testing stack No. 5, the water in one impinger froze and no sample could be drawn. The train was leak checked, the impinger replaced, and test continued.

At sample point No. 8 on the tests on stacks No. 1 and 6 a sample was drawn from the stacks when no coke push had been made. The push was in preparation and both test crews interpreted the message that the push was made. The error was discovered and when the push was made this point was resampled.

The physical set up made it impossible to observe emissions from the shed from each observation point with the sun to the back of the observer during the entire observation period.

The sample box operators' watches were 30 seconds out of synchronization with each other on the first day and 1 minute

out on the second day. This accounts for the difference in recorded clock time on the run sheets. Testing at each point actually began at the same time on both stacks as radio communication was received from operators observing pushing operations.

Gas samples were taken on the first day of testing and analyses showed the gas stream to be ambient air. Ambient air analysis was used on the second day as agreed upon in the pre-test meeting.

As the train was disassembled after the test on stack No. 6 some water was lost from the back half. Moisture for this run has been calculated at the same level as that obtained in the other test which was run simultaneous with it.

Percent Isokinetic Sampling:

Each of the tests were isokinetic within the + or - 10% criterion specified in the Federal Register, with the exception of the test on stack No. 5 for which the value is 89.7. Isokinetic values are presented in Table II.

TABLE II

Baghouse #	Percent Isokinetic
5	89.7
10	100.0
1	95.2
6	102.6

Statement of Data Quality:

All testing procedures and sample recovery techniques were according to those outlined in the Federal Register and the Quality Assurance Handbook for Air Pollution Measurement Systems.

SOURCE OPERATION

Process and Control Devices:

All process and control devices were operated according to standard procedures. Data was taken according to the protocol agreement.

Process Data:

The process was operated according to standard procedures. All pertinent process data were recorded by State and Federal agency personnel.

Representativeness of Process:

Every effort was made to assure the representativeness of the process during testing.

Control Equipment and Operating Parameters:

All control equipment and operating parameters were within the guidelines agreed upon in the protocol.

Special Operations, If Any:

No special operations were included during testing.

SAMPLING AND ANALYSIS PROCEDURE

Sampling Port Location and Cross Section:

The inside diameter of the stack is 48 inches. Port location is depicted in Figure 1. The 4 inch ports are located 96 inches downstream from the last disturbance and 24 inches upstream from the top rim of the stack. Port cross sections are shown on the particulate field data sheets.

Table III shows the distance of each sampling point from the inside wall.

TABLE III

Sampling Points (inches)

<u>Sample Point</u>	<u>Distance From Inside Wall</u>
1	1.00
2	3.22
3	5.66
4	8.50
5	12.00
6	17.09
7	30.91
8	36.00
9	39.50
10	42.34
11	44.78
12	46.99

Sampling Port Description:

The sampling ports are 4 inch diameter pipe nipples welded to the stacks such that they are flush with the inside walls of the stacks. The distance from the inside wall to the end of the sampling ports is 5 1/4 inches. There are two ports on each stack located 90 degrees from each other.

Sampling Train Description:

The stack analyzers used to conduct the tests were Anderson "Emission Parameter Analyzers". The probe liners were of stainless steel.

Sampling Procedures:

All test procedures employed were as specified in 40 CFR 60.46. Sampling started at each point as the coke started to be pushed from the oven and continued for 2 1/2 minutes. The probe was then removed from the stack and the nozzle covered until the next oven was ready to be pushed. Each test included the pushing of 24 ovens.

Analytical Procedures:

Analytical procedures were as specified in 40 CFR 60.46.

Quality Assurance:

All equipment set-up, sampling procedures, sample recovery, and equipment calibrations were carried out according to the procedures specified in 40 CFR 60.46 and the Quality Assurance Handbook for Air Pollution Measurement Systems.

APPENDIX

Complete Results and Sample Calculations:

SAMPLE EQUATIONS

$$P_s = P_b + (P_{stat}/13.6)$$

$$A_s = D_s^2/576.*PI$$

$$V_{mstd} = 17.65*V_m*(P_b+dH/13.6)/(T_m+460.)$$

$$V_w = .04715*W_{twc}$$

$$B_{wo} = V_w/(V_{mstd}+V_w)$$

$$X_d = 1.0-B_{wo}$$

$$M_d = N_2*.28+O_2*.32+CO_2*.44+CO*.28$$

$$M_s = M_d*X_d+18.*B_{wo}$$

$$V_s = 5123.8*C_p*SQR((T_s+460.)/P_s*M_s))*dP_sqr t$$

$$\%I = 1039.0*(T_s+460.)*V_{mstd}/(X_d*P_s*T_t*V_s*D_n^2)$$

$$Q_a = V_s*A_s$$

$$Q_s = Q_a*X_d*17.65*P_s/(T_s+460.)$$

$$C_f = M_f*.01543/V_{mstd}$$

$$C_t = M_t*.01543/V_{mstd}$$

$$C_{fa} = 17.65*C_f*P_s*X_d/(T_s+460.)$$

$$C_{ta} = 17.65*C_t*P_s*X_d/(T_s+460.)$$

$$ER_f = .00857*C_f*Q_s$$

$$ER_t = .00857*C_t*Q_s$$

STACKS 1 AND 6 COKE PLANT BAGHOUSE

SYMBOL	DESCRIPTION	DIMENSIONS	Stack ### NUMBER		
RUN #			1	6	
DATE			10/20/82	10/20/82	
BEGIN	TIME TEST BEGAN		0814.5	0813.5	
END	TIME TEST ENDED		1626.5	1625.5	
Pb	Barometric Pressure	In. Hg Abs	25.63	25.63	0.00
dH	Orifice Pressure Drop	In. H2O	1.3400	1.5700	0.0000
Va	Volume Gas Sampled	cf	42.769	47.244	0.000
Ta	Av. Meter Temperature	Deg. F	58.200	50.600	0.000
Ts	Av. Stack Temperature	Deg. F	104.500	106.000	0.000
dPsqrt	Sq. Root Velocity Head	Root In. H2O	1.0938	1.2434	0.0000
Wtwc	Weight Water Collected	Grams	7.800	8.900	0.000
* Wcal	Weight Water Calculated At Saturation	Grams	76.40	88.51	0.00
Tt	Duration of Test	Minutes	62.500	62.500	0.000
Dn	Nozzle Diameter	Inches	0.1880	0.1800	0.0000
N2	Volume % Nitrogen	Percent	79.00	79.00	0.00
O2	Volume % Oxygen	Percent	21.00	21.00	0.00
CO2	Volume % Carbon Dioxide	Percent	0.00	0.00	0.00
CO	Volume % Carbon Monoxide	Percent	0.00	0.00	0.00
As	Stack Cross Section Area	Square ft	12.566	12.566	0.000
Mf	Front Half Particulate	Milligrams	14.11	7.33	0.00
Mt	Total Particulate	Milligrams	31.01	39.23	0.00
Ps	Stack Pressure	In. Hg Abs.	25.58	25.58	0.00
Qs	Stack Gas Volume (Standard)	dscfm	41062.4	46612.4	0.0
Qa	Stack Gas Volume (Actual)	cfm	51843.2	59011.4	0.0
Vmstd	Volume Gas Sampled (Standard)	dscf	37.479	42.045	0.000
Vw	Volume Water Vapor	scf	0.368	0.420	0.000
Bwo	Fraction H2O in Stack Gas		0.0097	0.0099	0.0000
Xd	Fraction Dry Gas		0.9903	0.9901	0.0000
Md	Molecular Wt Dry Gas	lb/lb mole	28.840	28.840	0.000
Ms	Molecular Wt Stack Gas	lb/lb mole	28.735	28.733	0.000
Vs	Velocity of Exhaust Gas	fpm	4125.55	4695.97	0.00
I	Percent Isokinetic	Percent	95.218	102.649	0.000
Cf	Particulate Concentration (Front)	Grain/dscf	0.0058	0.0027	0.0000
Ct	Particulate Concentration (Total)	Grain/dscf	0.0128	0.0144	0.0000
Cfa	Actual Particulate Conc. (Front)	Grain/acf	0.0046	0.0021	0.0000
Cta	Actual Particulate Conc. (Total)	Grain/acf	0.0101	0.0114	0.0000
ERf	Emission Rate (Front Half)	lbs/hr	2.04	1.07	0.00
ERT	Emission Rate (Total)	lbs/hr	4.49	5.75	0.00

* IF THE WATER CALCULATED AT SATURATION IS LESS THAN THE COLLECTED WATER,
THE SATURATION MOISTURE IS USED IN ALL SUCCEEDING CALCULATIONS.

STACKS 5 AND 10 COKE PLANT BAGHOUSE

SYMBOL	DESCRIPTION	DIMENSIONS	Stack 12 NUMBER		
RUN #			5	10	≠
DATE			10/19/82	10/19/82	
BEGIN	TIME TEST BEGAN		0811.5	0812	
END	TIME TEST ENDED		1756.5	1650	
Pb	Barometric Pressure	In. Hg Abs	25.76	25.76	0.00
dH	Orifice Pressure Drop	In. H2O	0.9110	1.2300	0.0000
Ve	Volume Gas Sampled	cf	33.580	38.829	0.000
Ta	Av. Meter Temperature	Deg. F	56.270	46.400	0.000
Ts	Av. Stack Temperature	Deg. F	97.890	94.900	0.000
dPsqrt	Sq. Root Velocity Head	Root In. H2O	0.9567	1.0939	0.0000
Wtwc	Weight Water Collected	Grams	13.100	8.600	0.000
* Wcal	Weight Water Calculated At Saturation	Grams	47.85	51.23	0.00
Tt	Duration of Test	Minutes	60.000	60.000	0.000
Dn	Nozzle Diameter	Inches	0.1880	0.1800	0.0000
N2	Volume % Nitrogen	Percent	79.00	78.90	0.00
O2	Volume % Oxygen	Percent	21.00	21.10	0.00
CO2	Volume % Carbon Dioxide	Percent	0.00	0.00	0.00
CO	Volume % Carbon Monoxide	Percent	0.00	0.00	0.00
As	Stack Cross Section Area	Square ft	12.566	12.566	0.000
Hf	Front Half Particulate	Milligrams	14.53	14.21	0.00
Mt	Total Particulate	Milligrams	31.53	24.36	0.00
Ps	Stack Pressure	In. Hg Abs.	25.72	25.70	0.00
Qs	Stack Gas Volume (Standard)	dscf	35909.4	41458.8	0.0
Qa	Stack Gas Volume (Actual)	cf	45044.9	51293.3	0.0
Vstd	Volume Gas Sampled (Standard)	dscf	29.650	34.984	0.000
Vw	Volume Water Vapor	scf	0.618	0.405	0.000
Bwo	Fraction H2O in Stack Gas		0.0204	0.0115	0.0000
Xd	Fraction Dry Gas		0.9796	0.9885	0.0000
Md	Molecular Wt Dry Gas	lb/lb mole	28.840	28.844	0.000
Ms	Molecular Wt Stack Gas	lb/lb mole	28.619	28.720	0.000
Vs	Velocity of Exhaust Gas	fpm	3584.56	4081.79	0.00
I	Percent Isokinetic	Percent	89.726	100.030	0.000
Cf	Particulate Concentration (Front)	Grain/dscf	0.0076	0.0063	0.0000
Ct	Particulate Concentration (Total)	Grain/dscf	0.0164	0.0107	0.0000
Cfa	Actual Particulate Conc. (Front)	Grain/acf	0.0060	0.0051	0.0000
Cta	Actual Particulate Conc. (Total)	Grain/acf	0.0131	0.0087	0.0000
ERf	Emission Rate (Front Half)	lbs/hr	2.33	2.23	0.00
ERT	Emission Rate (Total)	lbs/hr	5.05	3.82	0.00

* IF THE WATER CALCULATED AT SATURATION IS LESS THAN THE COLLECTED WATER, THE SATURATION MOISTURE IS USED IN ALL SUCCEEDING CALCULATIONS.

STACK EMISSIONS SURVEY
(Hand Calculations)

SOURCE EMISSIONS CALCULATIONS
Particulate Train

			Bag House			
			# 5	# 10	# 1	# 6
			Run Number			
Symbol	Description	Unit	1	2	3	4
Date			10/19/82	10/19/82	10/20/82	10/20/82
Begin	Time		0811.5	0812	0814.5	0813.5
End	Time		1756.5	1650	1626.5	1625.5
P _b	Barometric Pressure	"Hg Abs.	25.76	25.76	25.63	25.63
P _m	Orifice Pressure Drop	"H ₂ O	.911	1.23	1.34	1.57
V _m	Volume Dry Gas Sampled • Meter Conditions	Ft. ³	33.580	38.829	42.769	47.244
T _m	Ave. Gas Meter Temp.	°F	56.27	46.4	58.2	50.6
V _m std	Volume Dry Gas Sampled • Std. Conditions *	dscf	29.648	34.984	37.481	42.045
V _w	Total H ₂ O Collected, Impingers & Silica Gel	g	13.1	8.6	7.8	8.9 **
V _w gas	Volume Water Vapor Collected • Std. Cond. *	scf	.547	.405	.368	.420
% M	Moisture in Stack, Gas by Volume	%	2.0	1.1	1.0	1.0
M _d	Mol Fraction of Dry Gas		.98	.989	.990	.990
CO	Fraction of Gas	%	0	0	0	0
CO ₂	Fraction of Gas	%	21	21.1	21	21
O ₂	Fraction of Gas	%	0	0	0	0
N ₂	Fraction of Gas	%	79	78.9	79	79
MW _d	Molecular Weight of Dry Stack Gas	lb/lb mole (g/g mole)	28.84	28.844	28.84	28.84
MW	Molecular Weight of Stack Gas	lb/lb mole (g/g mole)	28.63	28.53	28.73	28.73
√ΔP _s Ave.	Velocity Head of Stack Gas	"H ₂ O	.9567	1.0939	1.0938	1.2434
T _s	Stack Temperature	°F	97.9	94.8	104.5	106.0
P _s	Stack Pressure	"Hg Abs.	25.72	25.70	25.58	25.58
V _s	Stack Velocity • Stack Conditions	fpm	3584.1	4095.4	4125.9	4696.5
A _s	Stack Area	in. ²	1809.6	1809.6	1809.6	1809.6

* 68 °F, 29.92 " Hg

** calculated

(Hand calculations)

Symbol	Description	Unit	#5	#10	#1	#6
			Run Number	1	2	3
Q_s	Dry Stack Gas Volume • Std. Conditions *	DSCFM	35915.8	41615.4	41054.0	46607.8
Q_a	Actual Stack Gas Volume • Stack Conditions	ACFM	45040.2	51465.5	51848.8	59019.4
T_t	Net Time of Test	min.	60	60	62.5	62.5
D_n	Sampling Nozzle Dia.	in.	.188	.180	.188	.180
$\%I$	Percent Isokinetic	%	89.7	99.7	95.2	102.7
m_f	Particulate - Probe & Filter	mg	14.53	14.21	14.11	7.33
m_t	Particulate - Total	mg	31.53	24.36	31.01	39.23
C_{an}	Particulate - Probe & Filter	gr/dscf *	.0076	.0063	.0058	.0029
C_{ao}	Particulate - Total	gr/dscf *	.0164	.0107	.0128	.0144
C_{at}	Particulate - Probe & Filter • Stack Conditions	gr/cf	.0061	.0051	.0046	.0021
C_{au}	Particulate - Total • Stack Conditions	gr/cf	.0131	.0087	.0101	.0114
C_{aw}	Particulate - Probe & Filter	lbs/hr	2.34	2.25	2.04	1.08
C_{ax}	Particulate - Total	lbs/hr	5.05	3.82	4.50	5.25

* 68 °F, 29.92" Hg

SOURCE EMISSIONS CALCULATIONS

Stack # 5

$$Q_a = \frac{V_s \times A_s}{144} = \frac{3584.1 \times 1809.6}{144} = 45040.2$$

$$Q_s = Q_a \times \frac{M_d \times 17.65 \times P_s}{T_s + 460} = 45040.2 \times \frac{.98 \times 17.65 \times 25.72}{557.9} = 35915.8$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0076 \times 25.72 \times .98}{557.9} = .0061$$

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0164 \times 25.72 \times .98}{557.9} = .0131$$

$$C_{aw} = .00857 \times C_{an} \times Q_s = .00857 \times .0076 \times 35915.8 = 2.34$$

$$C_{ax} = .00857 \times C_{ao} \times Q_s = .00857 \times .0164 \times 35915.8 = 5.05$$

$$C_{an} = \frac{m_f \times .01543}{V_{mstd}} = \frac{14.53 \times .01543}{29.648} = .0076$$

$$C_{ao} = \frac{m_t \times .01543}{V_{mstd}} = \frac{31.53 \times .01543}{29.648} = .0164$$

SOURCE EMISSIONS CALCULATIONS

Stack # 10

$$Q_a = \frac{V_s \times A_s}{144} = \frac{4095.4 \times 1809.6}{144} = 51465.5$$

$$Q_s = Q_a \times \frac{M_d \times 17.65 \times P_s}{T_s + 460} = 51465.5 \times \frac{.989 \times 17.65 \times 25.70}{554.8} = 41615.4$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0063 \times 25.70 \times .989}{554.8} = .0051$$

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0107 \times 25.70 \times .989}{554.8} = .0087$$

$$C_{aw} = .00857 \times C_{an} \times Q_s = .00857 \times .0063 \times 41615.4 = 2.25$$

$$C_{ax} = .00857 \times C_{ao} \times Q_s = .00857 \times .0107 \times 41615.4 = 3.82$$

$$C_{an} = \frac{m_f \times .01543}{V_{mstd}} = \frac{14.21 \times .01543}{34.984} = .0063$$

$$C_{ao} = \frac{m_t \times .01543}{V_{mstd}} = \frac{24.36 \times .01543}{34.984} = .0107$$

Baghouse #1

SOURCE EMISSIONS CALCULATIONS

$$Q_a = \frac{V_s \times A_s}{144} = \frac{4125.9 \times 1809.6}{144} = 51848.8$$

$$Q_s = Q_a \times \frac{M_d \times 17.65 \times P_s}{T_s + 460} = 51848.8 \times \frac{.99 \times 17.65 \times 25.58}{564.5} = 41054.0$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0058 \times 25.58 \times .99}{564.5} = .0046$$

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0128 \times 25.58 \times .99}{564.5} = .0101$$

$$C_{aw} = .00857 \times C_{an} \times Q_s = .00857 \times .0058 \times 41054.0 = 2.04$$

$$C_{ax} = .00857 \times C_{ao} \times Q_s = .00857 \times .0128 \times 41054.0 = 4.50$$

$$C_{an} = \frac{m_f \times .01543}{V_{mstd}} = \frac{14.11 \times .01543}{37.481} = .0058$$

$$C_{ao} = \frac{m_t \times .01543}{V_{mstd}} = \frac{31.01 \times .01543}{37.481} = .0128$$

Baghouse #1 6

SOURCE EMISSIONS CALCULATIONS

$$Q_a = \frac{V_s \times A_s}{144} = \frac{4696.5 \times 1809.6}{144} = 59019.4$$

$$Q_s = Q_a \times \frac{M_d \times 17.65 \times P_s}{T_s + 460} = 59019.4 \times \frac{.990 \times 17.65 \times 25.58}{566} = 46607.8$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0027 \times 25.58 \times .99}{566} = .0021$$

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = \frac{17.65 \times .0144 \times 25.58 \times .99}{566} = .0114$$

$$C_{aw} = .00857 \times C_{an} \times Q_s = .00857 \times .0027 \times 46607.8 = 1.08$$

$$C_{ax} = .00857 \times C_{ao} \times Q_s = .00857 \times .0144 \times 46607.8 = 5.75$$

$$C_{an} = \frac{m_f \times .01543}{V_{mstd}} = \frac{7.33 \times .01543}{42.045} = .0027$$

$$C_{ao} = \frac{m_t \times .01543}{V_{mstd}} = \frac{39.23 \times .01543}{42.045} = .0144$$

TIMP ENVIRONMENTAL TESTING CO.
ISOKINETIC CALCULATION

#5 Baghouse
10/19/82

$$\begin{aligned}
 P_b &= \underline{25.76} & V_m &= \underline{33.580} & V_w &= \underline{13.1} \\
 P_m &= \underline{.911} \text{ " H}_2\text{O} & \text{Ave. } \Delta P &= \underline{\quad} & \text{Ave. } \sqrt{\Delta P} &= \underline{.9567} \\
 C_p &= \underline{.84} & D_n &= \underline{.188} & T_t &= \underline{60} \text{ min.} \\
 P_s &= \underline{-.51} \text{ "H}_2\text{O} \quad \underline{25.72} \text{ "H}_g \\
 T_m &= \underline{56.3} \text{ }^\circ\text{F} \quad \underline{516.3} \text{ }^\circ\text{R} \\
 T_s &= \underline{97.9} \text{ }^\circ\text{F} \quad \underline{\quad} \text{ }^\circ\text{R} \\
 \%M &= \underline{2.0} & M_d &= \frac{100 - \%M}{100} = \underline{.98} & MW_d &= \underline{28.84} & MW &= M_d \times MW_d + (\%M \times 18) \\
 & & & & & & &= \underline{28.63}
 \end{aligned}$$

$$V_{m_{std}} = 17.65 V_m \left(\frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \right) = 17.65 \times \underline{33.580} \left(\frac{\underline{25.827} + \frac{\underline{.911}}{13.6}}{\underline{516.3}} \right) = \underline{29.648} \text{ sft}^3$$

$$V_{w_{gas}} = 0.04715 \times V_w = 0.04715 \times \underline{13.1} = \underline{.618} \text{ sft}^3$$

$$\%M = \frac{V_{w_{gas}}}{V_{m_{std}} + V_{w_{gas}}} \times 100 = \frac{\underline{.618}}{\underline{29.648} + \underline{.618}} \times 100 = \underline{2.0} \%$$

$$V_s = 5123.8 \times \frac{.84 (C_p) \sqrt{\frac{557.9}{(P_s) \times (MW)}} (T_s) \times \underline{.9567} (\text{Ave. } \sqrt{\Delta P})}{\underline{25.72} \quad \underline{28.63}} = \underline{3584.1} \text{ fpm}$$

$$\%I = \frac{1039 \times \underline{557.9} (T_s) \times \underline{29.648} (V_{m_{std}})}{\underline{.98} (M_d) \times \underline{25.72} (P_s) \times \underline{60} (T_t) \times \underline{3584.1} (V_s) \times \underline{.035344} (D_n^2)} = \underline{89.7} \%I$$

$M_f =$

$M_t =$

TIMP ENVIRONMENTAL TESTING CO.
ISOKINETIC CALCULATION

Bashouse # 6

$$\begin{aligned}
 P_b &= \underline{25.63} & V_m &= \underline{47.244} & V_w &= \underline{8.99 \text{ Calculated}} \\
 P_m &= \underline{1.57} \text{ " H}_2\text{O} & \text{Ave. } \Delta P &= \underline{\quad} & \text{Ave. } \sqrt{\Delta P} &= \underline{1.2434} \\
 C_p &= \underline{.84} & D_n &= \underline{.180} & T_t &= \underline{60 \text{ min.}} \\
 P_s &= \underline{-.64} \text{ " H}_2\text{O} \quad \underline{25.58} \text{ " H}_g \\
 T_m &= \underline{50.6}^\circ\text{F} \quad \underline{510.6}^\circ\text{R} \\
 T_s &= \underline{106.0}^\circ\text{F} \quad \underline{566}^\circ\text{R} \\
 \%M &= \underline{1.0} & M_d &= \frac{100 - \%M}{100} = \underline{.99} & MW_d &= \underline{28.84} & MW &= M_d \times MW_d + (\%M \times 18) \\
 & & & & & & &= \underline{28.73}
 \end{aligned}$$

$$V_{m \text{ std}} = 17.65 V_m \left(\frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \right) = 17.65 \times \underline{47.244} \left(\frac{\underline{25.75} + \frac{\underline{1.57}}{13.6}}{\underline{510.6}} \right) = \underline{42.045} \text{ sft}^3$$

$$V_{w \text{ gas}} = 0.04715 \times V_w = 0.04715 \times \underline{8.9} = \underline{.420} \text{ sft}^3$$

$$\%M = \frac{V_{w \text{ gas}}}{V_{m \text{ std}} + V_{w \text{ gas}}} \times 100 = \frac{\underline{.420}}{\underline{42.045} + \underline{.420}} \times 100 = \underline{1.0} \%$$

$$V_s = 5123.8 \times \frac{.84 (C_p) \sqrt{\frac{566}{25.58}} (T_s) \times \underline{1.2434} (\text{Ave. } \sqrt{\Delta P})}{\frac{(P_s) \times (MW)}{28.73}} = \underline{4696.5} \text{ fpm}$$

$$\%I = \frac{1039 \times \underline{566} (T_s) \times \underline{42.045} (V_{m \text{ std}})}{\frac{(M_d) \times \underline{25.58} (P_s) \times \underline{62.5} (T_t) \times \underline{4696.5} (V_s) \times \underline{.0324} (D_n^2)}{\underline{.99}}} = \underline{102.7} \%I$$

$M_f =$

$M_t =$

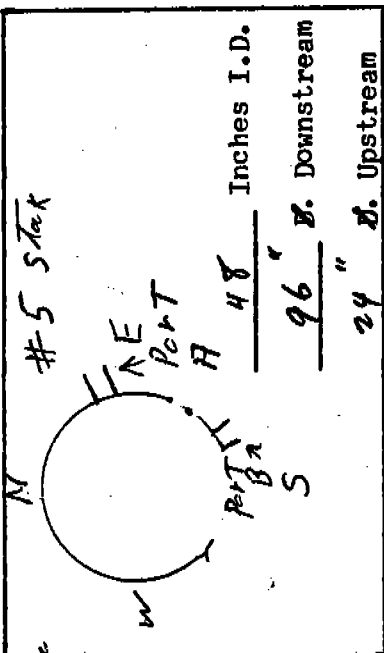
Raw Field Data:

Plant USS Geneva

PARTICULATE FIELD DATA

Filter Number 220Location Coke plant Bag House Stack
East StackDate Oct. 19 1982Run Number 1Operator Boyd J DavisSample Box Number IIMeter Box Number IIPage Number 1 of 2

1.1



Sample Port Location

Read And Record At The Start Of Each Test Point

 ΔP T_s T_m

Port & Trav. Point	Time Clock Stop W. Start	Dry Gas Meter, cf	ΔP Pitot Dif. in. H ₂ O	Meter Pres. in. H ₂ O	ΔH Meter Pres. in. H ₂ O	Pump Vacuum in. Hg Gauge	Stack Temp. °F	Probe Temp. °F	Oven Temp. °F	Effluent Temp. °F	Dry Gas Temp. °F	Stack Static Pres. in. H ₂ O	oven pushed
PORT A	Start												
1	8:14	0	1.2	1.3	1.3	1.5	88	260	250	32	190	30	40
2	8:30	18.59	1.3	1.4	1.4	2.0	101	260	250	52	130	49	50
3	9:51	65.20	1.2	1.3	1.3	1.5	102	260	250	60	120	50	55
4	10:28	103.37	1.1	1.2	1.2	1.5	99	260	260	70	125	55	60
5	10:41	104.10	.90	.99	.99	1.0	99	250	250	65	140	58	60
6	11:01	110.34	.62	.71	.71	1.0	99	250	240	65	140	59	62
7	11:21	112.34	.53	.61	.61	1.0	95	240	255	67	135	60	62
8	12:03	120.54	.50	.45	.45	1.0	95	250	250	65	125	60	62
9	12:42	124.42	.50	.45	.45	1.0	94	260	245	65	120	60	60
10	13:09	131.22	.55	.50	.50	1.0	99	260	250	60	110	55	60
Page, Run Totals													
Ave.													

18.59

18.59

Pitot Tube Calibration Factor C_p .84 Barometric Pressure P_b 25.76 "Hg Assumed Moisture 5 %Volume Collected V_m 33.248 x 1.01 = 33.580 cf Water Collected W_w 13.1 g.Nozzle Calibration A .188, B .188, C .188, D .189 = Ave. .188 in. ϕ . Time of Test 60 min. T_t Gas Analysis - 0 $\%CO_2$ 21 $\%O_2$ 0 $\%CO$ 79 $\%N_2$

14.53

31.53

Plant QSS, Geneva Date Oct, 19 1982 Run Number 1

PARTICULATE FIELD DATA

LOCATION Coke Plant Bay Horse East side #5 Stack Page 2 of 2

Time

Port & Trav. Point #	Time		Dry Gas Meter, cf	P	P _m		Pump Vacuum in. Hg Gauge	Stack Temp. F	Probe Temp. F	Oven Temp. F	Effluent Temp. F		Dry Gas Temp. F		Stack Static Pres. In. H ₂ O	Ovens Pushed
	Clock	Stop W.			Pitot Dlf. in. H ₂ O	Meter Pres. in. H ₂ O					Desired	Actual	Out	In		
11	13 22	13 24 25	32.2	.62	.53	.53	1.0	99	250	250	60	105	55	60		22
12	13 34	13 36 27 1/2	33.2	.65	.59	.59	1.0	102	250	240	60	105	55	60		
STOP	13 36 1/2	30	6534.311	Change	parts											
PORT B	STOP	STOP														
1	14 14	14 16 30	6534.311	.70	.63	.63	1.5	98	255	255	65	130	57	60		32
2	14 23	14 25 32 1/2	35.5	.85	.76	.76	1.5	99	255	255	62	140	55	60		52
3	14 44	14 46 35	36.7	.95	.86	.86	1.5	102	245	250	65	150	62	60		62
4	15 04	15 06 37 1/2	38.1	.95	.86	.86	1.5	100	265	250	65	130	57	60		4
5	15 28	15 25 40	39.5	.75	.69	.69	1.5	98	265	240	65	130	57	60		14
6	15 44	15 46 42 1/2	40.7	.60	.54	.54	1.5	96	255	250	60	110	55	60		34
7	16 09 1/2	16 12 45	41.7	.75	.69	.69	1.5	95	260	250	55	110	55	57		37
8	16 27 1/2	16 30 47 1/2	42.9	1.02	1.1	1.1	2.0	96	260	260	55	115	55	57		54
9	16 49 1/2	16 51 50	44.5	1.5	1.4	1.4	2.0	99	260	250	55	120	52	57		64
10	17 12	17 14 52 1/2	46.3	1.6	1.4	1.4	2.0	98	250	240	55	100	55	57		6
11	17 32	17 34 55	48.2	1.7	1.5	1.5	2.0	96	250	260	50	100	52	57		16
12	17 54	17 56 57 1/2	50.0	1.6	1.4	1.4	2.0	100	250	255	52	125	52	55		36
STOP	17 56 1/2	60	6551.835	END	T-AST											

Page, Run Totals Ave.

✓ 22.9619 ✓
✓ 19.562 ✓

21.86 ✓
0.911 ✓

2349 ✓
11.81 ✓

2701
56.47

Bot # I

PRELIMINARY VELOCITY TRAVERSE
AND
SAMPLING POINT LOCATION DATA

PLANT USS-Geneva Coke ^{North} Basthouse LOCATION #5

DATE 10/18/82 ESTIMATED MOISTURE _____ % STACK STATIC PREAS. -50 H₂O

STACK INSIDE DIAMETER 48 in. SAMPLE PORTS 96" DOWNSTREAM DIST.

PORT AND WALL THICKNESS 5 1/4 in. SAMPLE PORTS 24" UPSTREAM DIST.

Sample Point No.	Percent Diameter	Distance From I.D.	Distance From Ref.	Port A ΔP	Port B ΔP	Port C ΔP	Port D ΔP
1	2.1		6.25	.88 ⁰	.65	90 ⁰	100
2	6.7		8.5	1.2 ²	.96	99 ²	102
3	11.8		10.9 (1 7/8)	1.2 ¹	1.0	101 ¹	102
4	17.7		13.75	1.2 ³	.94	101 ¹	102
5	25.0		17.25	1.1 ⁴	.99	101 ⁴	102
6	35.6		22.34 (3 7/8)	1.0 ³	.83	102 ²	103
7	64.4		36.16 1/8	.72 ²	.93	101 ³	103
8	75.0		41.25	.70 ³	1.3	101 ³	103
9	82.3		44.75	.72 ⁴	1.7	102 ⁷	103
10	88.2		47.59 (5 7/8)	1.0 ⁷	1.9	102 ⁷	104
11	93.3		50.03	1.1 ¹⁰	2.2	101 ¹⁰	107
12	97.9		52.25	1.1 ¹⁵	1.7	101 ¹¹	107
13							
14				Ave ΔP = 1.1271			
15							
16				Ave ΔP = 1.0481			
17							
18							
19							
20							
21							
22							
23							
24							

Filter Number 221

Sample Train Leak Check

Initial @ 22 "Hg = 0 cfm

Final @ 12 "Hg = 0 cfm

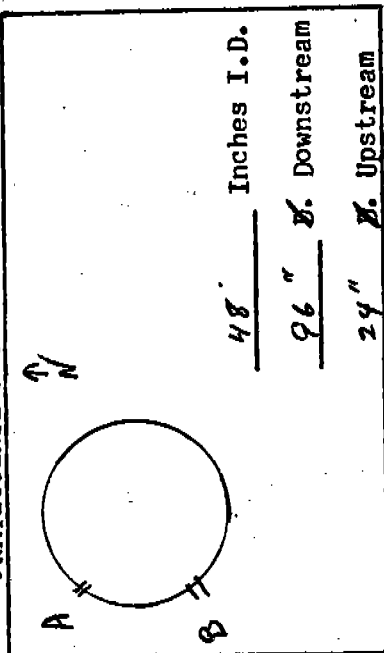
Pitot Tube Leak Check

Initial @ 8 "H₂O = 0

Final @ 8 "H₂O = 0

Ready To Start Test 0800

PARTICULATE FIELD DATA



Sample Port Location

Read And Record At The Start Of Each Test Point

Port & Trav. Point	Time Clock Stop W.	Dry Gas Meter, cf	ΔP Pitot Dif. in. H ₂ O	ΔH Meter Pres. in. H ₂ O	Pump Vacuum in. Hg Gauge	Stack Temp. °F	Probe Temp. °F	Oven Temp. °F	Effluent Temp. °F		Dry Gas Temp. °F		Stack Static Pres. In. H ₂ O	Ovens Pushed
									Out	In	Out	In		
1	0802	0	.35	.39	2	84	250	260	32	170	32	32	-0.80	35
2	0802	4.5	.57	.64	2.5	87	250	260	40	120	32	33		55
3	0805/0851	5	.72	.78	2.5	93	250	260	42	100	38	38		65
4	0815/0840	7.5	.74	.82	3.0	93	245	250	48	98	38	38		7
5	0816/0841	10	.77	.86	3.0	98	245	255	58	94	31	40		17
6	0815/0841	12.5	.85	.95	3.0	96	250	245	51	120	40	40		27
7	0815/0842	15	1.0	1.1	3.5	94	250	250	51	110	41	41		47
8	0815/0842	17.5	1.6	1.8	4.5	93	250	250	49	120	42	42		67
9	0815/0842	20	2.2	2.45	5.5	94	245	250	50	100	43	43		9
10	0815/0842	22.5	2.4	2.7	6.0	91	245	255	50	115	46	46		19
11	0815/0842	25	2.7	2.7	6.0	98	250	250	60	150	47	47		49
12	0815/0840	27.5	2.7	2.45	3.5	92	250	250	60	150	50	50		59
Page, Run Totals 30		7344.148	13.427	16.9	11.3									
Ave.			1.119	1.408		92.75								

Pitot Tube Calibration Factor C_p .84 Barometric Pressure P_b 25.26 "Hg Assumed Moisture 5 %

Volume Collected V_m 39.221 Meter Vol. .99 = 38.829 cf Water Collected W_w 8.6 g.

Nozzle Calibration A .180, B .181, C .180, D .180 = Ave. .180 in. D_n . Time of Test 60 min. T_t

Gas Analysis - 0 %CO₂ 21.1 %O₂ 0 %CO 78.9 %N₂

Port & Trav. Point	Time Clock Stop W.	Dry Gas Meter, cf	P		P _m		T _g		T _m		Effluent Temp. F		Dry Gas Temp. F		Stack Static Pres. In. H ₂ O		Ovens Pushed
			Pitot Dif. in. H ₂ O	Meter Pres. in. H ₂ O	H Actual	Pump Vacuum in. Hg Gauge	Stack Temp. F	Probe Temp. F	Oven Temp. F	Out	In	Out	In	Out	In	In. H ₂ O	
13	1204/1308	7344.148	1.1	1.0	1.0	3.0	87	240	255	58	120	50	50				69
14	1308/1308	7346.675	1.5	1.35	1.35	3.5	104	270	255	52	150	50	50				2
15	1323/1336	7347.399	1.5	1.35	1.35	3.5	100	245	250	52	125	50	50				22
16	1336/1412	7349.150	1.4	1.3	1.30	3.5	99	255	250	52	120	51	50				32
17	1412/1412	7350.871	1.3	1.15	1.15	3.5	97	250	250	51	125	51	51				52
18	1412/1412	7352.510	1.0	1.0	1.0	3.0	99	230	250	59	120	52	52				62
19	1412/1412	7353.975	1.68	1.62	1.62	2.5	98	240	255	60	115	55	53				4
20	1412/1412	7355.248	1.66	1.60	1.60	2.5	108	260	260	60	120	56	54				14
21	1412/1412	7356.438	1.83	1.75	1.75	3.0	92	250	260	61	125	56	54				34
22	1412/1412	7357.786	1.1	1.0	1.0	3.0	96	250	250	50	90	53	52				37
23	1412/1412	7359.292	1.4	1.25	1.25	3.5	93	245	250	50	105	52	51				54
24	1412/1412	7361.011	1.5	1.35	1.35	3.5	94	250	250	52	100	52	51				64
	1650	7362.898															

Page, Run Totals Ave. 262531 2952 2275 2229
1.0939 1.23 94.8 46.4

B-7 # II

PRELIMINARY VELOCITY TRAVERSE
AND
SAMPLING POINT LOCATION DATA

PLANT USS Geneva Coke ^{South} ~~Bag House~~ LOCATION #10

DATE 10/18/82 ESTIMATED MOISTURE _____ % STACK STATIC PREAS. -.63 H₂O

STACK INSIDE DIAMETER 48 in. SAMPLE PORTS 96" DOWNSTREAM DIST.

PORT AND WALL THICKNESS 5.25 in. SAMPLE PORTS 24" UPSTREAM DIST.

Sample Point No.	Percent Diameter	Distance From I.D.	Distance From Ref.	Port A ΔP	Port B ΔP	Port C ΔP Tap	Port D ΔP Tap
1	2.1	1.00	6.25	.40 30	1.4 9	96	99
2	6.7	3.22	8.5	.53 11	1.6 6	99	100
3	11.8	5.66	10.91(28)	.62 7	1.5 7	99	100
4	17.7	8.5	13.75	.76 5	1.5 6	99	100
5	25.0	12.0	17.25	.88 2	1.3 6	99	100
6	35.6	17.09	22.34(38)	.91 0	1.2 5	100	100
7	64.4	30.91	36.16(18)	1.0 1	.82 3	100	99
8	75.0	36.0	41.25	1.5 6	.70 2	100	100
9	82.3	39.50	44.75	2.6 8	.90 7	100	100
10	88.2	42.34	47.59(58)	2.6 10	1.1 14	100	100
11	93.3	44.78	50.03	2.5 7	1.2 18	100	101
12	97.9	46.99	52.25	2.2 7	1.6 20	100	103
13							
14		42.00 -	43.00	Ave ΔP 1.30	Ave ΔP	1.1085	
15			Δn	.187			
16							
17							
18							
19							
20							
21							
22							
23							
24			14-6				

Plant USS Geneva

Location Coke plant Bag House

Date OCT 20 1982

Run Number I Stack I

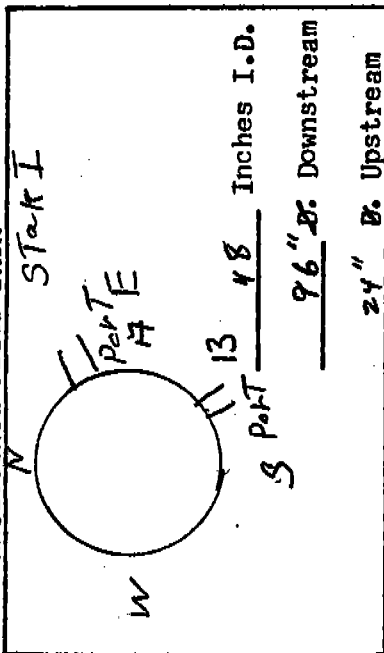
Operator Byrd J D Hrs.

Sample Box Number II

Meter Box Number II

Page Number 1 of 2

PARTICULATE FIELD DATA



Filter Number 223

Sample Train Leak Check

Initial $\odot$ 0 "H_g = 23 cfm

Final $\odot$ 0 "H_g = 12 cfm

Pitot Tube Leak Check

Initial $\odot$ 0 "H₂O = 8

Final $\odot$ 0 "H₂O = 8

Ready To Start Test 800

Read And Record At The Start Of Each Test Point

ΔP

P_m

T_s

T_m

Port & Trav. Point	Time Clock Stop W. cloc K 540 P.	Dry Gas Meter, cf	ΔP Pitot Dif. in. H ₂ O	Meter Pres. in. H ₂ O	ΔH Meter Pres. in. H ₂ O	Pump Vacuum in. Hg Gauge	Stack Temp. $^{\circ}F$	Probe Temp. $^{\circ}F$	Oven Temp. $^{\circ}F$	Effluent Temp. $^{\circ}F$	Dry Gas Temp. $^{\circ}F$	Stack Static Pres. In. H ₂ O	over pushed
1	8:14.5	6552.405	32	.32	.32	1.0	93	250	250	60	100	45	32
2	8:27	53.2	.40	.40	.40	1.0	95	250	255	60	130	42	52
3	8:48	550.5	.43	.43	.43	1.0	99	250	260	62	130	49	62
4	9:07	909.7	.45	.45	.45	1.0	102	250	255	62	125	50	4
5	9:30	932.10	.60	.60	.60	1.0	105	250	250	62	135	50	14
6	9:52	954.12	.80	.81	.81	1.0	100	250	250	62	140	55	34
7	10:26	1028.15	1.3	1.4	1.4	1.5	101	250	250	55	140	56	54
8	10:29	1031.17	1.3	1.4	1.4	1.5	108	250	250	50	180	60	54
9	10:40	1042.20	1.9	1.9	1.9	1.5	102	250	250	50	140	60	64
10	10:58	110.5	2.5	2.5	2.5	2.0	104	250	250	52	150	60	6
11	11:19	1122.23	2.7	2.7	2.7	2.0	103	250	250	53	140	60	16
12	11:41	1143.27	2.7	2.7	2.7	2.0	101	250	250	60	130	59	36
Page, Run Totals		$\sqrt{12.7200}$	$\sqrt{1.0600}$	$\sqrt{15.61}$	$\sqrt{12.13}$	$\sqrt{1.30}$							
Ave.													

Pitot Tube Calibration Factor C_p .84 Barometric Pressure P_b 25.63 "H_g Assumed Moisture 7.8 %

Volume Collected V_m 42.346 x 1.01 = 42.769 cf Water Collected W_w 7.8 g.

Nozzle Calibration A 1.01, B 1.01, C 1.01, D 1.01 = Ave. .118 in. D_h . Time of Test 12.5 min. T_t

Gas Analysis - 0 %CO₂ 21 %O₂ 0 %CO 79 %N₂

* Communication Problem - understood oven pushed, later found out it was not.

1411 31.01

PRELIMINARY VELOCITY TRAVERSE
AND
SAMPLING POINT LOCATION DATA

PLANT USS Geneva Coker Plant LOCATION Baghouse # 1 Stack

DATE 10/20/82 ESTIMATED MOISTURE _____ % STACK STATIC PREAS. _____ H₂O

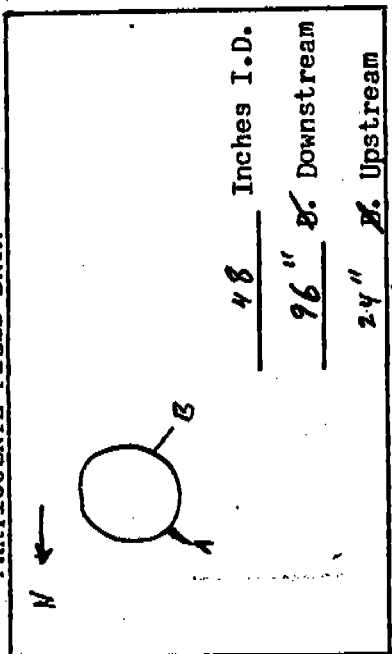
STACK INSIDE DIAMETER 48 in. SAMPLE PORTS _____ DOWNSTREAM DIST. _____

PORT AND WALL THICKNESS _____ in. SAMPLE PORTS _____ UPSTREAM DIST. _____

Sample Point No.	Percent Diameter	Distance From I.D.	Distance From Ref.	Port A ΔP	Port B ΔP	Port C ΔP	Port D ΔP
1				1.1 10	.35 0		
2				1.5 12	.37 10		
3				1.3 4	.37 4		
4				1.3 7	.42 2		
5				1.2 8	.55 4		
6				1.1 5	.72 3		
7				.75 5	1.3 5		
8				.76 9	2.0 5		
9				.97 10	2.3 5		
10				1.3 10	2.5 5		
11				1.5 12	2.5 5		
12				1.6 18	2.1 6		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

Plant U.S. Steel - Tacoma
 Location 20th St. & Pacific Ave. #6
 Date 10-20-82
 Run Number 1
 Operator JH
 Sample Box Number 1
 Meter Box Number 1
 Page Number 1 of 2

PARTICULATE FIELD DATA



Filter Number 222
 Sample Train Leak Check
 Initial @ 22 "H_g = .006 cfm
 Final @ 12 "H_g = .002 cfm
 Pitot Tube Leak Check
 Initial @ 8 "H₂O = 0
 Final @ 3 "H₂O = 0
 Ready To Start Test 0045

Read And Record At The Start Of Each Test Point

Port & Trav. Point	Time Clock Stop W.	Dry Gas Meter, cf	Δ P Pitot Dif. in. H ₂ O	Δ H Meter Pres. in. H ₂ O	Pump Vacuum in. Hg Gauge	Stack Temp. °F	Probe Temp. °F	Oven Temp. °F	Effluent Temp. °F		Dry Gas Temp. °F		Stack Static Pres. in. H ₂ O	Over Pushed
									Out	In	Out	In		
B 1	0813.5	0	1.3	1.3	3.5	85	250	250	60	90	32	32	-64	32
2	0816.5	2.5	1.5	1.5	4.0	94	250	250	60	150	33	33		52
3	0820.5	5	1.5	1.5	4.0	98	245	245	62	150	38	38		62
4	0824.5	7.5	1.2	1.2	3.5	103	250	245	52	145	40	40		4
5	0828.5	10	1.0	1.0	3.0	102	260	245	60	130	41	41		14
6	0832.5	12.5	1.0	1.0	3.0	106	250	250	60	140	42	42		34
7	0836.5	15	1.8	1.8	4.5	97	250	260	65	160	42	42		54
8	0840.5	17.5	2.1	2.1	5.0	104	250	250	50	240	43	43		4
9	0844.5	20	2.0	2.0	5.0	105	240	240	67	120	46	46		64
10	0848.5	22.5	2.0	2.0	5.0	105	240	250	48	150	48	48		6
11	0852.5	25	2.0	2.0	5.0	102	245	245	42	110	48	48		16
12	0856.5	27.5	1.7	1.7	4.5	105	250	245	50	140	49	49		36

Page, Run Totals 30 Ave. ✓

Pitot Tube Calibration Factor C_p .84 Barometric Pressure P_b 25.63 "H_g Assumed Moisture 2 %
 Volume Collected V_m 47.721 x .99 = 47.244 cf Water Collected W_w 8.9 calculated g.
 Meter Vol. Meter Cal. Factor
 Nozzle Calibration A .180, B .180, C .180, D .180 = Ave. .180 in. Δh. Time of Test 62 1/2 min. T_t
 Gas Analysis - 0 %CO2 21 %O2 0 %CO 79 %N2
 Communication Problem - understood oven pushed, later found out it was not.

Plant U.S. Steel - Geneva

PARTICULATE FIELD DATA

Date 10-20-92Run Number 1LOCATION So. Lake Placid Condenser #6 StackPage 2 of 2

Port & Trav. Point	Time		Dry Gas Meter, cf	P	Meter Pres. in. H ₂ O		Pump Vacume in. Hg Gauge	Stack Temp. F	Probe Temp. F	Oven Temp. F	Effluent Temp. F		Dry Gas Temp. F		Stack Static Pres. In. H ₂ O
	Clock	Stop W.			Desired	Actual					Out	In	Out	In	
B 12	11:05/12:00	30	7386.110	1.7	1.7	1.7	4.5	106	250	250	58	120	49	49	
A 13	12:05/12:05	52.5	7385.200	1.5	1.5	1.5	4.0	92	250	250	58	120	57	57	
14	12:17/12:20	35	7390.070	1.8	1.8	1.8	4.5	105	260	250	58	120	52	52	
15	12:28/12:32	37.5	7392.345	1.8	1.8	1.8	4.5	109	260	260	62	180	57	57	
16	12:45/12:52	40	7394.211	2.0	2.0	2.0	5.0	109	250	260	62	150	57	57	
17	12:55/13:05	42.5	7396.362	1.9	1.9	1.9	5.0	110	240	260	62	150	60	60	
18	13:05/13:15	45	7398.480	1.7	1.7	1.7	4.0	112	250	250	62	160	62	60	
19	13:15/13:25	47.5	7400.509	1.3	1.3	1.3	4.0	111	240	250	62	150	62	60	
20	13:25/13:32	50	7402.386	1.0	1.0	1.0	3.0	115	240	240	60	150	63	61	
21	13:35/13:45	52.5	7403.888	1.0	1.0	1.0	3.0	114	240	240	62	130	61	60	
22	13:55/14:05	55	7405.450	1.1	1.1	1.1	3.0	116	240	240	62	140	61	60	
23	14:05/14:15	57.5	7407.120	1.5	1.5	1.5	4.0	121	250	250	62	130	63	62	
24	14:15/14:25	60	7409.019	1.6	1.6	1.6	4.0	120	260	250	62	160	66	65	
	14:25	62.5	7410.280												

Page, Run Totals
Ave.

✓ 31.0839 ✓
1.2434 ✓

39.2 ✓
2649 ✓
106.0 ✓

2531 ✓
50.6 ✓

PRELIMINARY VELOCITY TRAVERSE
AND
SAMPLING POINT LOCATION DATA

PLANT U.S. Steel Corp LOCATION Coke Plant 20, Baltimore #6
 DATE 10-20-52 ESTIMATED MOISTURE _____ % STACK STATIC PREAS. _____ H₂O
 STACK INSIDE DIAMETER 48" in. SAMPLE PORTS 96" DOWNSTREAM DIST.
 PORT AND WALL THICKNESS _____ in. SAMPLE PORTS 24" UPSTREAM DIST.

Sample Point No.	Percent Diameter	Distance From I.D.	Distance From Ref.	Port A ΔP	Port B ΔP	Port C ΔP	Port D ΔP
1				5 1.4	7 1.4		
2				5 1.7	7 1.8		
3				0 1.9	5 1.7		
4				0 1.9	5 1.3		
5				5 1.9	5 1.2		
6				0 1.8	4 1.1		
7				10 1.2	7 1.9		
8				20 1.6	15 2.1		
9				20 1.2	10 2.1		
10				10 1.2	15 2.1		
11				10 1.6	10 2.0		
12				5 1.7	5 1.8		
13 ^B							
14 ²							
15 ³							
16 ⁴							
17 ⁵							
18 ⁶							
19 ⁷							
20 ⁸							
21 ⁹							
22 ¹⁰							
23 ¹¹							
24 ¹²							

Observation Record

Observer M. R. Kitchen

Location USS - Geneva Cove
Plant Baghouse

Time: Start 0800 End 0900

Date 10-19-82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

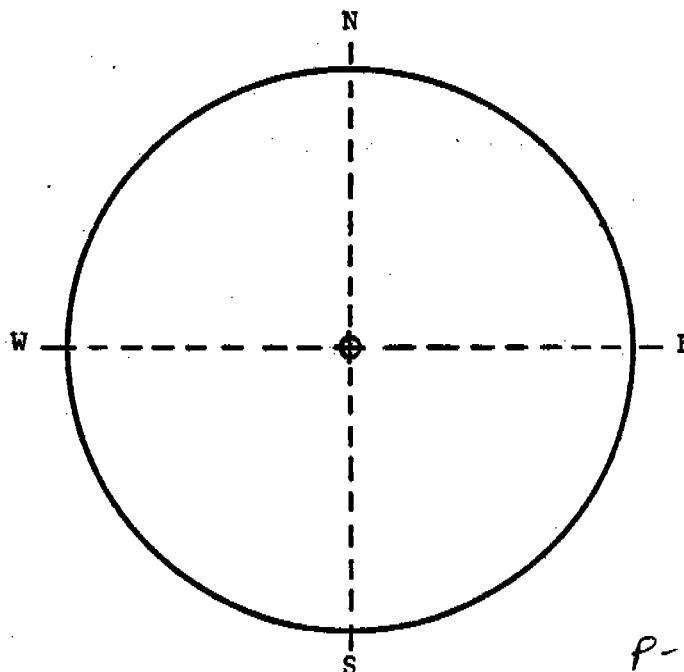
MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



P-1

Observation Record

USS GENEVA COKE

Observer _____

Location PLANT BAYHOUSE

Time: Start 9:00 End 10:00

Date 10/19/82

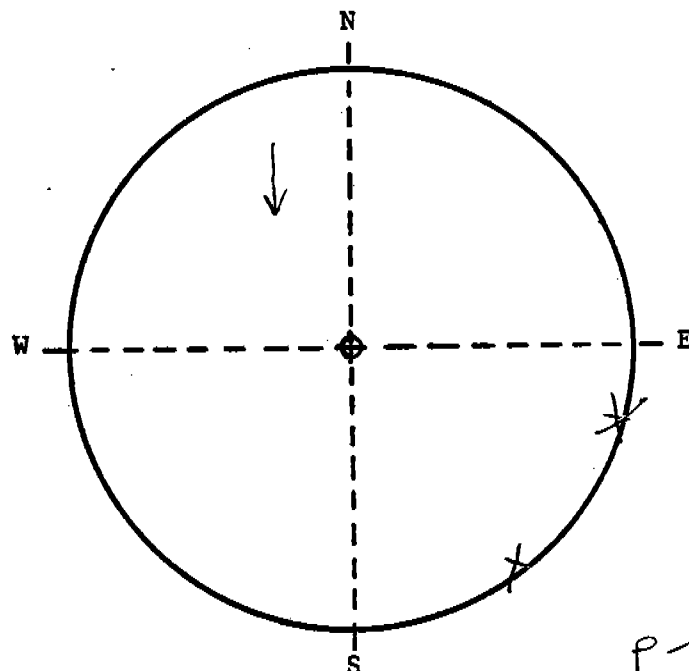
MIN	SECONDS			
	0	15	30	45
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1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
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52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

Observation Record

Observer Newell Kitchen

Location USS Geneva Coke Plant Baghouse

Time: Start 10:00 End 11:00

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
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18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

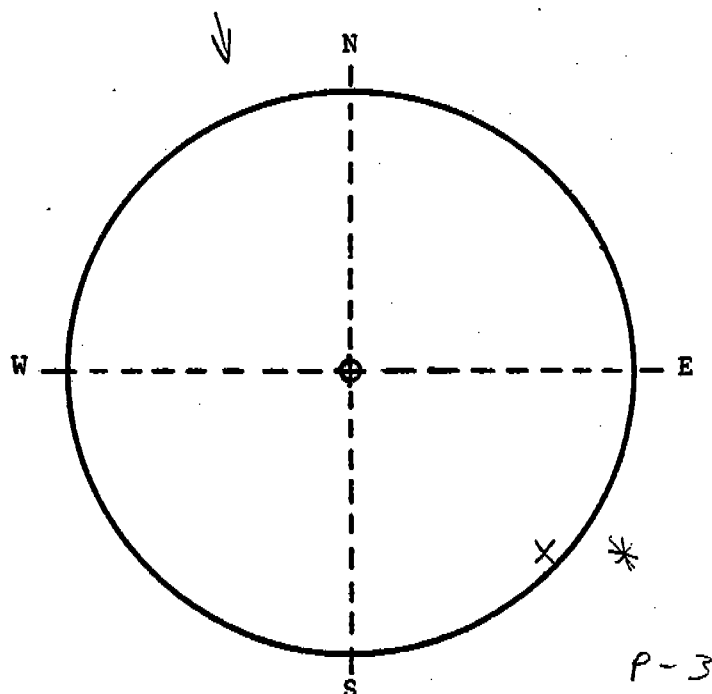
MIN	SECONDS			
	0	15	30	45
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21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
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54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer Newell Kitchen

Location USS Geneva Coke Plant Bag House

Time: Start 11:00 End 12:00

Date 19/10/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

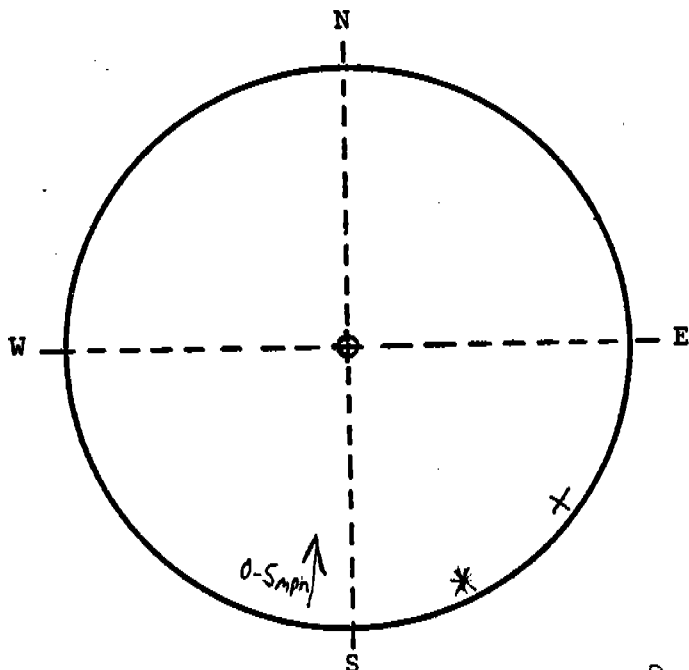
MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



P-4

Observation Record

Observer Newell Kitchen

Location USS - Geneva Lake Plant Bag House

Time: Start 12:00 End 1300

Date 19/10/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

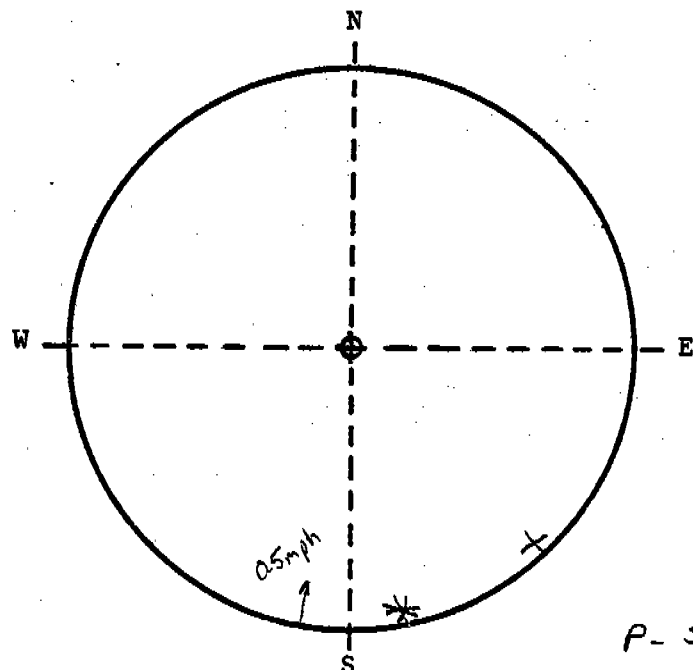
MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

NK →

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks



Observation Record

Observer Newell Kitchen

Location USS Geneva Coke Plant Bag House

Time: Start 13:00

End 14:00

Date 19 / 10 / 82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

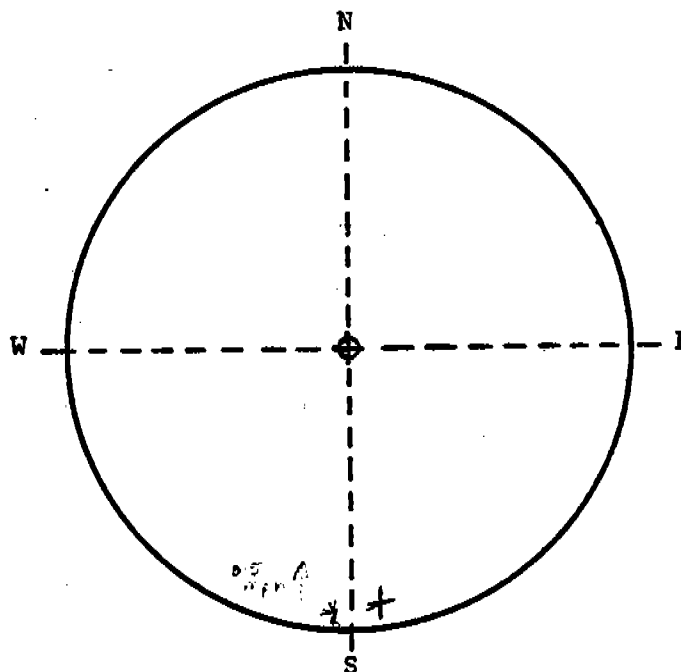
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

#10/45

Remarks _____



P-6

Observation Record

Observer Nowell Kitchen

Location USS Gerald R. Ford (CVN 75)

Time: Start 14:00 End 1500

Date 19/10/82

MIN	SECONDS			
	0	15	30	45
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

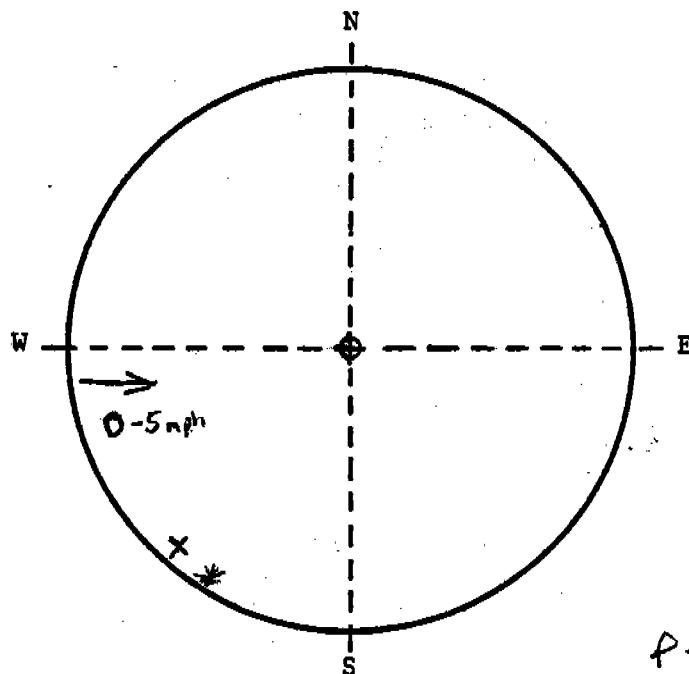
MIN	SECONDS			
	0	15	30	45
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

MIN	SECONDS			
	0	15	30	45
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				

MK →

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

P-7

Observation Record

Observer M.R. Kitchen

Location Bag House #1045

Time: Start 1500 End 1600

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	00	00	00	00
1	00	00	00	00
2	00	00	00	00
3	00	00	00	00
4	00	00	00	00
5	00	00	00	00
6	00	00	00	00
7	00	00	00	00
8	00	00	00	00
9	00	00	00	00
10	00	00	00	00
11	00	00	00	00
12	00	00	00	00
13	00	00	00	00
14	00	00	00	00
15	00	00	00	00
16	00	00	00	00
17	00	00	00	00
18	00	00	00	00
19	00	00	00	00

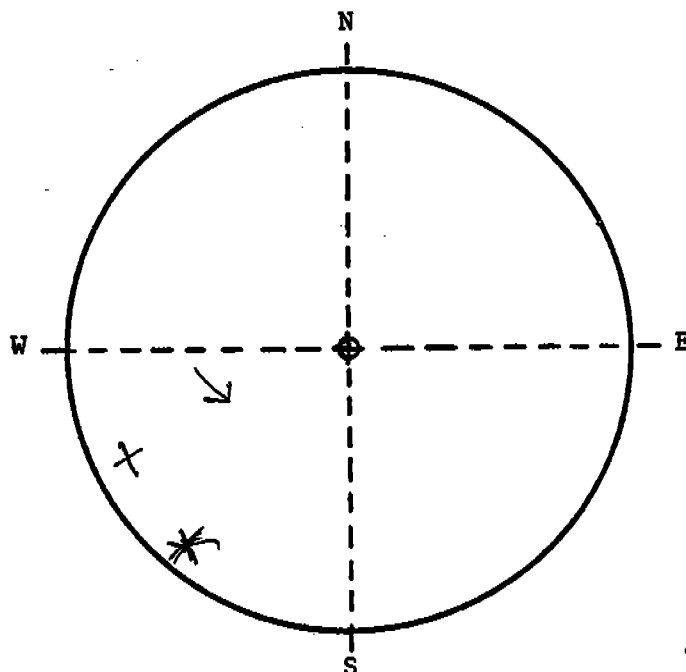
MIN	SECONDS			
	0	15	30	45
20	00	00	00	00
21	00	00	00	00
22	00	00	00	00
23	00	00	00	00
24	00	00	00	00
25	00	00	00	00
26	00	00	00	00
27	00	00	00	00
28	00	00	00	00
29	00	00	00	00
30	00	00	00	00
31	00	00	00	00
32	00	00	00	00
33	00	00	00	00
34	00	00	00	00
35	00	00	00	00
36	00	00	00	00
37	00	00	00	00
38	00	00	00	00
39	00	00	00	00

MIN	SECONDS			
	0	15	30	45
40	00	00	00	00
41	00	00	00	00
42	00	00	00	00
43	00	00	00	00
44	00	00	00	00
45	00	00	00	00
46	00	00	00	00
47	00	00	00	00
48	00	00	00	00
49	00	00	00	00
50	00	00	00	00
51	00	00	00	00
52	00	00	00	00
53	00	00	00	00
54	00	00	00	00
55	00	00	00	00
56	00	00	00	00
57	00	00	00	00
58	00	00	00	00
59	00	00	00	00

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



98

Observation Record

Observer M. P. Kitchen

Location Coke Postbase #5 + 10

Time: Start 1600 End 1700

Date 10/19/82

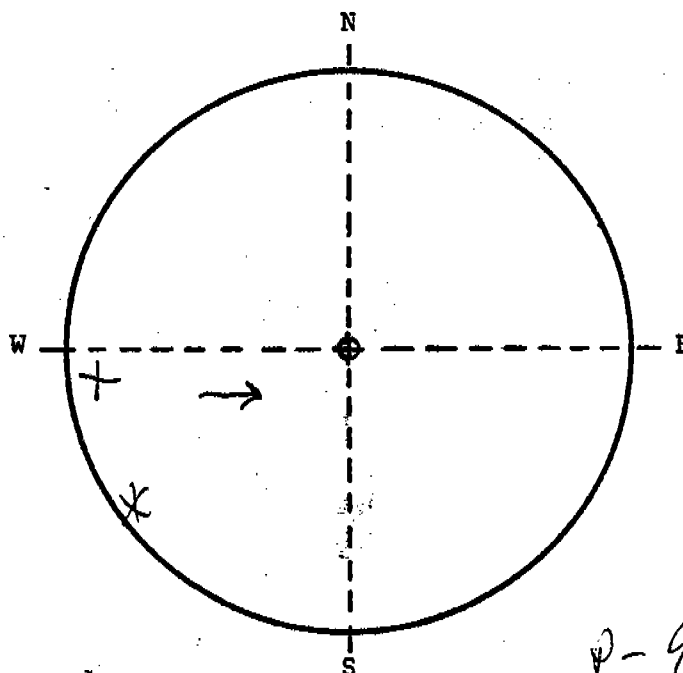
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

P-9

Observation Record

Observer M. R. Kitchen

Location COKE BAYHOUSE

Time: Start 1700 End _____

Date 10/19/82

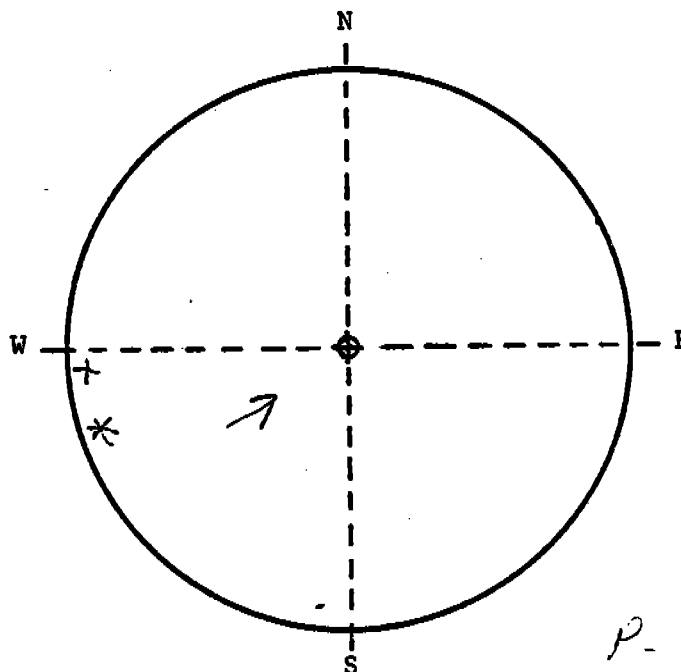
MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	—			
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks Overcast off and on
during the day

P-10

Observation Record

Observer M.R. Kitchen

Location coke Bag House #1 & 6

Time: Start 0800 End 0900

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

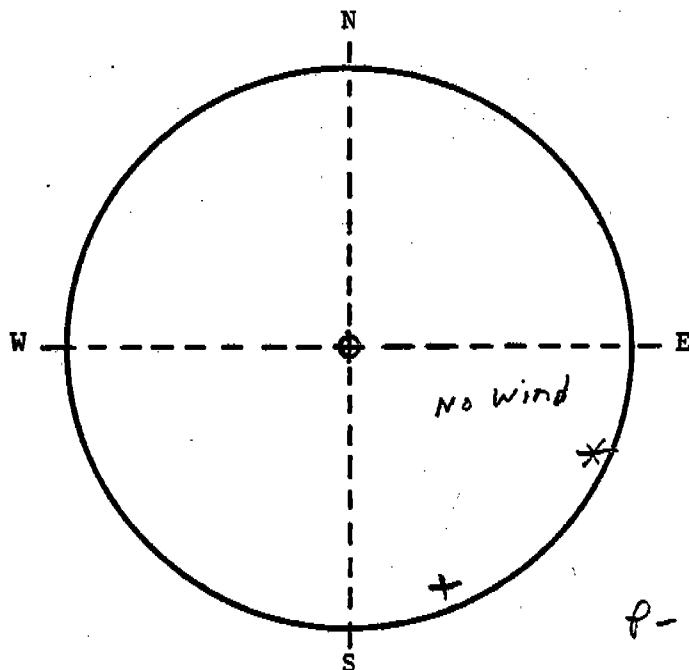
MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

#6 →  ← #1

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer M. P. Kitchen

Location Coke P. B. house #146

Time: Start 1000 End 11:00am

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

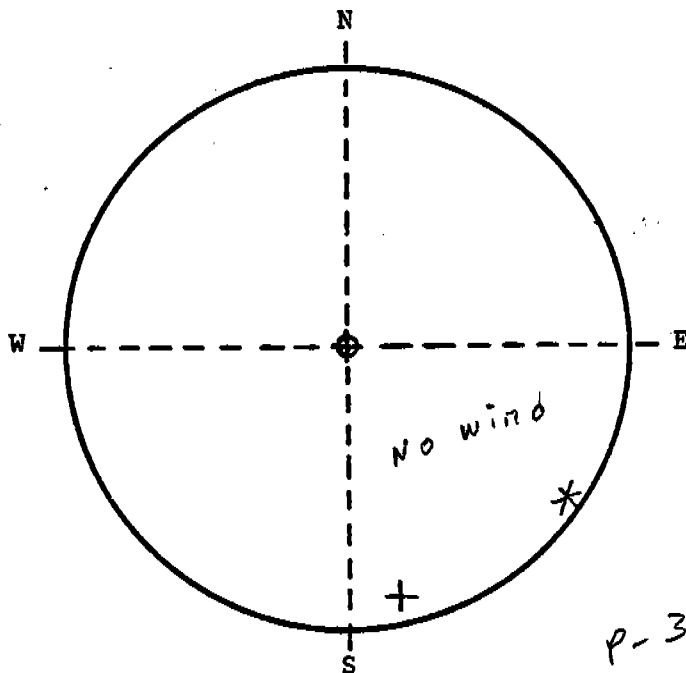
NSJ

ab → ☒ ← #1

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



p-3

Observation Record

Observer M. P. Kitchen

Location coke plant Easthouse #1 & 6

Time: Start 1200 End 1300

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

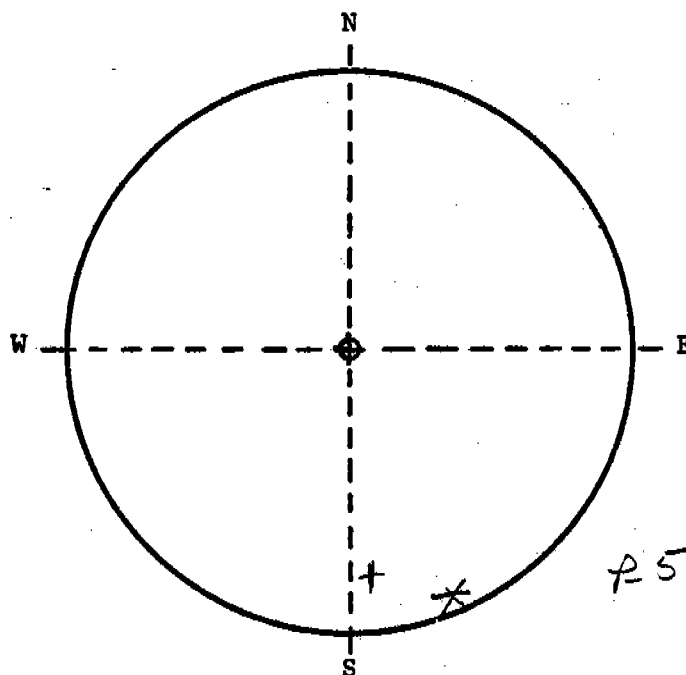
MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

#6 ☒ ☐ ☐

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer M. R. Kitchen

Location core Plant Bag House #196

Time: Start 1400 End 1500

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	0/0	0/0	0/0	0/0
1	0/0	0/0	0/0	0/0
2	0/0	0/0	0/0	0/0
3	0/0	0/0	0/0	0/0
4	0/0	0/0	0/0	0/0
5	0/0	0/0	0/0	0/0
6	0/0	0/0	0/0	0/0
7	0/0	0/0	0/0	0/0
8	0/0	0/0	0/0	0/0
9	0/0	0/0	0/0	0/0
10	0/0	0/0	0/0	0/0
11	0/0	0/0	0/0	0/0
12	0/0	0/0	0/0	0/0
13	0/0	0/0	0/0	0/0
14	0/0	0/0	0/0	0/0
15	0/0	0/0	0/0	0/0
16	0/0	0/0	0/0	0/0
17	0/0	0/0	0/0	0/0
18	0/0	0/0	0/0	0/0
19	0/0	0/0	0/0	0/0

MIN	SECONDS			
	0	15	30	45
20	0/0	0/0	0/0	0/0
21	0/0	0/0	0/0	0/0
22	0/0	0/0	0/0	0/0
23	0/0	0/0	0/0	0/0
24	0/0	0/0	0/0	0/0
25	0/0	0/0	0/0	0/0
26	0/0	0/0	0/0	0/0
27	0/0	0/0	0/0	0/0
28	0/0	0/0	0/0	0/0
29	0/0	0/0	0/0	0/0
30	0/0	0/0	0/0	0/0
31	0/0	0/0	0/0	0/0
32	0/0	0/0	0/0	0/0
33	0/0	0/0	0/0	0/0
34	0/0	0/0	0/0	0/0
35	0/0	0/0	0/0	0/0
36	0/0	0/0	0/0	0/0
37	0/0	0/0	0/0	0/0
38	0/0	0/0	0/0	0/0
39	0/0	0/0	0/0	0/0

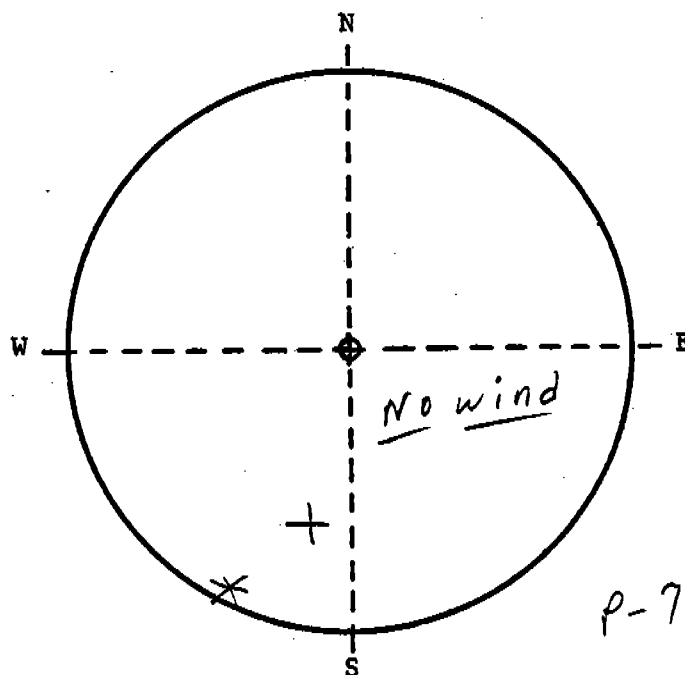
MIN	SECONDS			
	0	15	30	45
40	0/0	0/0	0/0	0/0
41	0/0	0/0	0/0	0/0
42	0/0	0/0	0/0	0/0
43	0/0	0/0	0/0	0/0
44	0/0	0/0	0/0	0/0
45	0/0	0/0	0/0	0/0
46	0/0	0/0	0/0	0/0
47	0/0	0/0	0/0	0/0
48	0/0	0/0	0/0	0/0
49	0/0	0/0	0/0	0/0
50	0/0	0/0	0/0	0/0
51	0/0	0/0	0/0	0/0
52	0/0	0/0	0/0	0/0
53	0/0	0/0	0/0	0/0
54	0/0	0/0	0/0	0/0
55	0/0	0/0	0/0	0/0
56	0/0	0/0	0/0	0/0
57	0/0	0/0	0/0	0/0
58	0/0	0/0	0/0	0/0
59	0/0	0/0	0/0	0/0

#67 ☒ #1

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks clear



Observation Record

Observer M. P. Kitchen

Location coke Plant Bayhouse #1 + 6

Time: Start 1500 End 1600

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	00	00	00	00
1	00	00	00	00
2	00	00	00	00
3	00	00	00	00
4	00	00	00	00
5	00	00	00	00
6	00	00	00	00
7	00	00	00	00
8	00	00	00	00
9	00	00	00	00
10	00	00	00	00
11	00	00	00	00
12	00	00	00	00
13	00	00	00	00
14	00	00	00	00
15	00	00	00	00
16	00	00	00	00
17	00	00	00	00
18	00	00	00	00
19	00	00	00	00

MIN	SECONDS			
	0	15	30	45
20	00	00	00	00
21	00	00	00	00
22	00	00	00	00
23	00	00	00	00
24	00	00	00	00
25	00	00	00	00
26	00	00	00	00
27	00	00	00	00
28	00	00	00	00
29	00	00	00	00
30	00	00	00	00
31	00	00	00	00
32	00	00	00	00
33	00	00	00	00
34	00	00	00	00
35	00	00	00	00
36	00	00	00	00
37	00	00	00	00
38	00	00	00	00
39	00	00	00	00

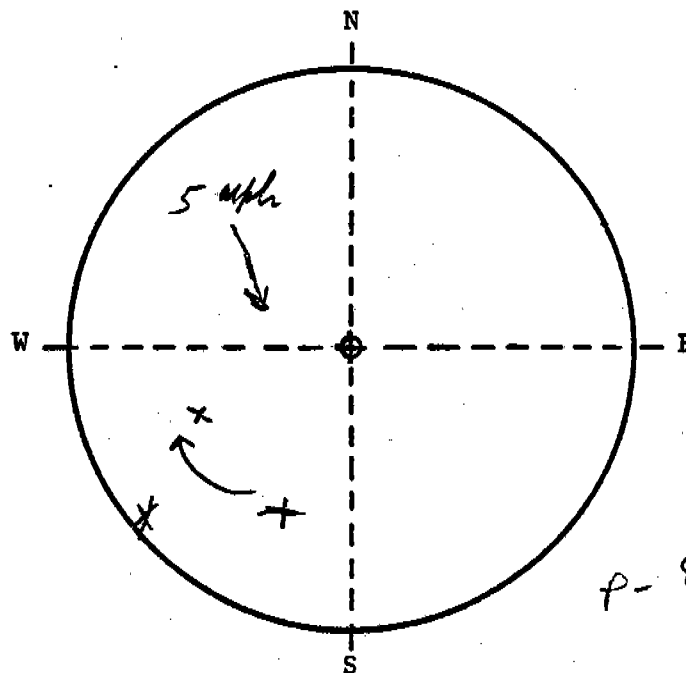
MIN	SECONDS			
	0	15	30	45
40	00	00	00	00
41	00	00	00	00
42	00	00	00	00
43	00	00	00	00
44	00	00	00	00
45	00	00	00	00
46	00	00	00	00
47	00	00	00	00
48	00	00	00	00
49	00	00	00	00
50	00	00	00	00
51	00	00	00	00
52	00	00	00	00
53	00	00	00	00
54	00	00	00	00
55	00	00	00	00
56	00	00	00	00
57	00	00	00	00
58	00	00	00	00
59	00	00	00	00

#6 →  ← #1

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer M. P. Kitchen

Location coke plant Boshouse # 146

Time: Start 1600

End 1625

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	00	00	00	00
1	00	00	00	00
2	00	00	00	00
3	00	00	00	00
4	00	00	00	00
5	00	00	00	00
6	00	00	00	00
7	00	00	00	00
8	00	00	00	00
9	00	00	00	00
10	00	00	00	00
11	00	00	00	00
12	00	00	00	00
13	00	00	00	00
14	00	00	00	00
15	00	00	00	00
16	00	00	00	00
17	00	00	00	00
18	00	00	00	00
19	00	00	00	00

MIN	SECONDS			
	0	15	30	45
20	00	00	00	00
21	00	00	00	00
22	00	00	00	00
23	00	00	00	00
24	00	00	00	00
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

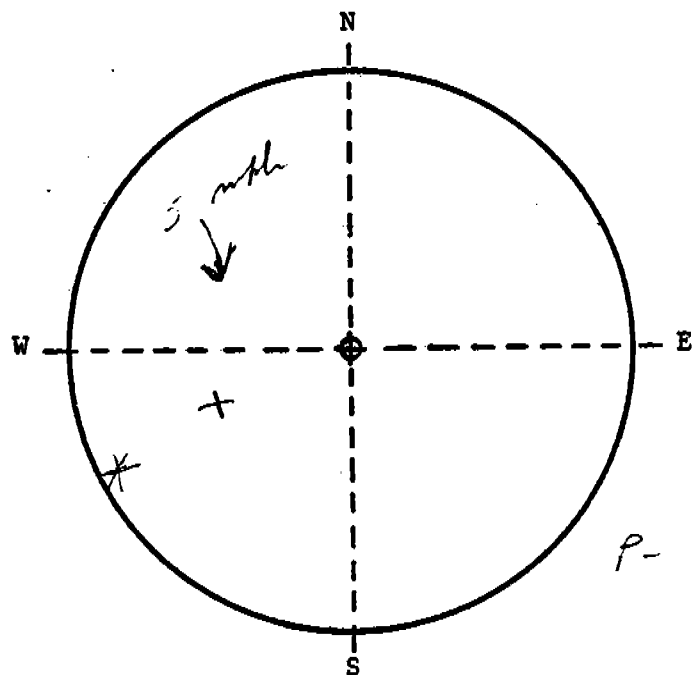
MIN	SECONDS			
	0	15	30	45
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				

16 → 1 ← 1

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Pg1

Observer NORMAN B. JOHNSON

Location COKE PLANT

Time: Start 8:00 AM End 9:00

Date (SHED OVER #2 BATT.)
October 19, 1982 East

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

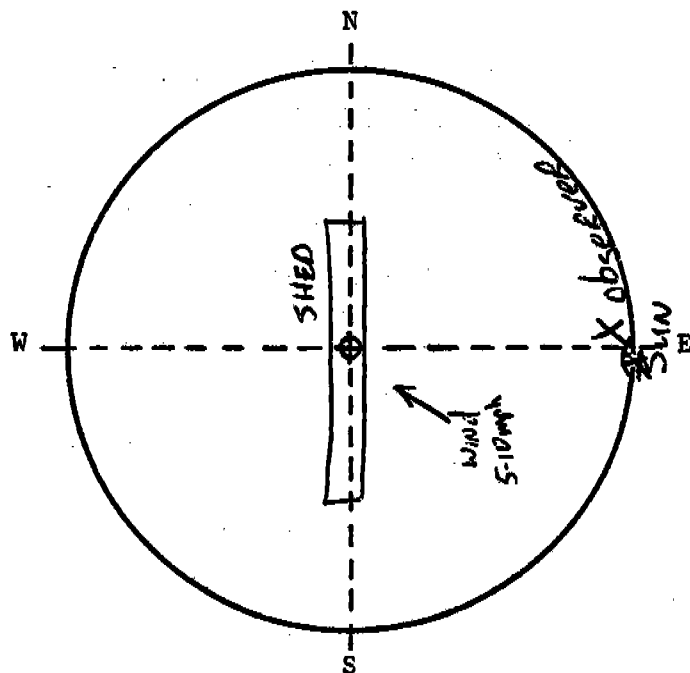
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks BLUE Sky - No clouds
Sun ALMOST DIRECTLY BEHIND
ME.



Observation Record

Observer NORMAN B. JOHNSON

Location COKE PLANT

East

Pg2

Time: Start 9:00 AM End 10:00 AM

Date OCTOBER 19, 1982

(SHED OVER #2 BATT)

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

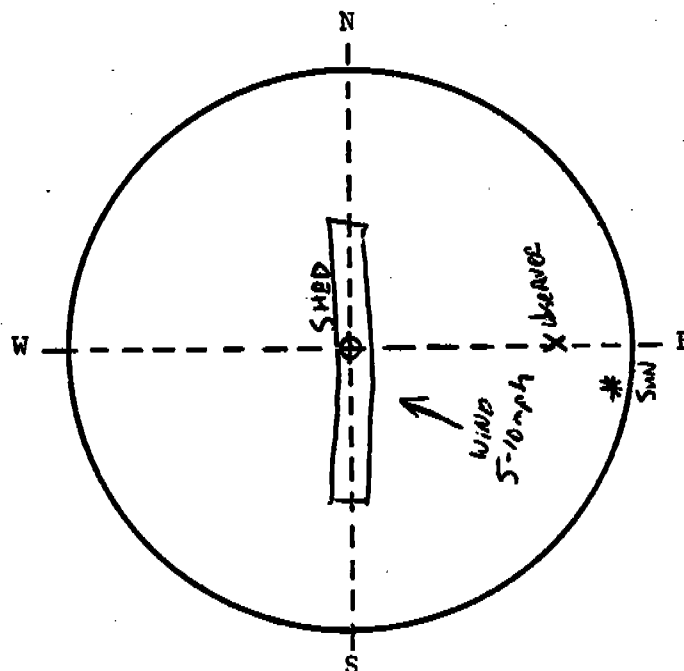
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	10
31	5	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	5	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks BLUE SKY - NO CLOUDS



Observation Record

Observer KEITH B. SMITH

Location CORE PLANT

275+
SHED OVER #2
BATTED 1

Time: Start 12:00 Noon End 1:00 PM

Date OCT. 19, 1982

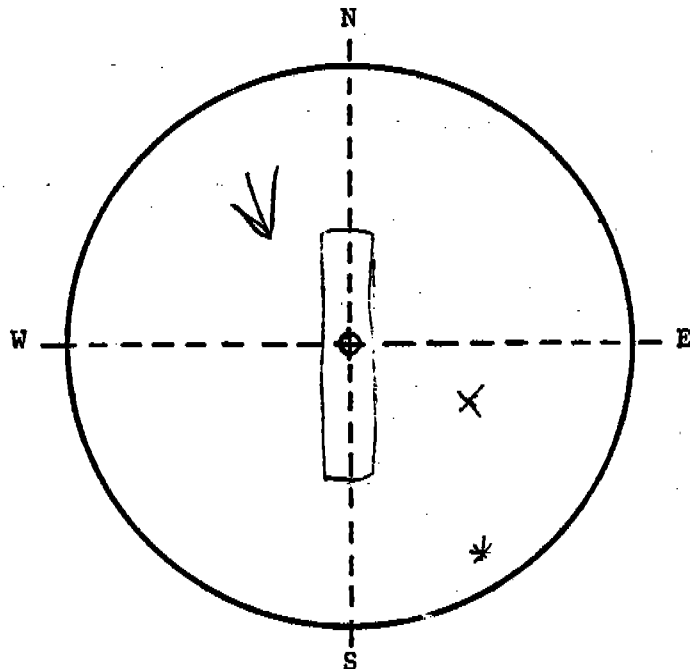
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks WIND 5-10

Observation Record

East PG. # 6
SHED OVER #2
BATTERY

Observer KEITH B. SMITH

Location COKE PLANT

Time: Start 1 PM

End 2 PM

Date OCT. 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

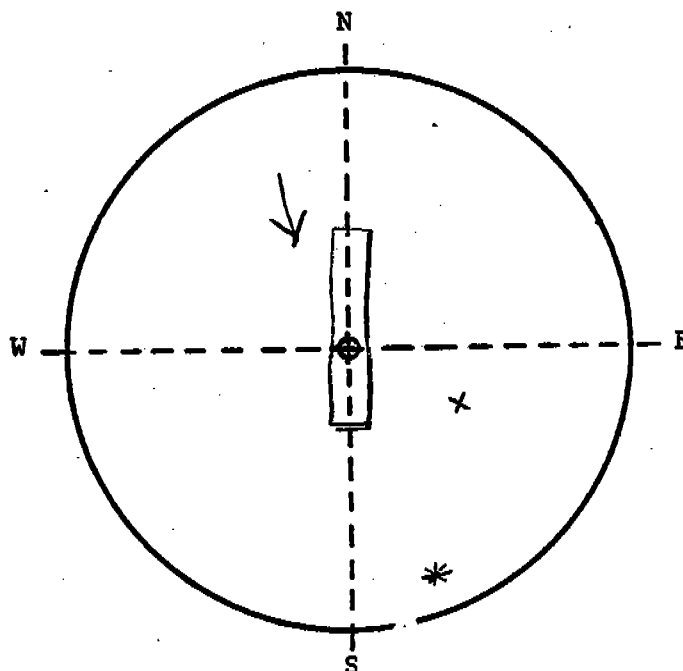
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	5
27	5	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	5	10	15
35	5	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	5	5
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer NORMAN JOHNSON

Location Coke Plant #2 BATT ^{East}

Pg 7

Time: Start 2:00 pm End 3:00 pm

Date (SHED) October 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	5	5
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

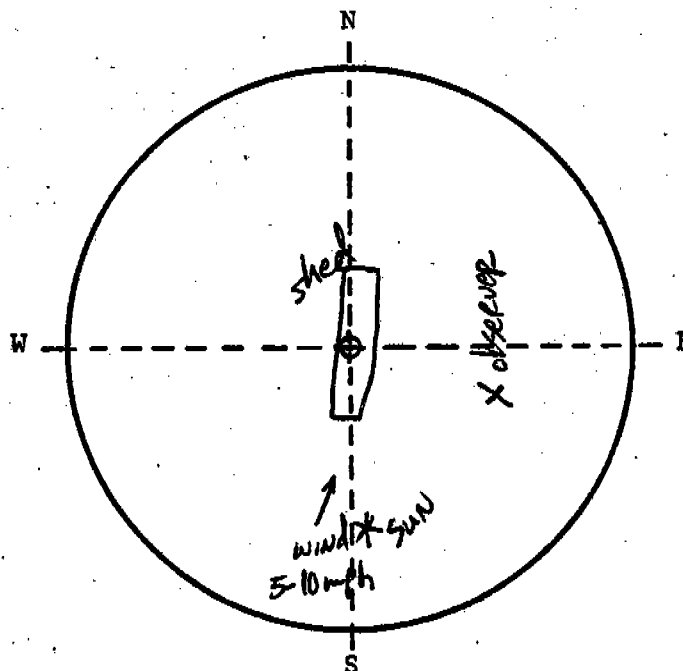
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	5	5	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	5	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue sky - Thin Clouds



Observation Record

Observer KEITH B. SMITH

Location COKE PLANT #2 BATT.
(SHED)

E 25°

PG. 8

Time: Start 3:00 PM End 4:00 PM

Date OCT. 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	5	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	5	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

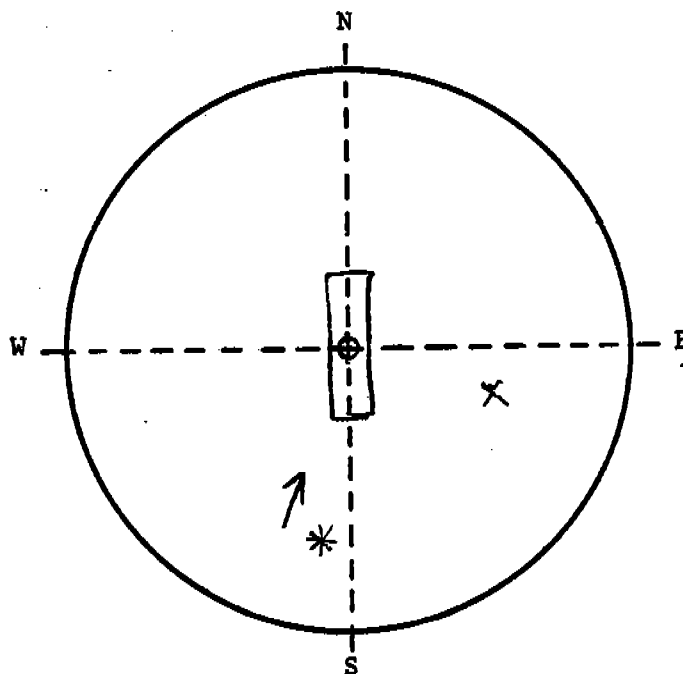
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	10	5	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks WIND 5-10

GRAY SKY



Observation Record

Observer KEITH B. SMITH

Location COKE PLANT #2 BATT. ^{EAST}

Pg. 9

Time: Start 4:00 PM End 5:00 PM

Date OCT. 19, 1982

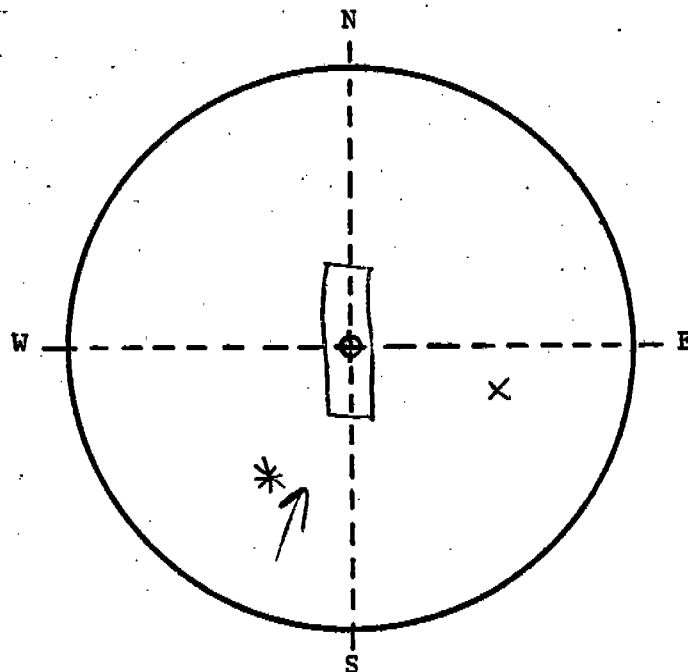
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	5	5	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	5	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks WIND 5-10

GRAY SKY

Observation Record

EAST

Pg. 10

Observer KEITH B. SMITH

Location COKE PLANT #2 BATT.

Time: Start 5:00 PM End 5:56 PM

Date OCT. 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	5	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

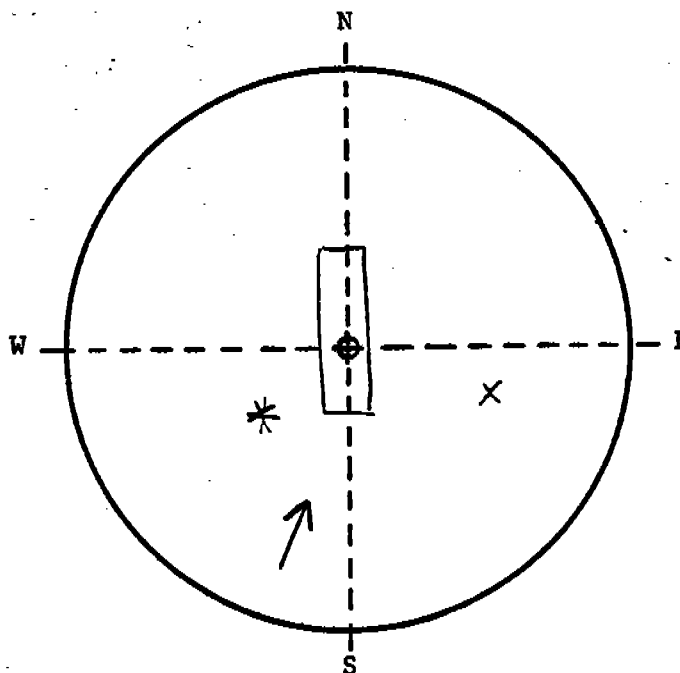
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	10	5
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56				
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks WIND 5-10

GRAY SKY



Observation Record

Pg 1

Observer KEITH B. SMITH

Location COKE PLANT (BATT. #2 SHED)
EAST SIDE

Time: Start 8:00 AM End 9:00 AM

Date OCT. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	5	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

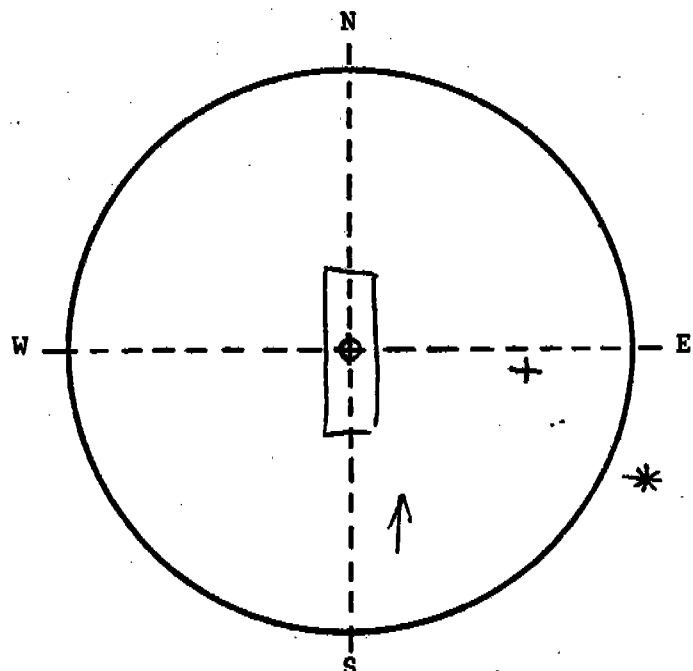
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky

WIND 0-2



14-41-A

Observation Record

Observer NORMAN B. JOHNSON

Location COKE PLANT (BATT #2 SHED TOP)
EAST SIDE

Time: Start 9:00 AM End 10:00 AM

Date OCTOBER 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

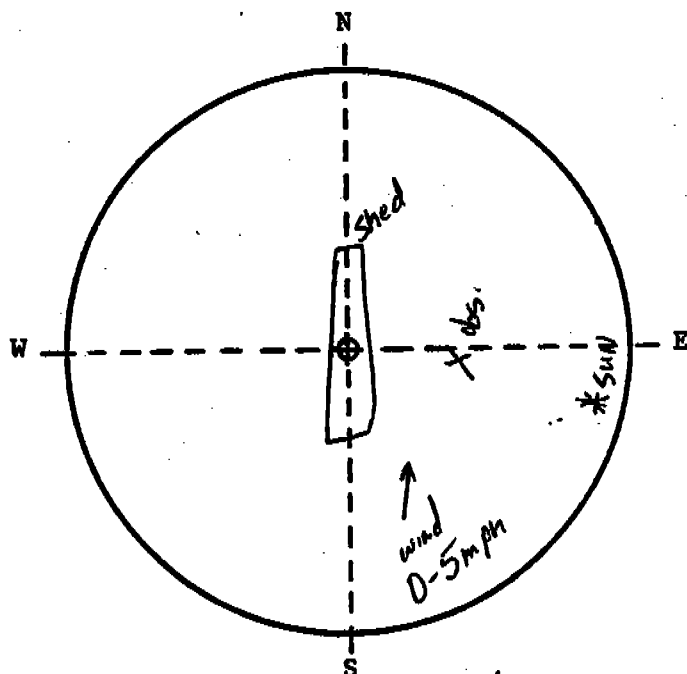
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	5	5	5	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks BLUE SKY



Observation Record

Observer NORMAN B. JOHNSONLocation Coke Plant (#2 BATT SHED TOP)
EAST SIDETime: Start 10:00 AM End 11:00 AMDate OCTOBER 20, 1982

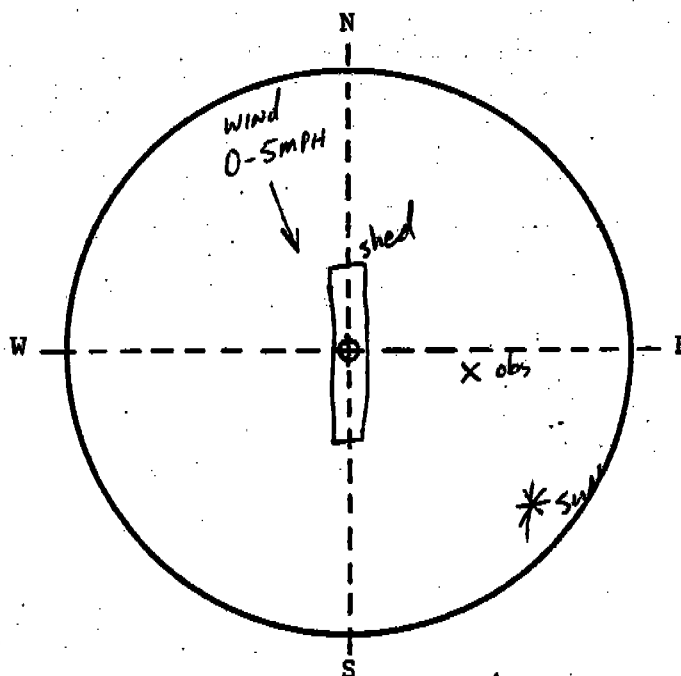
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	5	0
25	0	5	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	5
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks BLUE SKY

14-43

Observation Record

Observer KEITH B. SMITHLocation COKE PLANT (#2 BATT. SHED TOP)
EAST SIDETime: Start 11:00 A End 12:00 NoonDate OCT. 20, 1982

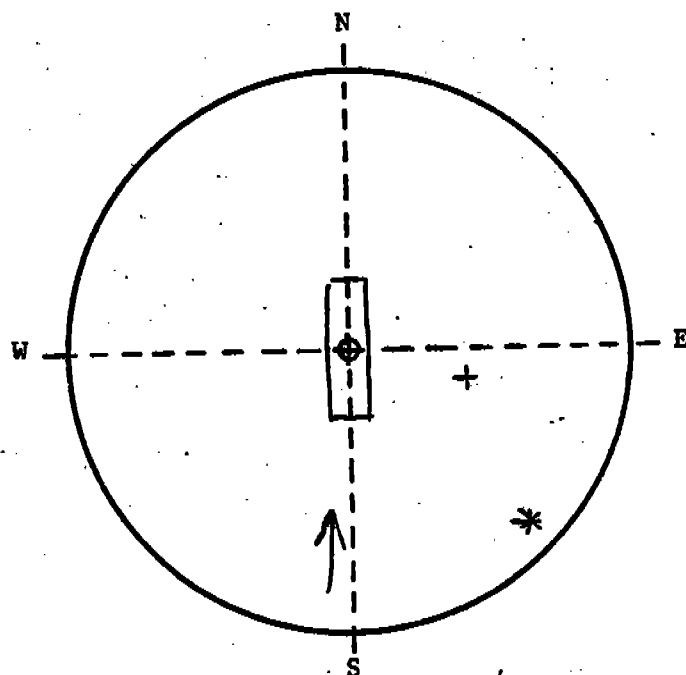
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	5	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	10

MIN	SECONDS			
	0	15	30	45
40	10	5	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks WIND 0-3BLUE SKY

Observation Record

Observer KEITH B. SMITH

Location Coke Plant (#2 BATT Shed Top of Shed)
EAST SIDE

Time: Start 12:00 noon End 1:00 PM

Date OCT. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	10
2	5	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

ASJ

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

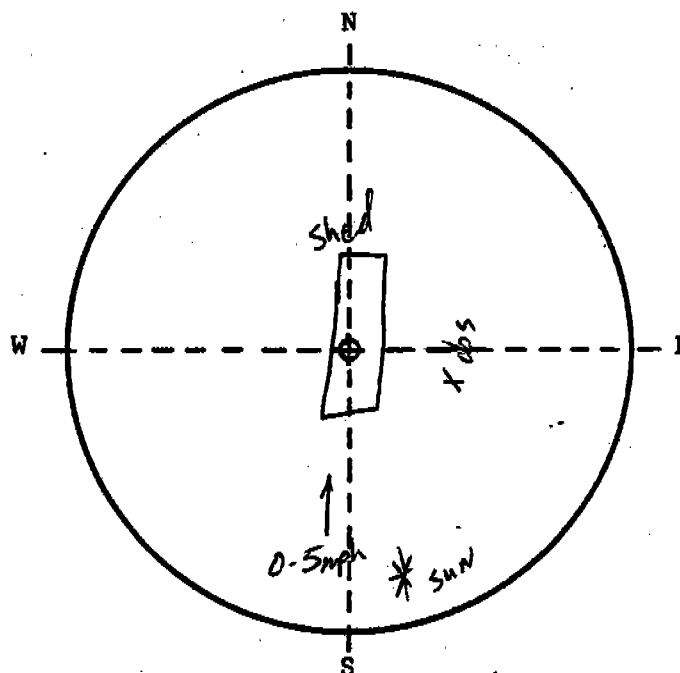
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

KS

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky



Observation Record

Observer KEITH B. SMITH

Location COKE PLANT (#2 BATT. SHED TOP)
EAST SIDE

Time: Start 1:00 PM End 2:00 PM

Date OCT. 20, 1962

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	10	5	5
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

SOUTH
END

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	5	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

X
18

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	10	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

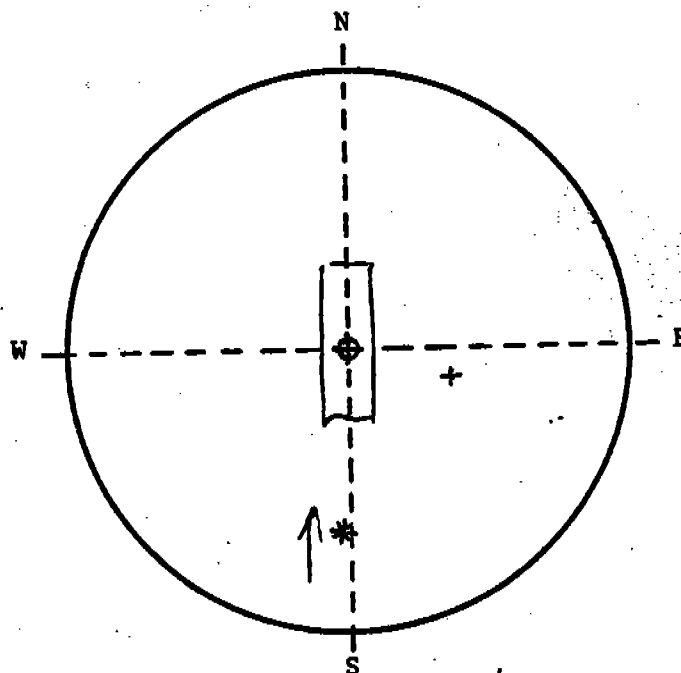
X

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks WIND 0-3

BLUE SKY



Observation Record

Observer KEITH B. SMITH

Location COKE PLANT (#2 BATT. SHED TOP)
EAST SIDE

Time: Start 2:00 PM End 3:00 PM

Date OCT. 20, 1982

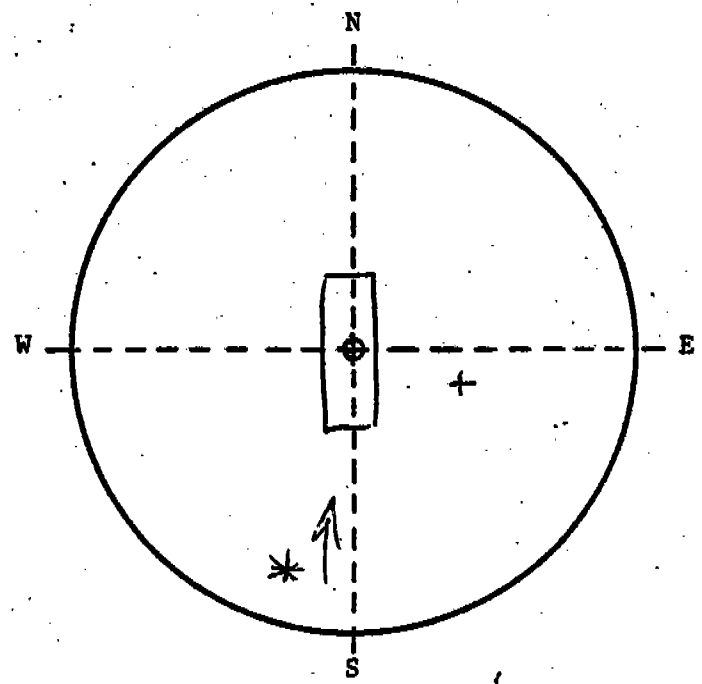
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	5
33	5	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	5
41	5	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks WIND 0-5

BLUE SKY

Observation Record

Observer KEITH R. SMITH

Location COKE PLANT (A2 BATT. SHED TOP)
EAST SIDE

Time: Start 3:00 PM End 4:00 PM

Date OCT. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	5	5	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	5	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

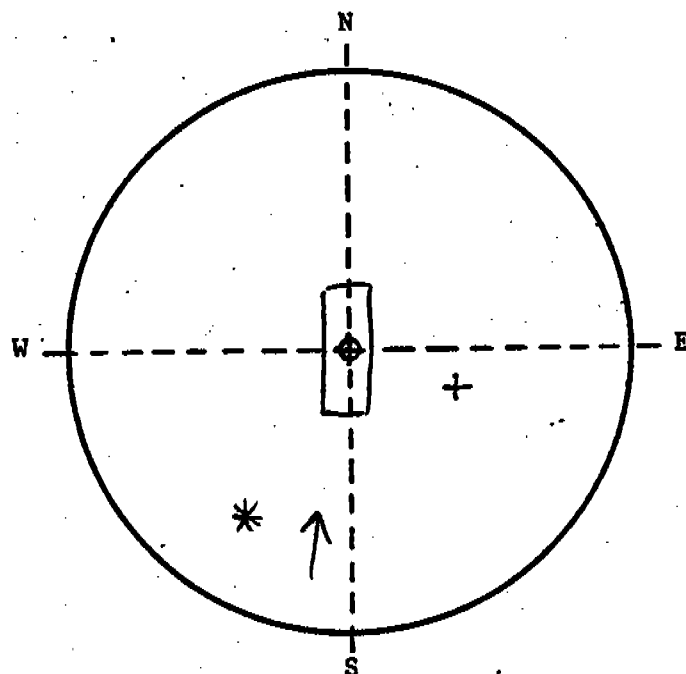
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	5
43	5	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks WIND 0-5

BLUE SKY - LIGHT CLOUDS



Observation Record

PG. 9

Observer KEITH B. SMITH

Location COKE PLANT (#2 BATT. SHED TOP)
EAST SIDE

Time: Start 4:00 PM End 4:27 PM

Date OCT. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	5
13	5	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

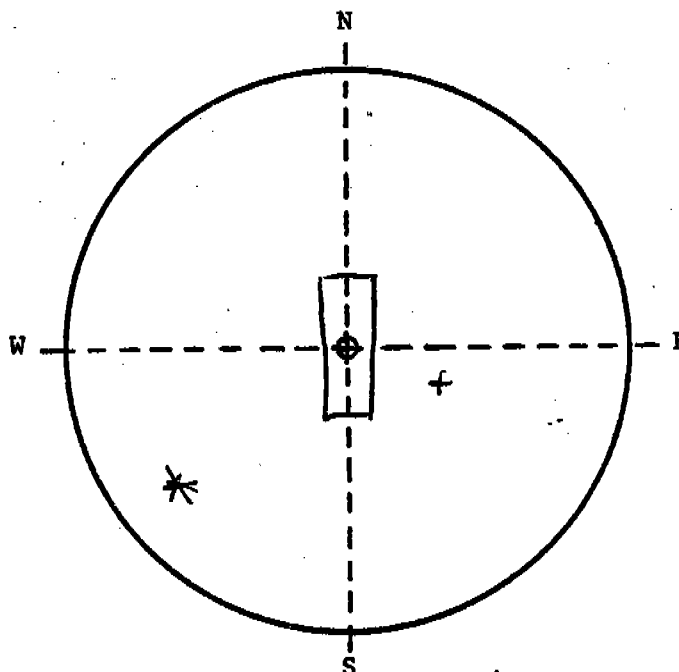
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

MIN	SECONDS			
	0	15	30	45
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



14-49

Observation Record

West

Observer Susan Ferguson

Location #2 Pk battery Shed North

Time: Start 8:00 End 9:00

Date Oct 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	5
16	5	5	5	5
17	5	0	0	0
18	0	0	0	0
19	0	0	0	0

other side of shed - should not have been red.

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	5	5	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	5	5	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	50	70	80	65
56	60	35	5	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

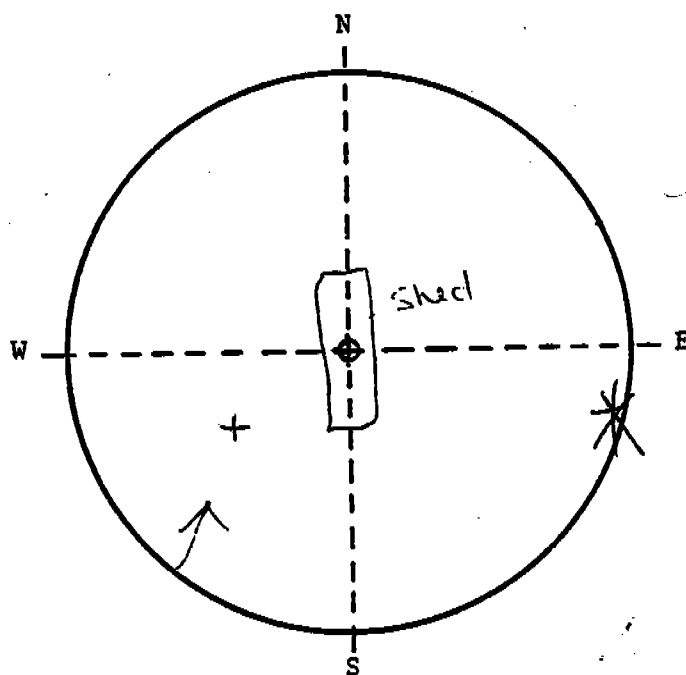
? not from shed wind blew over it

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks

Background - Blue sky & rolling
wind 0-5 mph from SW



Observation Record

WRS⁺

Observer Susan Ferguson

Location # 2 Coke battery shed North

Time: Start 9:00 End 10:00

Date Oct 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	5	5	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	5	5	5	0
19	0	0	0	0

came from
other side
of shed

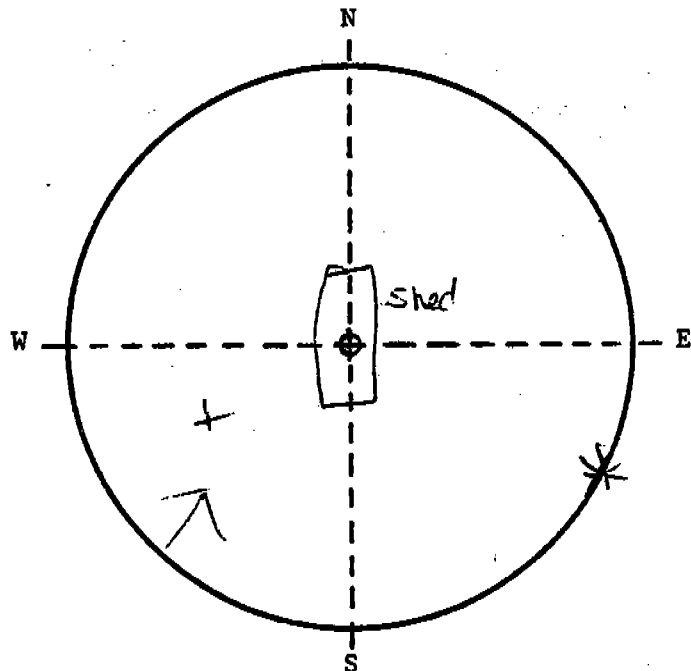
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	5	5	5
52	5	5	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

came from
other side
of shed

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

Background - Rainy & Blue Sky

wind - 0-5 mph from SW

Observation Record

WFS+

Observer Susan Ferguson

Location #2 Coke Battery Shed North

Time: Start 10:00 End 11:00

Date Oct 19, 1952

MIN	SECONDS			
	0	15	30	45
0	○	○	○	○
1	○	○	○	○
2	○	○	○	○
3	○	○	○	○
4	○	○	○	○
5	○	○	○	○
6	○	○	○	○
7	○	○	○	○
8	○	○	○	○
9	○	○	○	○
10	○	○	○	○
11	○	○	○	○
12	○	○	○	○
13	○	○	○	○
14	○	○	○	○
15	○	○	○	○
16	○	○	○	○
17	○	○	○	○
18	○	○	○	○
19	○	○	○	○

MIN	SECONDS			
	0	15	30	45
20	○	○	○	○
21	○	○	○	○
22	○	○	○	○
23	○	○	○	○
24	○	○	○	○
25	○	○	○	○
26	○	○	○	○
27	○	○	○	○
28	○	○	○	○
29	○	○	○	○
30	○	○	○	○
31	○	○	○	○
32	○	○	○	○
33	○	○	○	○
34	○	○	○	○
35	○	○	○	○
36	○	○	○	○
37	○	○	○	○
38	○	○	○	○
39	○	○	○	○

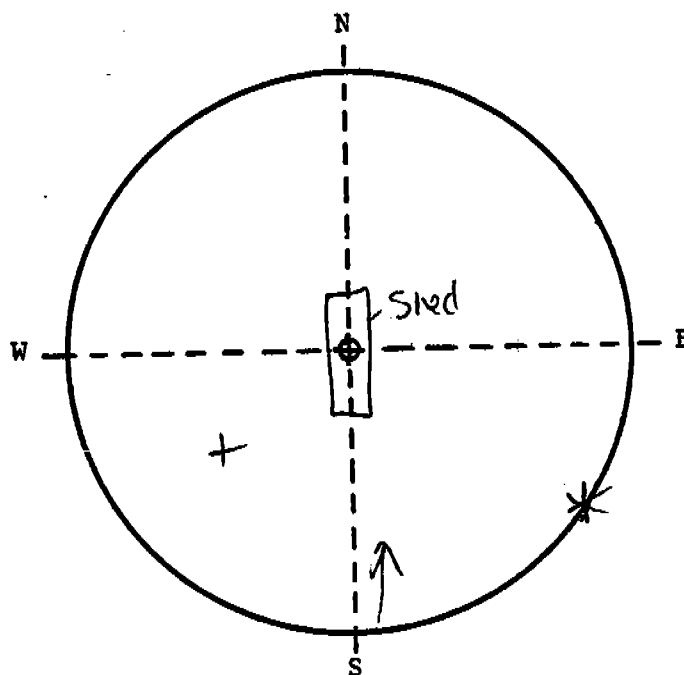
MIN	SECONDS			
	0	15	30	45
40	○	○	○	○
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
45	○	○	○	○
46	○	○	○	○
47	○	○	○	○
48	○	○	○	○
49	○	○	○	○
50	○	○	○	○
51	○	○	○	○
52	○	○	○	○
53	○	○	○	○
54	○	○	○	○
55	○	○	○	○
56	○	○	○	○
57	○	○	○	○
58	○	○	○	○
59	○	○	○	○

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Redding & Blue Sky
Wind 0-5 mph from South



Observation Record

West

Observer NORMAN B. JOHNSON

Location Coke Plant #2 BHT North end

Time: Start 11:00 AM End 12:00 Noon

Date October 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	5	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

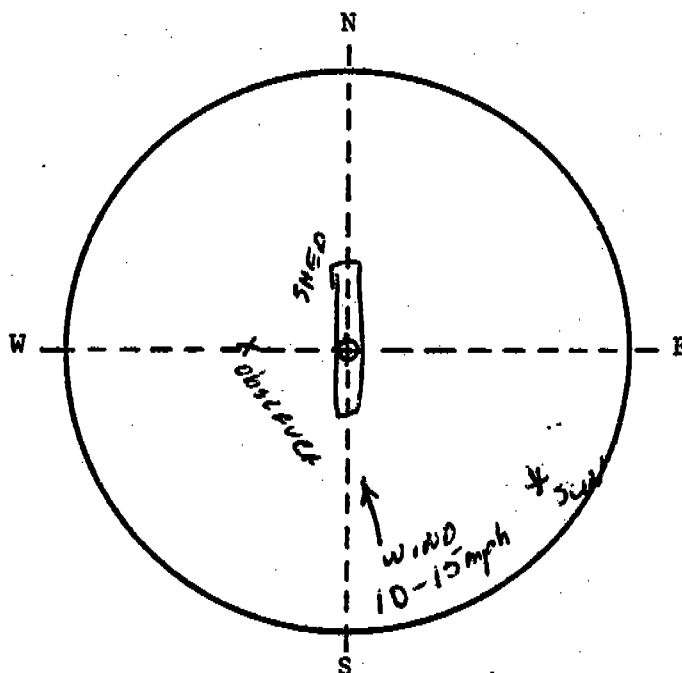
24
Starting
Recording

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	5	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue sky - a few thin clouds.



Observation Record

was 1

Observer Susan Ferguson

Location #2 Coke Battery Steel North

Time: Start 12:00 End 1:00 PM

Date Oct 19, 1952

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

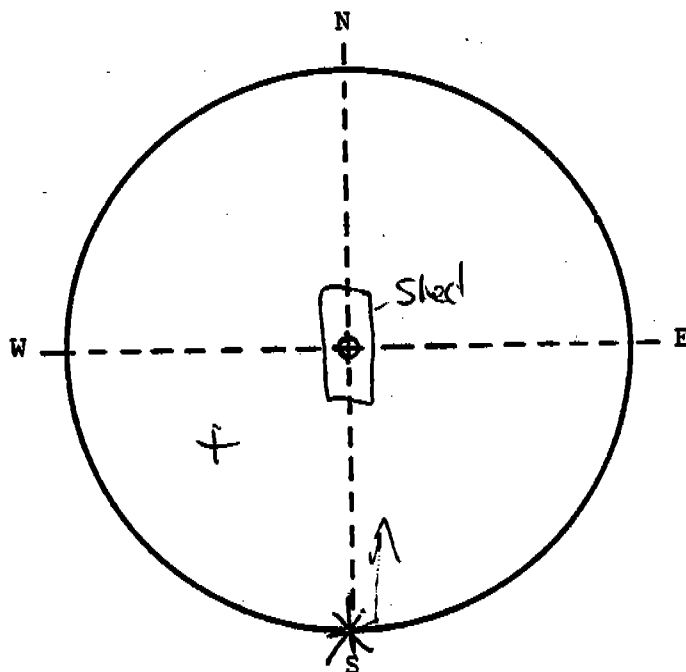
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Railings & Blue sky
Wind 5-10 mph from South



Observation Record

West

Observer Susan Ferguson

Location #2 Coke battery Shed North

Time: Start 1:00 End 2:00 PM

Date Oct 19 1952

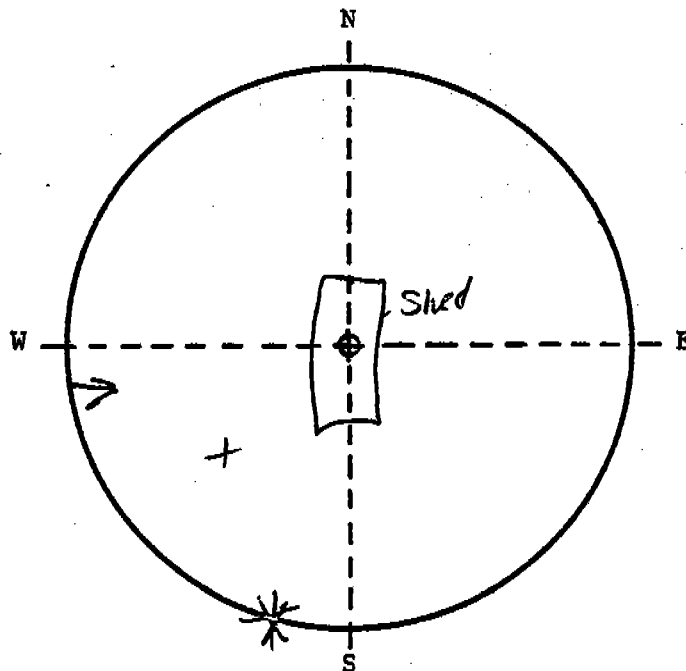
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

Background - pl. Cloudy sky crawling
Wind 5-10 mph from West

Observation Record

West

Observer Susan Ferguson

Location #2 Coke Battery shed North

Time: Start 2:00 End 3:00 PM

Date Oct 19, 1982

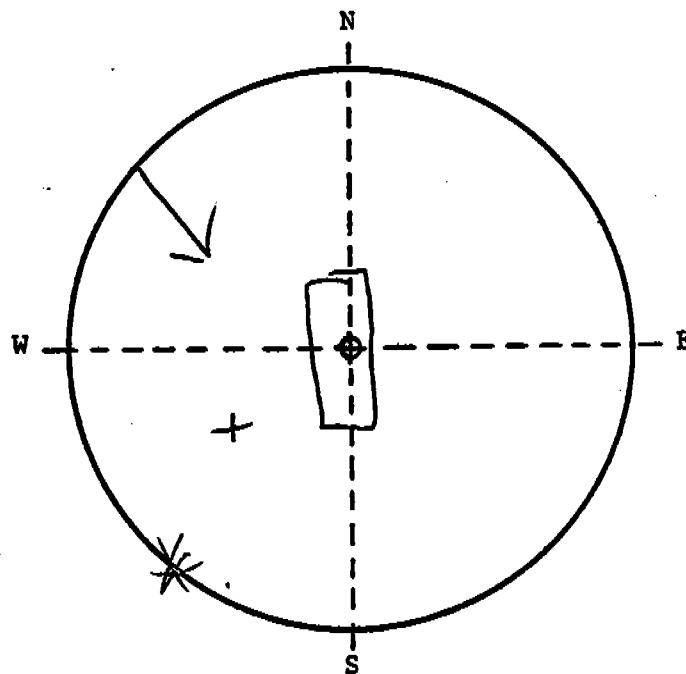
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks _____

Background: All cloudy sky & sailing
wind Cold! 5-10 mph from NW NW

Observation Record

Observer Susan Ferguson

Location #2 Coke Battery shed North west

Time: Start 3:00 End 4:00 PM

Date Oct 19, 1982

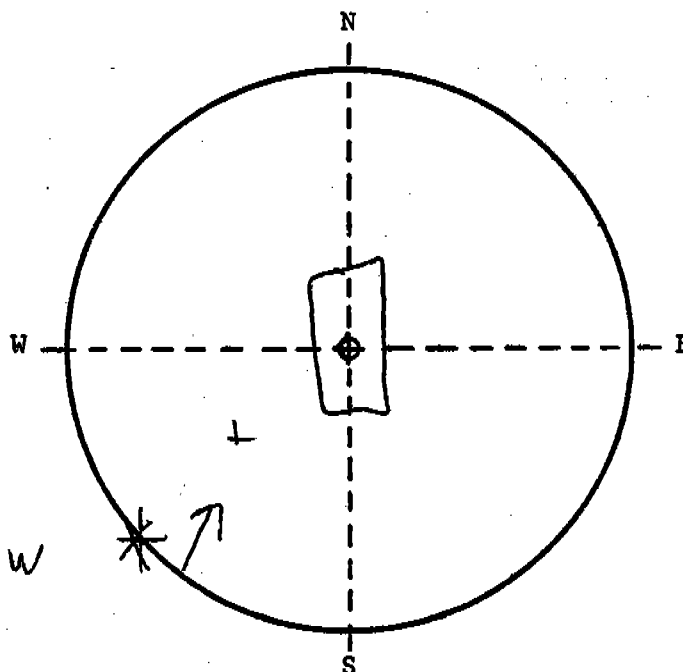
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	5	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks

Background Partly Cloudy Sky - Raining
wind - still cold 5-10 mph from SW

Observation Record

Observer Susan Ferguson

Location #2 Coke Battery Shed North Wps

Time: Start 4:00 End 5:00 PM

Date Oct 19, 1952

MIN	SECONDS			
	0	15	30	45
0	○	○	○	○
1	○	○	○	○
2	○	○	○	○
3	○	○	○	○
4	○	○	○	○
5	○	○	○	○
6	○	○	○	○
7	○	○	○	○
8	○	○	○	○
9	○	○	○	○
10	○	○	○	○
11	○	○	○	○
12	○	○	○	○
13	○	○	○	○
14	○	○	○	○
15	○	○	○	○
16	○	○	○	○
17	○	○	○	○
18	○	○	○	○
19	○	○	○	○

MIN	SECONDS			
	0	15	30	45
20	○	○	○	○
21	○	○	○	○
22	○	○	○	○
23	○	○	○	○
24	○	○	○	○
25	○	○	○	○
26	○	○	○	○
27	○	○	○	○
28	○	○	○	○
29	○	○	○	○
30	○	○	○	○
31	○	○	○	○
32	○	○	○	○
33	○	○	○	○
34	○	○	○	○
35	○	○	○	○
36	○	○	○	○
37	○	○	○	○
38	○	○	○	○
39	○	○	○	○

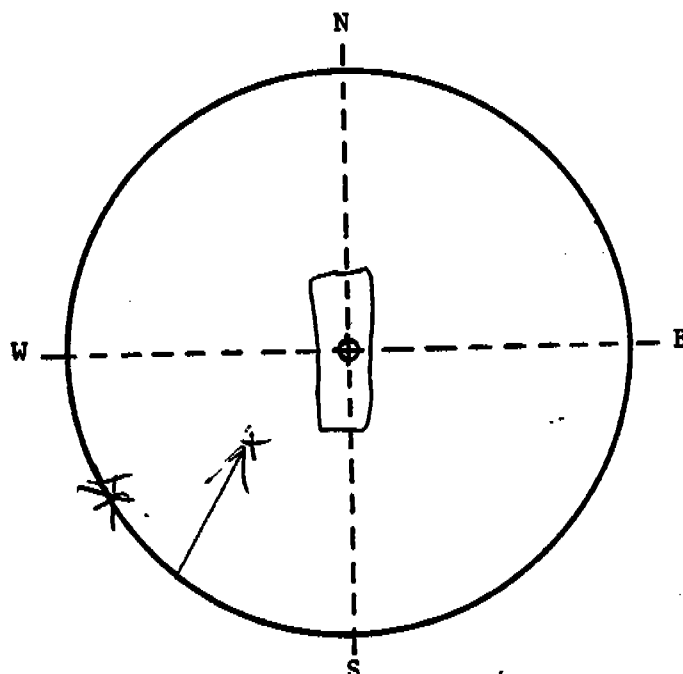
MIN	SECONDS			
	0	15	30	45
40	○	○	○	○
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
45	○	○	○	○
46	○	○	○	○
47	○	○	○	○
48	○	○	○	○
49	○	○	○	○
50	○	○	○	○
51	○	○	○	○
52	○	○	○	○
53	○	○	○	○
54	○	○	○	○
55	○	○	○	○
56	○	○	○	○
57	○	○	○	○
58	○	○	○	○
59	○	○	○	○

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - cloudy sky & raining
Wind - 5-10 mph from SW



14-57

Observation Record

Observer Susan Ferguson

Location #2 Coke battery shed (west) North

Time: Start 5:00 End 5:56 PM

Date Oct 19, 1982

MIN	SECONDS			
	0	15	30	45
0	○	○	○	○
1	○	○	○	○
2	○	○	○	○
3	○	○	○	○
4	○	○	○	○
5	○	○	○	○
6	○	○	○	○
7	○	○	○	○
8	○	○	○	○
9	○	○	○	○
10	○	○	○	○
11	○	○	○	○
12	○	○	○	○
13	○	○	○	○
14	○	○	○	○
15	○	○	○	○
16	○	○	○	○
17	○	○	○	○
18	○	○	○	○
19	○	○	○	○

MIN	SECONDS			
	0	15	30	45
20	○	○	○	○
21	○	○	○	○
22	○	○	○	○
23	○	○	○	○
24	○	○	○	○
25	○	○	○	○
26	○	○	○	○
27	○	○	○	○
28	○	○	○	○
29	○	○	○	○
30	○	○	○	○
31	○	○	○	○
32	○	○	○	○
33	○	○	○	○
34	○	○	○	○
35	○	○	○	○
36	○	○	○	○
37	○	○	○	○
38	○	○	○	○
39	○	○	○	○

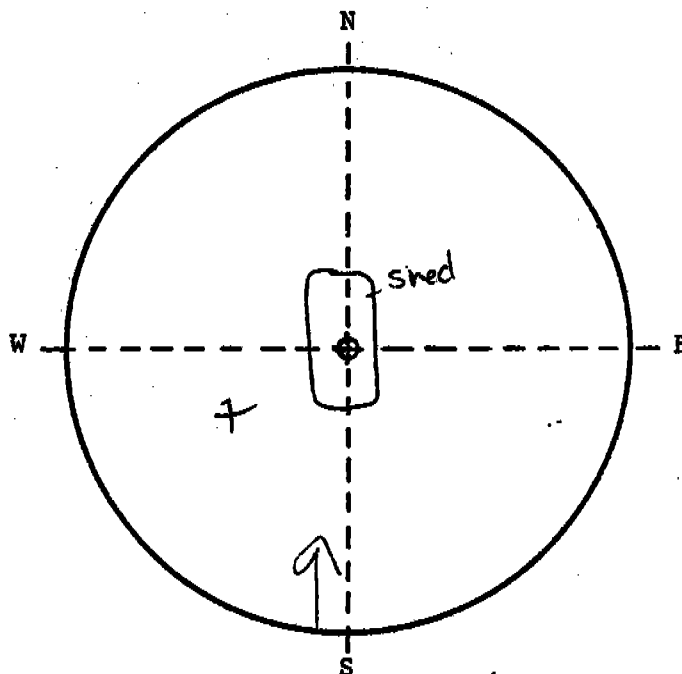
MIN	SECONDS			
	0	15	30	45
40	○	○	○	○
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
45	○	○	○	○
46	○	○	○	○
47	○	○	○	○
48	○	○	○	○
49	○	○	○	○
50	○	○	○	○
51	○	○	○	○
52	○	○	○	○
53	○	○	○	○
54	○	○	○	○
55	○	○	○	○
56				
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Cloudy sky & railing
Wind - 5-10 mph from South



14-58

Observation Record

Observer Susan Ferguson

Location #2 battery Coke shed North (west)

Time: Start 8:00 End 9:00

Date Oct 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

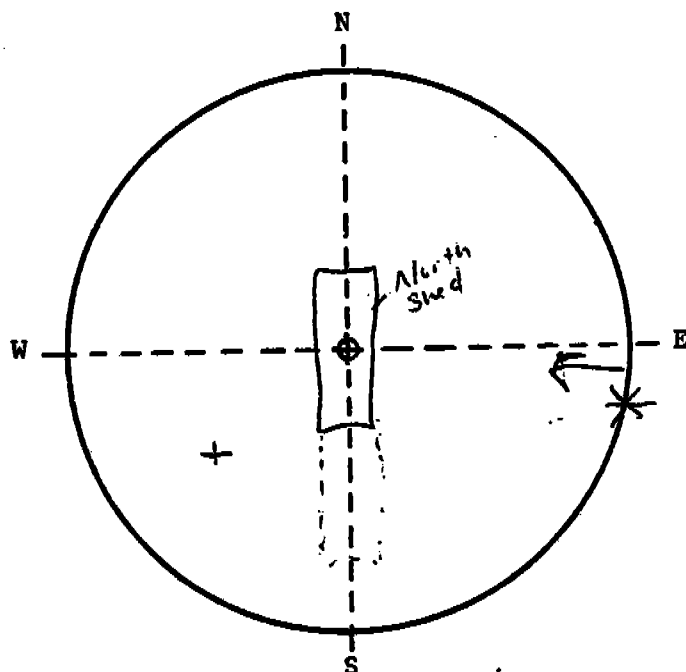
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks

Background - blue sky & raining
Wind - C-3 mph from E



Observation Record

Observer Susan Ferguson

Location # 2 Battery Cove Street ^{West} ^{North}

Time: Start 9:00 End 10:00

Date Oct 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

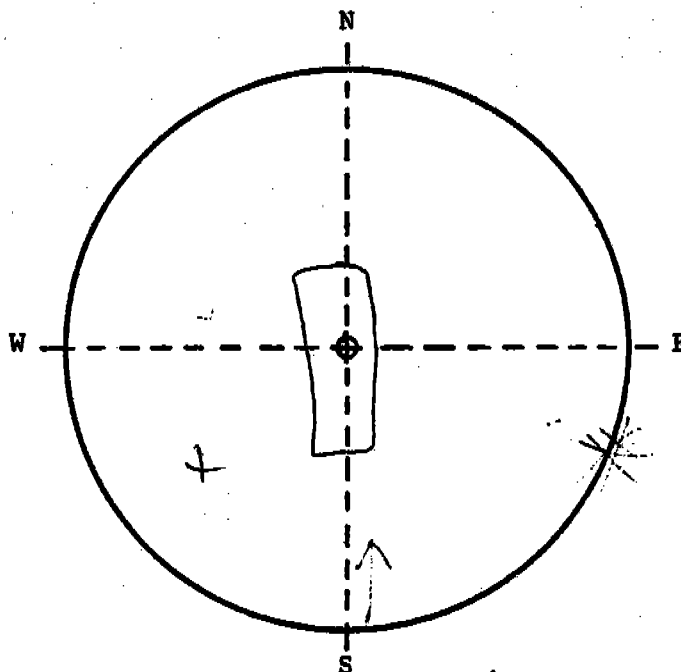
Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Blue sky & Redline

Wind 0-5 mph South



Observation Record

Observer KEITH B. SMITH

Location COKE PLANT SHED NORTHWEST

Time: Start 10:00 AM End 11:00

Date OCT. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	○	○	○	○
1	○	○	○	○
2	○	○	○	○
3	○	○	○	○
4	○	○	○	○
5	○	○	○	○
6	○	○	○	○
7	○	○	○	○
8	○	○	○	○
9	○	○	○	○
10	○	○	○	○
11	○	○	○	○
12	○	○	○	○
13	○	○	○	○
14	○	○	○	○
15	○	○	○	○
16	○	○	○	○
17	○	○	○	○
18	○	○	○	○
19	○	○	○	○

24 Reading

MIN	SECONDS			
	0	15	30	45
20	○	○	○	○
21	○	○	○	○
22	○	○	○	○
23	○	○	○	○
24	○	○	○	○
25	○	○	○	○
26	○	○	○	○
27	○	○	○	○
28	○	○	○	○
29	○	○	○	○
30	○	○	○	○
31	○	○	○	○
32	○	○	○	○
33	○	○	○	○
34	○	○	○	○
35	○	○	○	○
36	○	○	○	○
37	○	○	○	○
38	○	○	○	○
39	○	○	○	○

*-7

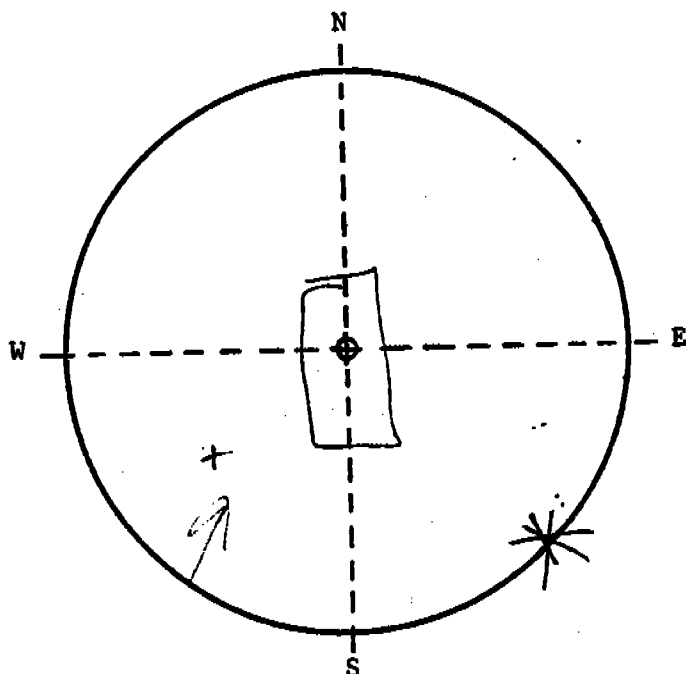
MIN	SECONDS			
	0	15	30	45
40	○	○	○	○
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
45	○	○	○	○
46	○	○	○	○
47	○	○	○	○
48	○	○	○	○
49	○	○	○	○
50	○	○	○	○
51	○	○	○	○
52	○	○	○	○
53	○	○	○	○
54	○	○	○	○
55	○	○	○	○
56	○	○	○	○
57	○	○	○	○
58	○	○	○	○
59	○	○	○	○

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background-Blue sky & Boring
wind 0-5 mph from SW



Observation Record

Observer Susan Ferguson

Location #2 coke battery shed North west

Time: Start 11:00 End 12:00

Date Oct 20, 1982

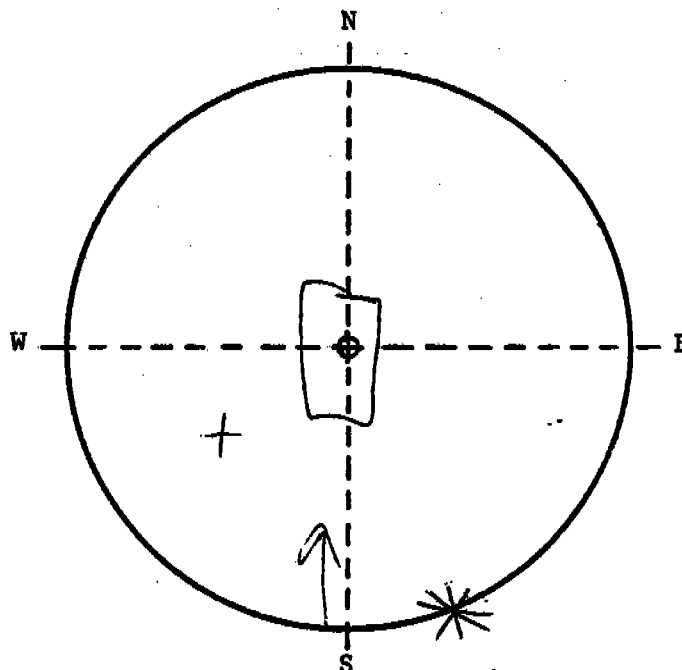
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	5	5	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks 1
Background - Blue sky & railing
wind 0-5 mph from S

Observation Record

Observer Susan Ferguson

Location #2 Coke Battery Shed North Me

Time: Start 12:00 Noon End 1:00

PM

Date Oct 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	5	5
3	5	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

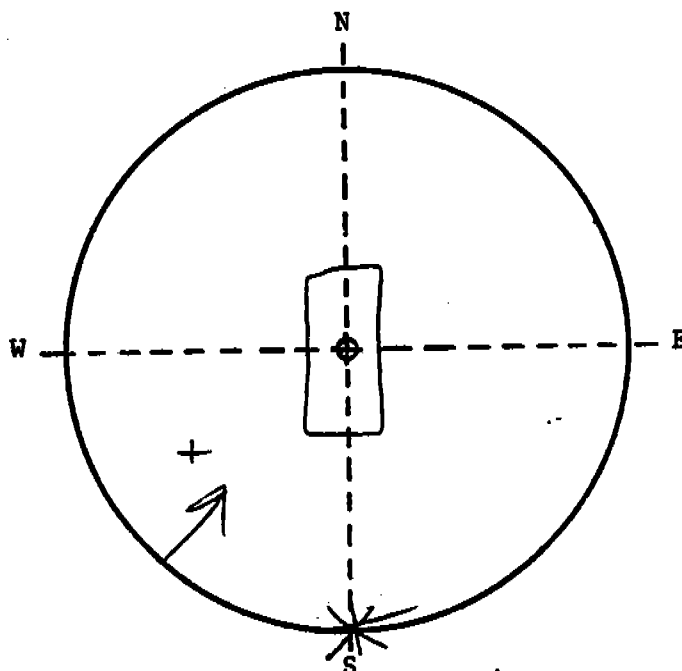
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	10	10	10	5

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Blue sky - Partly
wind 5-10 mph from SW



Observation Record

North West

Observer Susan Ferguson

Location #2 Coke Battery

Time: Start 1:00 End 2:00 PM

Date Oct 20, 1982

MIN	SECONDS			
	0	15	30	45
0	5	5	5	5
1	5	5	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	5	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	5	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

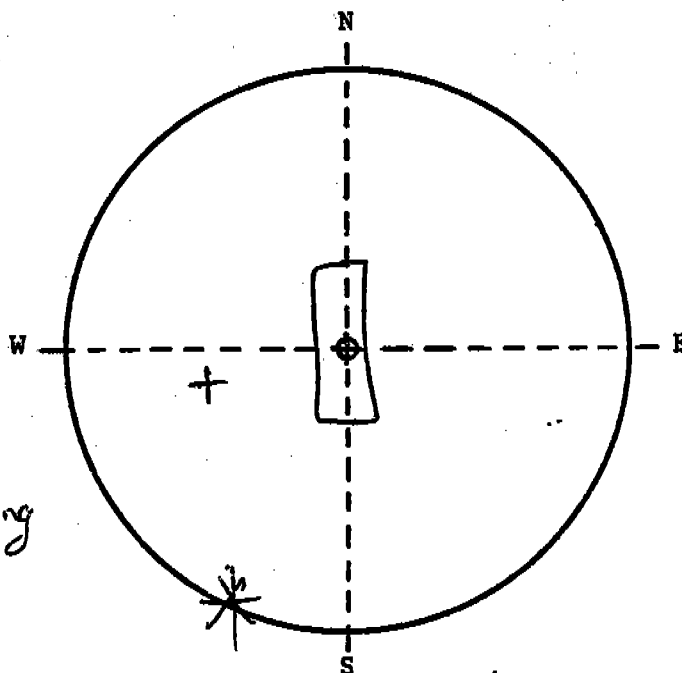
MIN	SECONDS			
	0	15	30	45
40	5	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	5	5
52	5	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background - Blue sky & roof railing
Wind 8-10 mph from



Observation Record

Observer NORMAN B. JOHNSON

Location #2 Lake Barr SHED - N. LAH West

Time: Start 2:00 PM End 3:00 PM

Date Oct. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

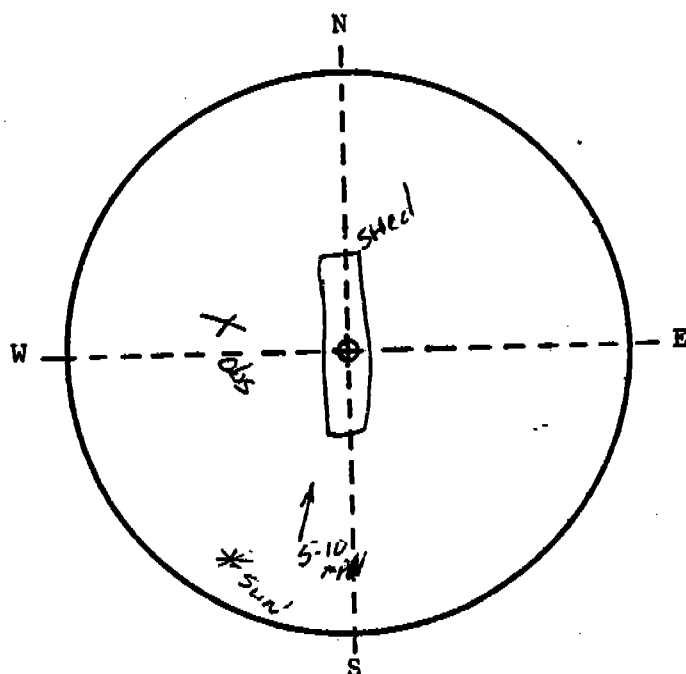
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	5	5	5
38	5	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue sky



Observation Record

Observer Susan Ferguson

Location #2 Cape Battery Road North

Time: Start 3:00 End 4:00 PM

Date Oct 20, 1985

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	5	5	0	0
24	6	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

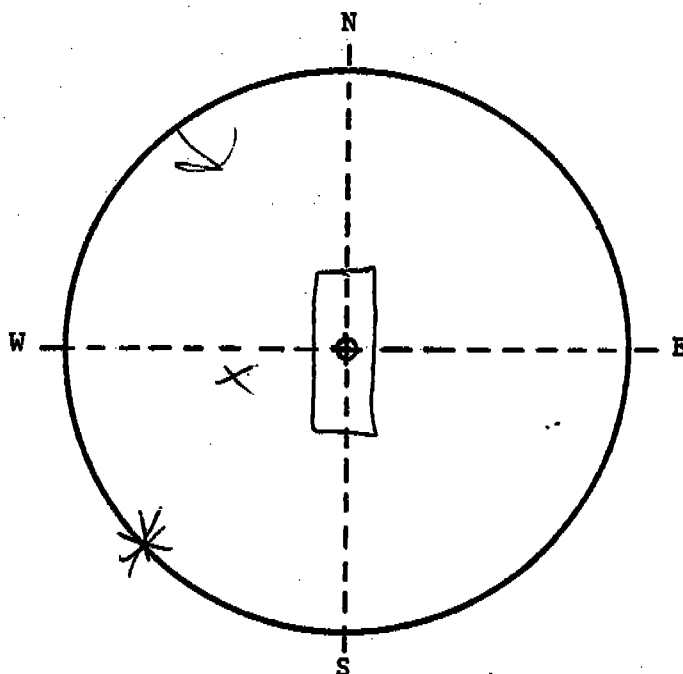
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	5	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background-Blue sky & Rainy
wind 5-10 mph from NW



Observation Record

Observer Susan Ferguson

Location #2 Battery Cake Shed North West

Time: Start 4:00 End 4:27 PM Date Oct 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	5	5	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	5	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

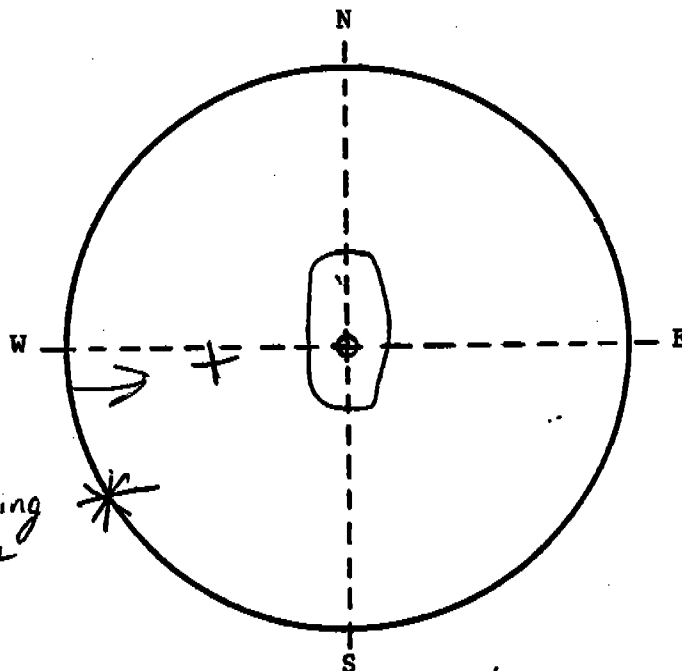
MIN	SECONDS			
	0	15	30	45
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____

Background-partly cloudy sky & railing
wind 0-5 mph from west



Observation Record

Observer K.B. SMITH

Location Shed South west

Time: Start 8:00 A End 9:00

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	20	0	0	10
15	5	0	0	0
16	0	0	0	0
17	0	5	5	5
18	5	5	5	5
19	5	0	5	5

MIN	SECONDS			
	0	15	30	45
20	5	5	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	5	5	5	5
37	5	5	5	5
38	5	5	5	5
39	0	5	5	5

MIN	SECONDS			
	0	15	30	45
40	5	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	20	0	0
55	0	0	0	0
56	0	0	0	0
57	5	5	5	5
58	5	0	0	0
59	0	0	0	10

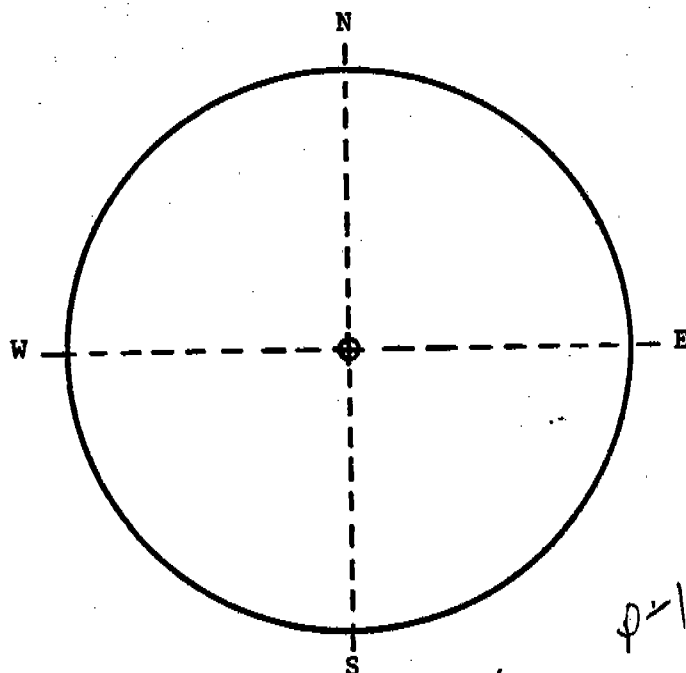
Doors
Found
open

SOUTH
END

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



14-68

0-1

Observation Record

Observer K. B. SMITH

Location Shed South West

Time: Start 9:00 AM End 10:00

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	5	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	5	10	0	0
11	0	0	0	0
12	0	0	0	0
13	2	15	5	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

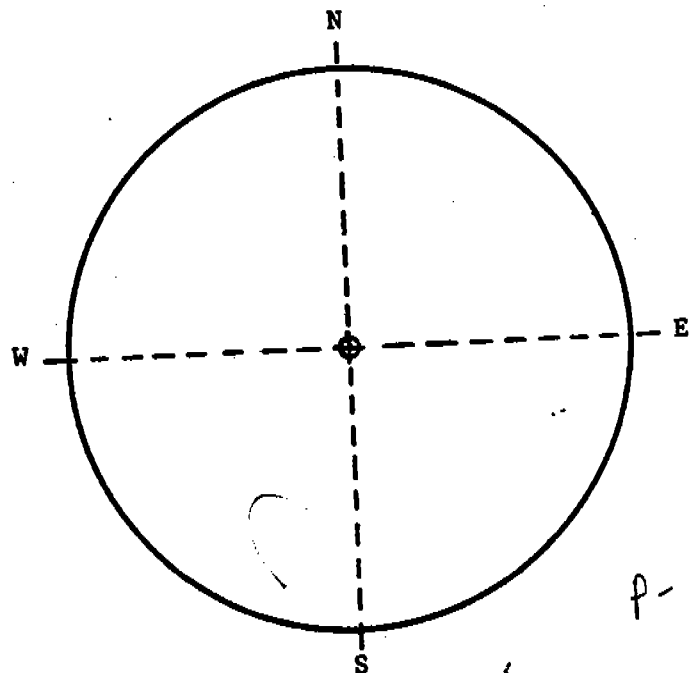
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	5
31	0	5	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	5	0
59	5	0	5	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer M R. Kitchen

Location South West Shed

Time: Start 1000 End 1100 AM

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	5	5	0	0
1	5	5	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	5
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

open
doors
closed

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

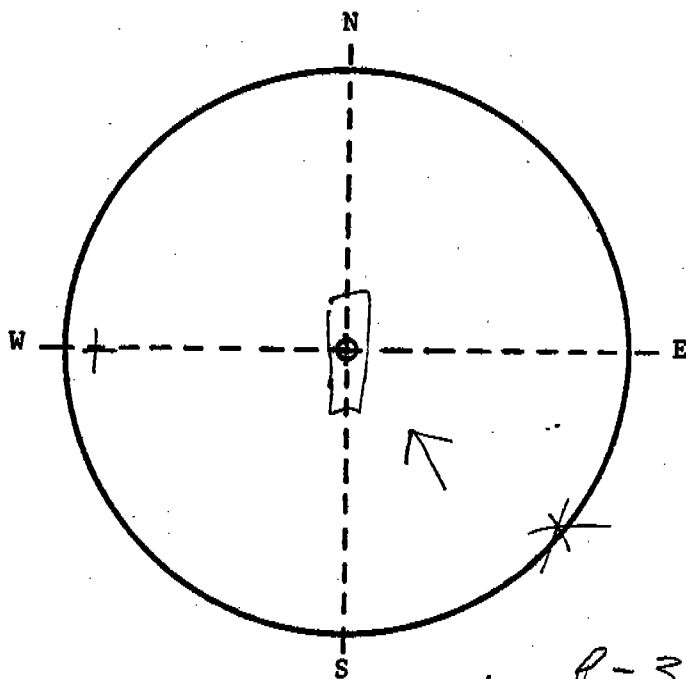
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	5
58	5	0	0	0
59	0	0	0	0

By
Pillar

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



14-70

P-3

Observation Record

Observer M.R. Kitchen

Location Southwest Shed

Time: Start 1100 End N 007

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

NJ →

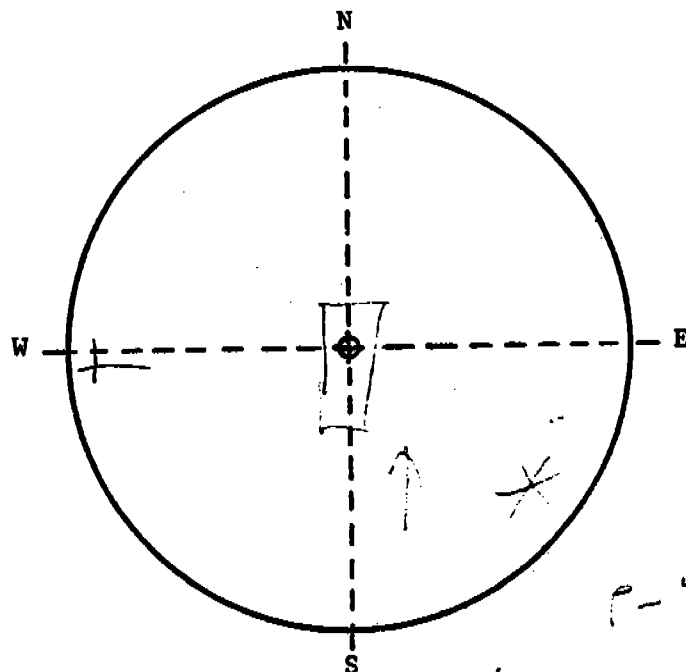
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	10	15	10
23	10	5	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	5
30	0	0	0	0
31	0	0	0	0
32	0	0	5	5
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	5	0
48	0	0	0	0
49	0	0	0	5
50	0	10	5	15
51	15	15	10	5
52	10	10	10	5
53	5	5	5	5
54	5	5	5	5
55	5	5	5	5
56	5	5	5	5
57	5	5	5	5
58	5	5	5	5
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



P-4

Observation Record

Observer NORMAN B. JOHNSON

Location Coke Plant - 2 mi S-HED South West

Time: Start 12:00 Noon End 1:00 pm

Date October 19, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	5	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	5
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

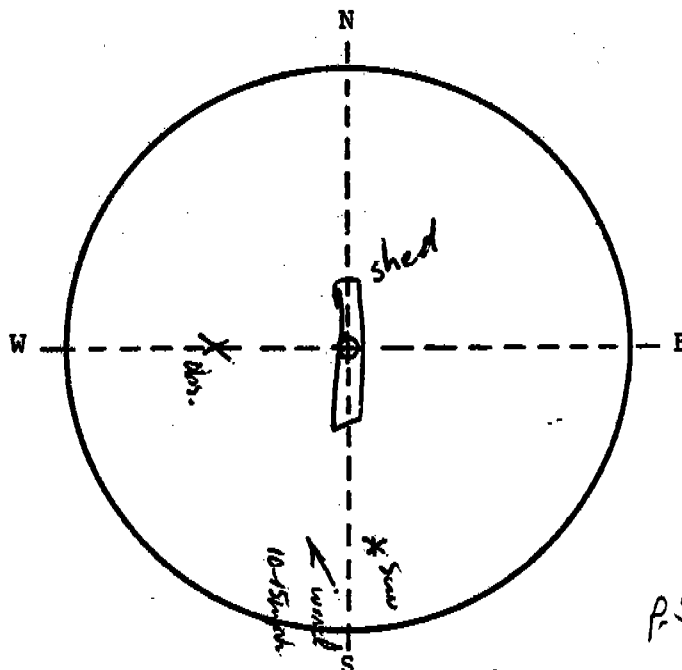
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	10	5
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue sky - Thin Clouds



Observation Record

Observer Mr. R. Kitchen

Location South West Sea

Time: Start 1300 End 1400

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	5	5	0
16	5	0	0	5
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

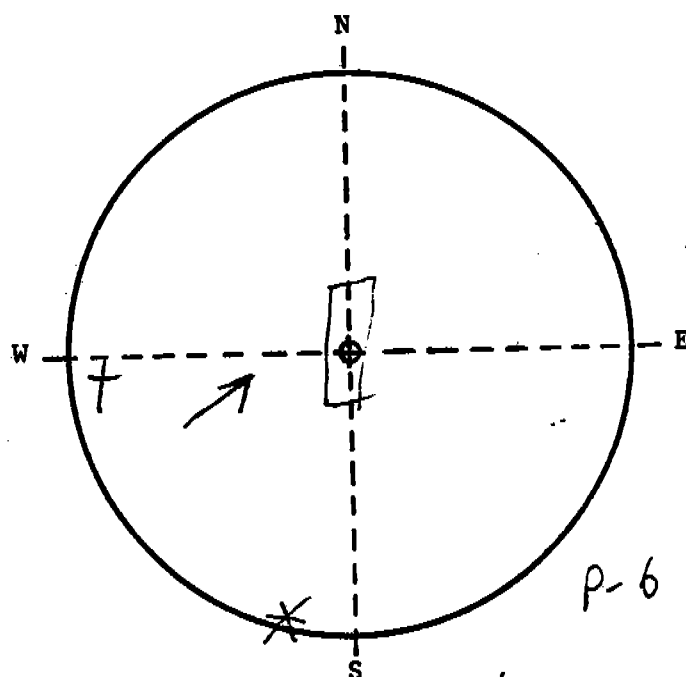
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	5	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer M. R. Kitchen

Location South West Shed

Time: Start 1400 End 1500

Date 10/19/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

NJ

MK

SF

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

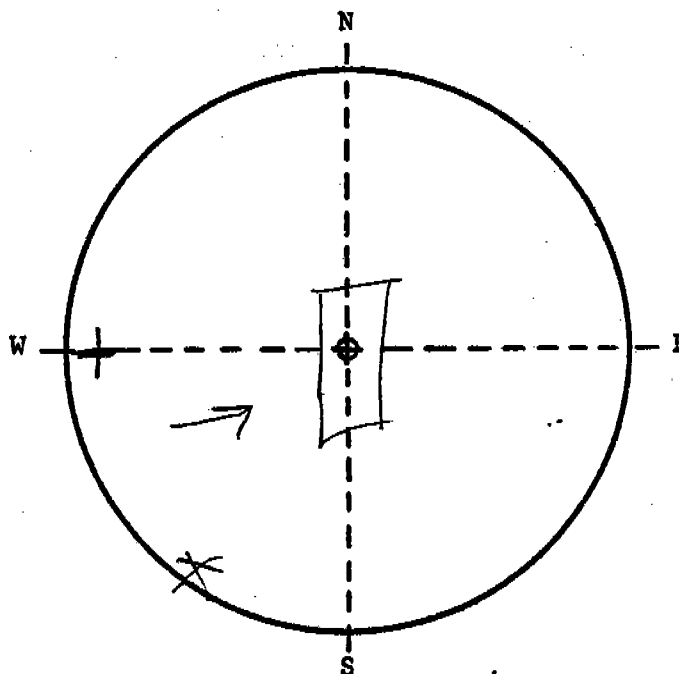
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

NK →

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



14-74

Page 7

Observation Record

Observer Newell Kitchen

Location Southwest shed

Time: Start 1500 End 1600

Date 19/10/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

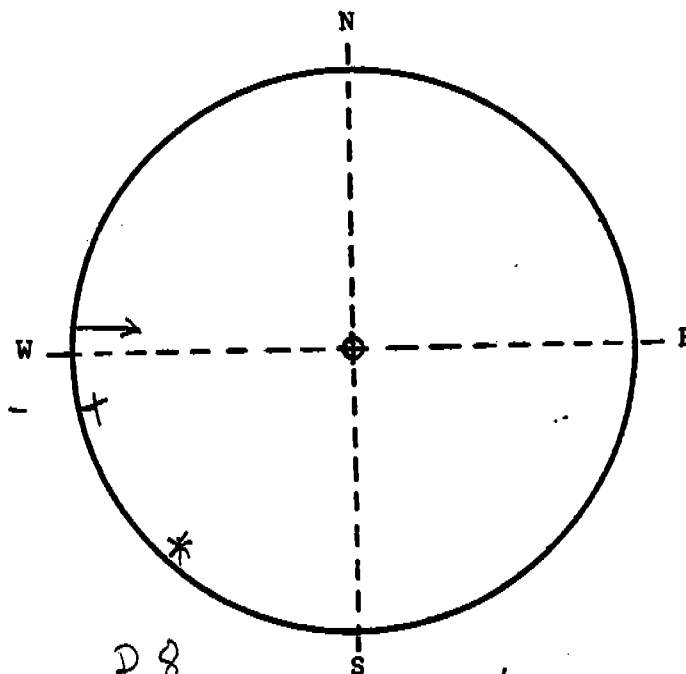
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	5	5	5
49	5	5	5	5
50	5	5	5	5
51	5	0	0	5
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



14-75 P.8

Observation Record

Observer Nowell Kitchen

Location South West Shed

Time: Start 1600 End 1700

Date 19/10/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

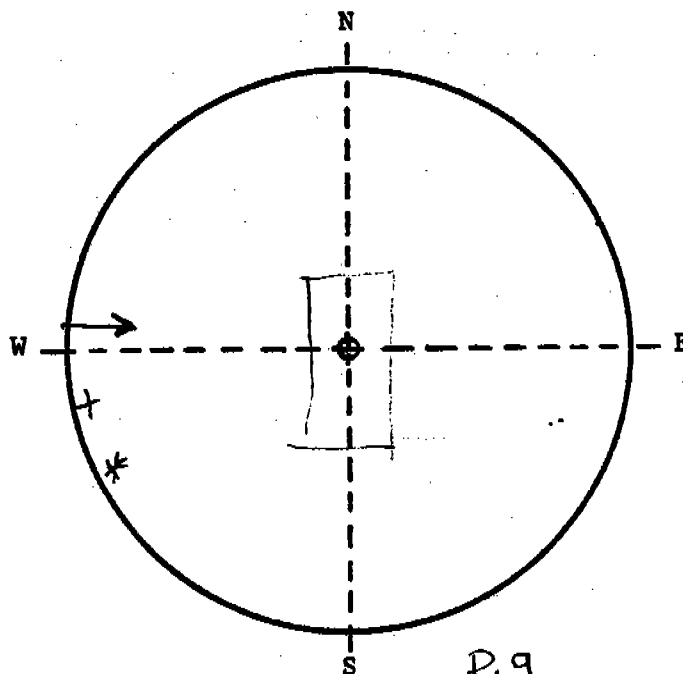
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer Newell Kitchen

Location South west Shed

Time: Start 1700 End 1757

Date 19/10/92

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	5	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

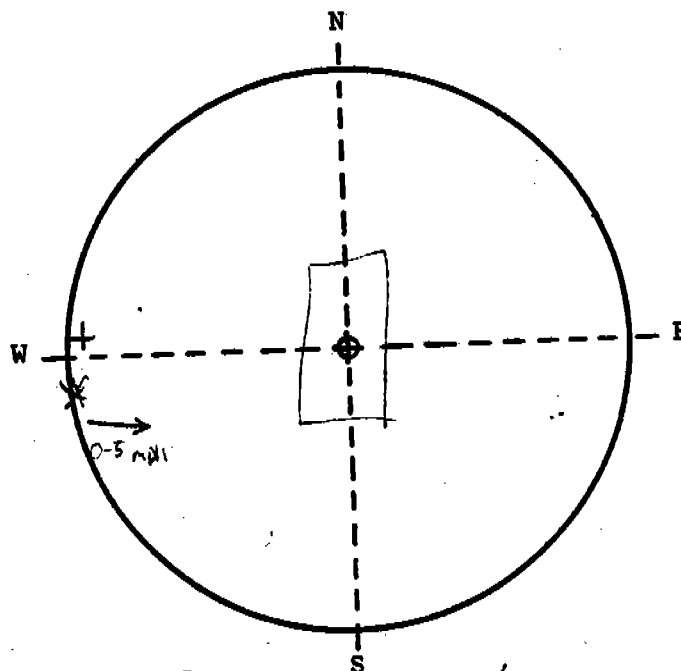
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	5
32	0	5	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	5	0	0

MIN	SECONDS			
	0	15	30	45
40	0	5	0	0
41	5	0	0	0
42	0	0	5	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	5	0	0
55	0	0	0	0
56	0	0	0	0
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer NORMAN B. JOHNSON

Location Coke Plant #2 BATT SHED South End West

Time: Start 8:00AM End 9:00AM

Date October 20, 1982

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

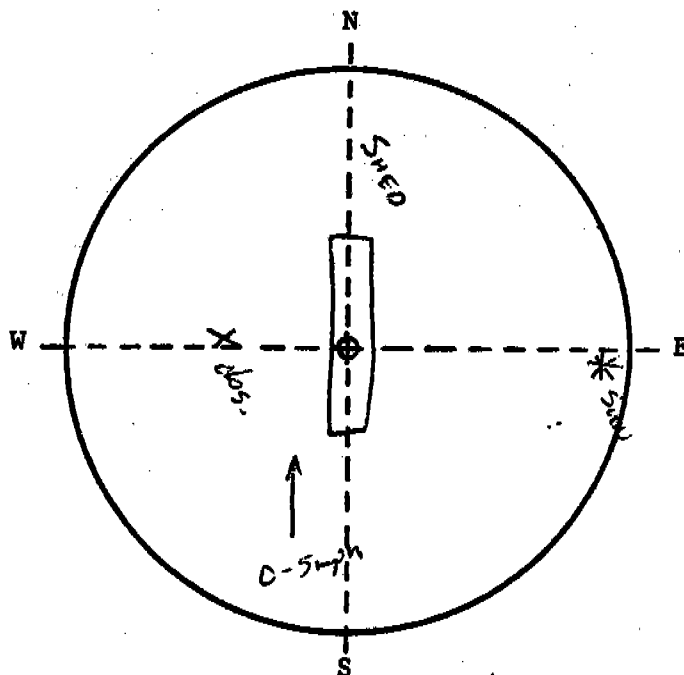
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky



Observation Record

South West

Observer JAMES WILSON

Location CAPE CUBENS BRANCH SOUTH AFRICA

Time: Start 9:00 AM End 16:00 AM

Date 10/20/52

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	5	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	5	5
12	0	0	0	0
13	0	0	5	5
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	5	5
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	5	5	5	0
35	5	5	5	5
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

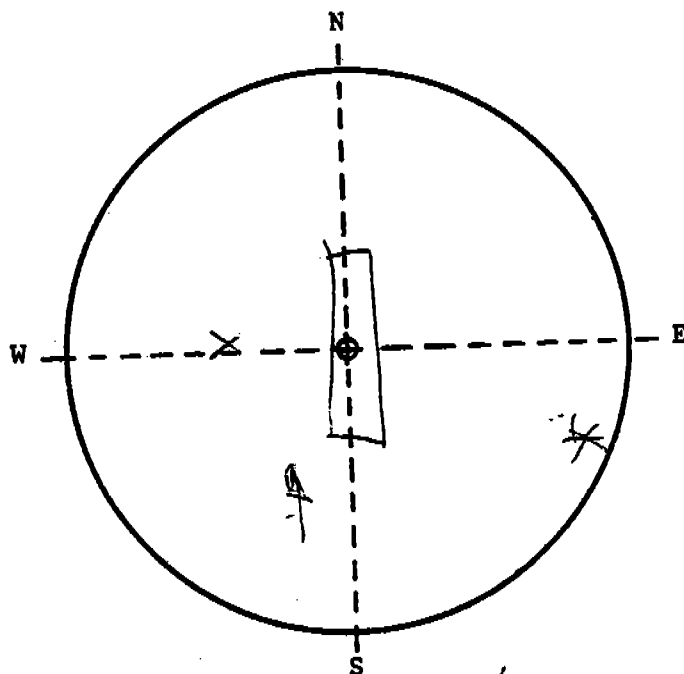
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	5
52	5	5	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky & Black Rain

WIND SOUTH - E - S



Observation Record

Observer J. Williams

Location COKE CLEED West
1/2 BTH SFD - SOUTH

Time: Start 10:00 AM End 11:00 AM

Date October 20, 1982

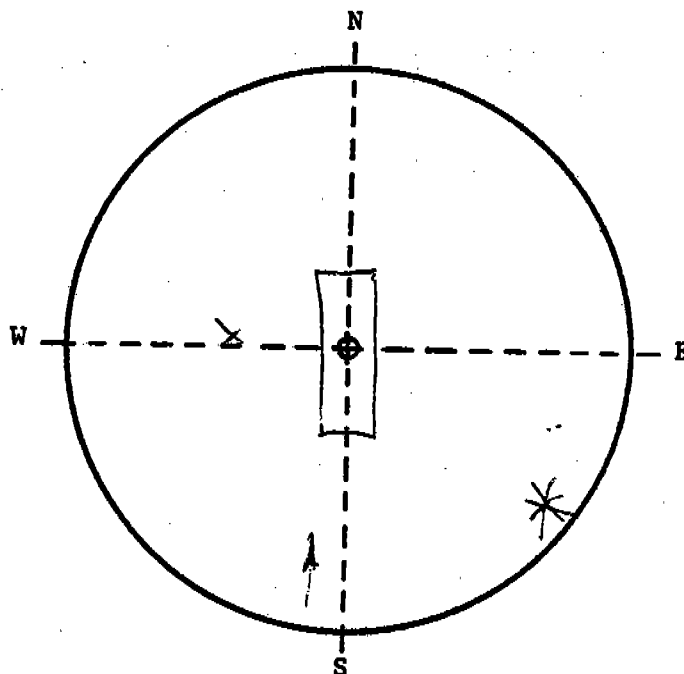
MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	5
2	5	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	5
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	5
46	5	5	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	5	5	5
55	5	5	5	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	5	5

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point



Remarks BLUE SKY & BLACK PILL

0-WIND

Observation Record

South West

Observer Wilson

Location #2 Bait Station (Coke & W)

Time: Start 11:00 AM End 12:00 Noon

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	5	5	5	5
1	5	5	5	5
2	5	5	5	5
3	5	5	5	5
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

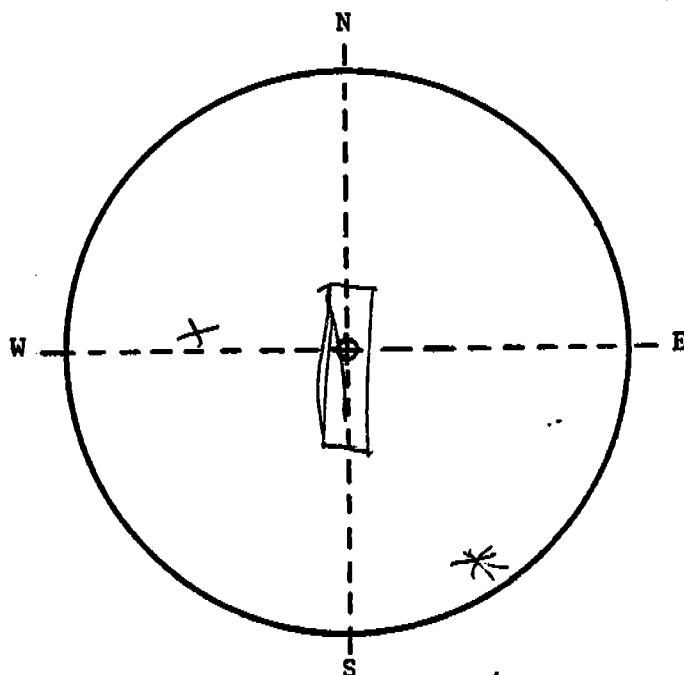
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	5	5	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	5
50	5	0	5	5
51	5	5	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky & Black Red

0-5 wind



Observation Record

Coke Plant West

Observer J. Wilson

Location #2 BURN SHED - SOUTHERN

Time: Start 12:00 PM End 1:00 PM

Date 10/26/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	5
5	5	5	5	5
6	5	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	5	5	5
11	5	5	5	5
12	5	5	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

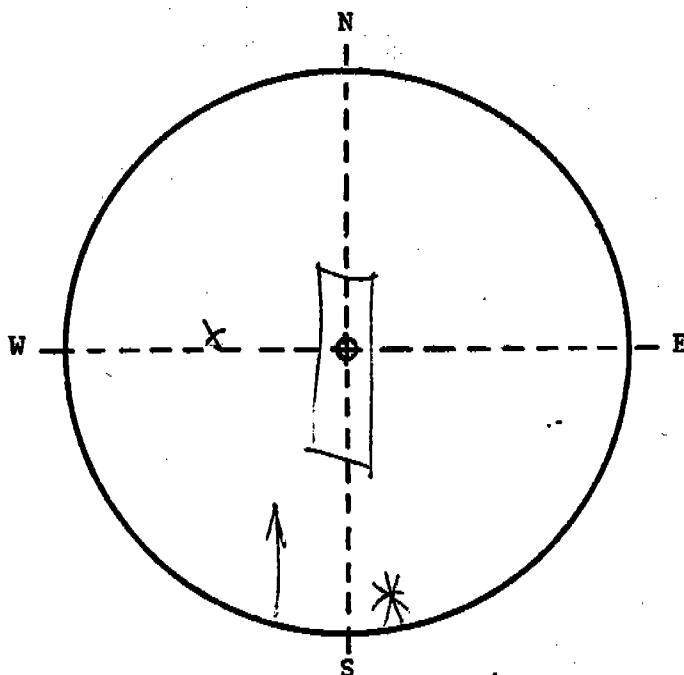
MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	5	5	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	5	5	5
53	5	5	5	5
54	5	5	5	5
55	5	5	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	5

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks Blue Sky & Black Rail

0-5 wind



14-82

Observation Record

Observer J. L. Jensen

Location #2 Battery Sub (South End) ^{West}

Time: Start 1:00 pm End 2:00 pm

Date Oct. 20, 1982

MIN	SECONDS			
	0	15	30	45
0	5	5	5	5
1	5	5	5	5
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	5	5	5	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	10	10	15
14	20	10	10	10
15	10	10	10	5
16	5	5	5	5
17	5	5	0	0
18	0	0	0	0
19	0	0	0	0

NBJ

MIN	SECONDS			
	0	15	30	45
20	0	0	5	5
21	5	5	5	5
22	5	5	5	5
23	5	5	5	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	5
31	0	0	0	0
32	0	0	0	0
33	0	0	0	5
34	0	5	5	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	10	10	10	10

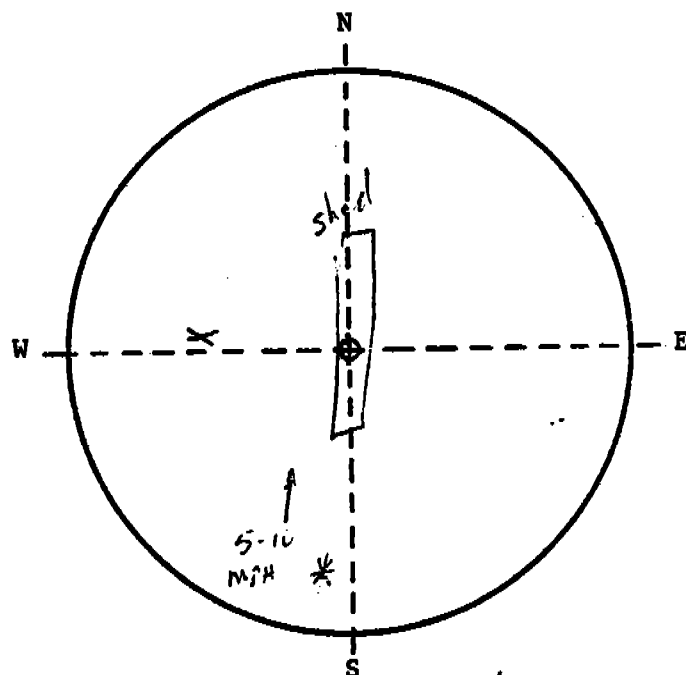
MIN	SECONDS			
	0	15	30	45
40	10	10	10	10
41	10	5	5	5
42	5	5	5	5
43	5	5	5	0
44	0	0	0	0
45	0	5	5	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	5	5	5
54	5	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

JW

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer J. Wilson

Location Coke Plant West #2 BATHSARD (SOUTH FLD)

Time: Start 2:00 End 3:00 PM Date 10/26/82

MIN	SECONDS			
	0	15	30	45
0	0	5	5	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

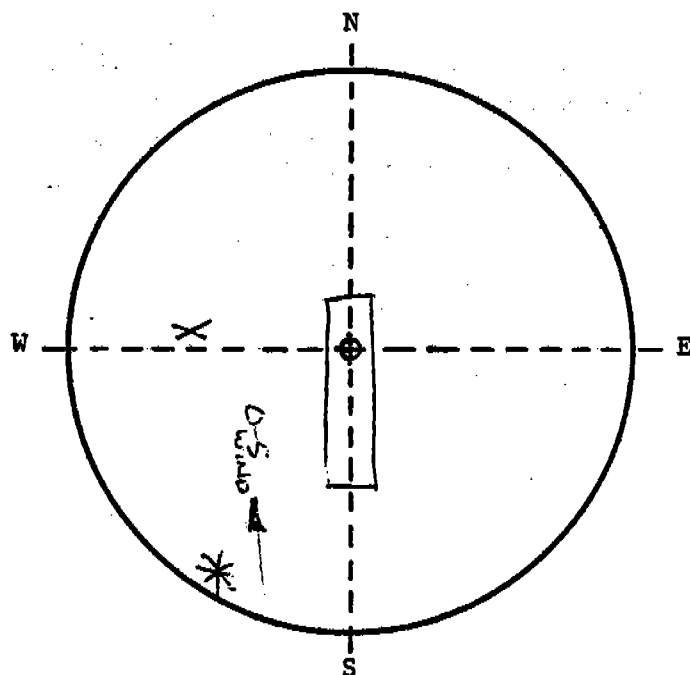
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	10
34	5	5	5	5
35	5	5	5	5
36	0	0	0	0
37	0	0	0	0
38	0	0	0	10
39	10	15	15	15

MIN	SECONDS			
	0	15	30	45
40	10	10	5	5
41	5	5	5	5
42	5	0	0	0
43	0	0	0	0
44	0	0	5	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	5	5
52	5	0	0	0
53	0	5	5	5
54	0	0	0	0
55	0	0	5	5
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer J. Wilson

Location COKE PLANT West
HEARD SHED (South END)

Time: Start 3:00 End 4:00pm

Date 10/26/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	5	5
4	5	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	5	5
9	5	0	0	0
10	0	0	5	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

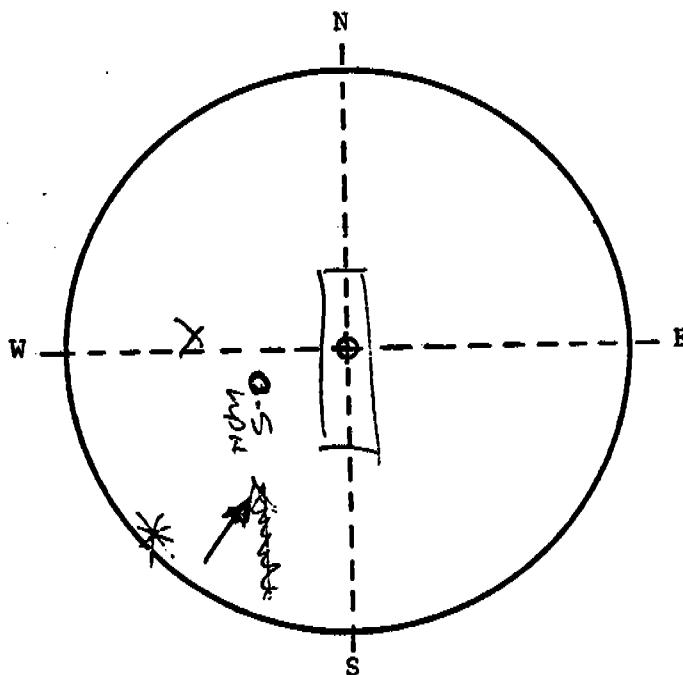
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	5
24	10	5	5	5
25	5	5	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0

MIN	SECONDS			
	0	15	30	45
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	5	5
44	5	5	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	5	5
49	5	5	5	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Observation Record

Observer J. Wilson

Location Coke Plant West
42 Park Street (South End)

Time: Start 4:00 PM End 4:28 PM

Date 10/20/82

MIN	SECONDS			
	0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	5	10	10	5
15	5	5	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0

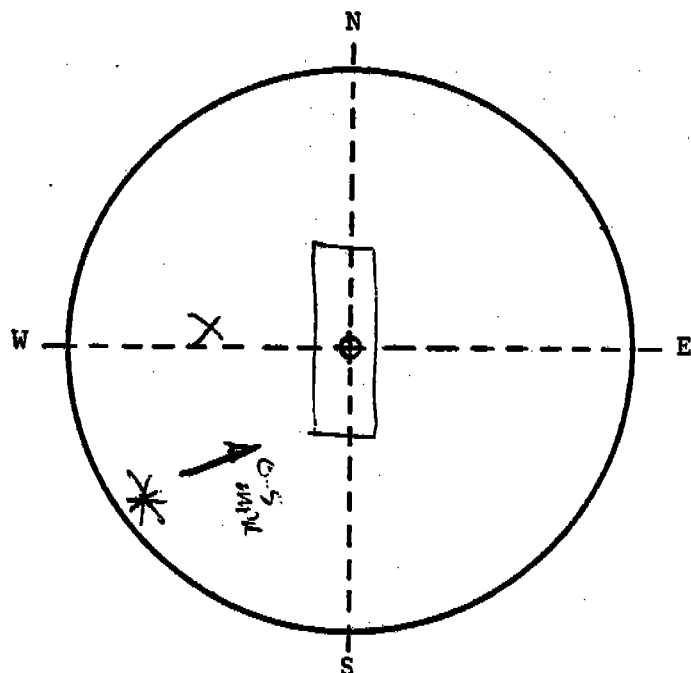
MIN	SECONDS			
	0	15	30	45
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	5
24	5	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

MIN	SECONDS			
	0	15	30	45
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				

Orientation:

- Source
- * Sun
- Wind Direction & Speed
- + Observation Point

Remarks _____



Laboratory Data:

TIMP ENVIRONMENTAL TESTING CO.
SAMPLE RECOVERY

Location USS-Geneva coke Beahouse #5 Date 10/19/82

Filter & Sample No. 220 Run No. 1 Acetone Blank .0003 g/100 ml H₂O Blank .0005

Filter Weights

Date & Time 10/21/1100 10/22/0900

Final Wt. (g) .7785 .7785

Initial Wt. (g) .7857 .7857

Net Wt. (g) (.0072) (.0072)

Average net wt. of 2 weighings within .5 mg (g) (.0072)

Front Wash Weights

Volume of Acetone 290 ml

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 146.2262 146.2266

Initial Wt. (g) 146.2038 146.2038

Pre. Net Wt. (g) .0224 .0228

Average pre. net wt. of 2 weighings within .5 mg (g) .0226

Minus Acetone Blank .00087

Average Net Weight .02173

Back Catch - H₂O

Impinger No. 1 2 3 4 5 6

Final Wt. (g) 575.9 594.7 478.2 850.2

Initial Wt. (g) 575.9 593.9 475.6 842

Net Wt. (g) 575.9 478.2 850.2

Total H₂O Collected (g) 0 0.8 2.6 8.2

Back Catch - Gravimetric Analysis

Initial H₂O Vol. (ml) Imp. #1 100 Imp. #2 100 Imp. #3 Imp. #4

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 153.4940 153.4944

Initial Wt. (g) 153.4757 153.4757

Pre. Net Wt. (g) .0183 .0187

Average pre. net wt. of 2 weighings within .5 mg (g) .0185

Minus H₂O Blank .0015

Ave. Net Wt. (g) .0190

GAS ANALYSIS DATA FORM

COMMENTS:

PLANT USS - Geneva Coke Plant
 DATE 10/19/82 TEST NO. 1
 SAMPLING TIME (24-hr CLOCK) _____
 SAMPLING LOCATION Bag house - A.S.
 SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) Integrated
 ANALYTICAL METHOD Orsat
 AMBIENT TEMPERATURE _____
 OPERATOR M. R. Kitchen

RUN GAS	1		2		3		AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) M _d
	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET			
CO ₂	0.0	0						44/100	
O ₂ (NET IS ACTUAL O ₂ READING MINUS ACTUAL CO ₂ READING)	21.0	21.0					21.0	32/100	6.72
CO (NET IS ACTUAL CO READING MINUS ACTUAL O ₂ READING)	21.0	0						28/100	
N ₂ (NET IS 100 MINUS ACTUAL CO READING)		79.0					79.0	28/100	22.12
TOTAL									28.84

Quality Assurance Handbook M3-4.2

TIMP ENVIRONMENTAL TESTING CO.
SAMPLE RECOVERY

Location 435-Geneva Coke Boshouse #10 Date 10/19/82

Filter & Sample No. 221 Run No. 1 Acetone Blank .0003 g/100 ml H₂O Blank .0005

Filter Weights

Date & Time 10/21/1100 10/22/0900

Final Wt. (g) .7793 .7795

Initial Wt. (g) .7840 .7840

Net Wt. (g) (.0047) (.0045)

Average net wt. of 2 weighings within .5 mg (g) (.0046)

Front Wash Weights

Volume of Acetone 330 ml

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 155.3650 155.3648

Initial Wt. (g) 155.3451 155.3451

Pre. Net Wt. (g) .0199 .0197

Average pre. net wt. of 2 weighings within .5 mg (g) .0198

Minus Acetone Blank .00699

Average Net Weight .01881

(.0046)
.01421

Back Catch - H₂O

Impinger No.	1	2	3	4	5	6
Final Wt. (g)	<u>596.7</u>	<u>620.0</u>	<u>504.8</u>	<u>843.7</u>		
Initial Wt. (g)	<u>596.6</u>	<u>617.3</u>	<u>504.6</u>	<u>838.1</u>		
Net Wt. (g)	<u>0.10</u>	<u>2.70</u>	<u>0.2</u>	<u>5.6</u>		

Total H₂O Collected (g) 8.60 ✓

Back Catch - Gravimetric Analysis

Initial H₂O Vol. (ml) Imp. #1 100 Imp. #2 100 Imp. #3 Imp. #4

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 147.0041 147.0046

Initial Wt. (g) 146.9932 146.9932

Pre. Net Wt. (g) .0109 .0114

Average pre. net wt. of 2 weighings within .5 mg (g) .01115

Minus H₂O Blank .00100

Ave. Net Wt. (g) .01015

GAS ANALYSIS DATA FORM

PLANT USS-Geneva Coke Baghouse #10 COMMENTS:
 DATE 10/19/82 TEST NO. 1
 SAMPLING TIME (24-HR CLOCK) _____
 SAMPLING LOCATION Baghouse #10
 SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) Integrated
 ANALYTICAL METHOD Orsat
 AMBIENT TEMPERATURE _____
 OPERATOR M.R. Kitchen

RUN GAS	1		2		3		AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) M_g
	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET			
CO ₂	0.0	0						44/100	0
O ₂ (NET IS ACTUAL O ₂ READING MINUS ACTUAL CO ₂ READING)	21.1	21.1					21.1	32/100	6.752
CO (NET IS ACTUAL CO READING MINUS ACTUAL O ₂ READING)	21.1	0						28/100	0
N ₂ (NET IS 100 MINUS ACTUAL CO READING)		78.9					78.9	28/100	22.092
TOTAL									28.844

Quality Assurance Handbook M3-4.2

TIMP ENVIRONMENTAL TESTING CO.
SAMPLE RECOVERY

Location USS Geneva Coke P. Baghouse #1 Date 10/20/82
Filter & Sample No. 223 Run No. 1 Acetone Blank .0005 g/100 ml H₂O Blank .0005

Filter Weights

Date & Time 10/21/2200 10/22/0900
Final Wt. (g) .7606 .7604
Initial Wt. (g) .7653 .7653
Net Wt. (g) (.0047) (.0049)
Average net wt. of 2 weighings within .5 mg (g) (.0048)

Front Wash Weights

Volume of Acetone 395 ml

Date & Time 10/22/0900 10/25/1300
Final Wt. (g) 146.6476 146.6474
Initial Wt. (g) 146.6274 146.6274
Pre. Net Wt. (g) .0202 .0200
Average pre. net wt. of 2 weighings within .5 mg (g) .0201
Minus Acetone Blank .00119
Average Net Weight .01891

Back Catch - H₂O

(.0048)
.01411

Impinger No.	1	2	3	4	5	6
Final Wt. (g)	<u>573.8</u>	<u>585.6</u>	<u>479.3</u>	<u>867.3</u>		
Initial Wt. (g)	<u>579.5</u>	<u>582.0</u>	<u>477.4</u>	<u>859.3</u>		
Net Wt. (g)		<u>3.6</u>	<u>1.9</u>	<u>8.0</u>		
Total H ₂ O Collected (g)	<u>7.8</u>					

Back Catch - Gravimetric Analysis

Initial H₂O Vol. (ml) Imp. #1 100 Imp. #2 100 Imp. #3 Imp. #4
Date & Time 10/22/0900 10/25/1300
Final Wt. (g) 154.6371 154.6373
Initial Wt. (g) 154.6193 154.6193
Pre. Net Wt. (g) .0178 0180
Average pre. net wt. of 2 weighings within .5 mg (g) .0179
Minus H₂O Blank .0010
Ave. Net Wt. (g) .0169

15-5

TIMP ENVIRONMENTAL TESTING CO.
SAMPLE RECOVERY

Location Coke Plant Baghouse # 6 Date 10/20/82

Filter & Sample No. 222 Run No. 1 Acetone Blank .0005 g/100 ml H₂O Blank .0005

Filter Weights

Date & Time 10/21/2200 10/22/0900

Final Wt. (g) .7850 .7848

Initial Wt. (g) .7900 .7900

Net Wt. (g) (.0050) (.0052)

Average net wt. of 2 weighings within .5 mg (g) (.0051)

Front Wash Weights

Volume of Acetone 355 ml

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 148.5339 148.5337

Initial Wt. (g) 148.5203 148.5203

Pre. Net Wt. (g) .0136 .0134

Average pre. net wt. of 2 weighings within .5 mg (g) .0135

Minus Acetone Blank .00107

Average Net Weight .01243

(.0051)
.00733 7.33 mg

Back Catch - H₂O

Impinger No.	1	2	3	4	5	6
Final Wt. (g)	<u>616.4</u>	<u>557.4</u>	<u>505.9</u>	<u>864.5</u>		
Initial Wt. (g)	<u>595.8</u>	<u>617.9</u>	<u>504.6</u>	<u>853.0</u>		
Net Wt. (g)	<u>21.6</u>	<u>40.5</u>	<u>1.3</u>	<u>11.5</u>		

Total H₂O Collected (g) (27.1) Some H₂O lost in recovery
8.9 Calculated Moisture % calculated the
Same as other test run simultaneously.

Back Catch - Gravimetric Analysis

Initial H₂O Vol. (ml) Imp. #1 100 Imp. #2 100 Imp. #3 Imp. #4

Date & Time 10/22/0900 10/25/1300

Final Wt. (g) 154.8726 154.8730

Initial Wt. (g) 154.8399 154.8399

Pre. Net Wt. (g) .0327 .0331

Average pre. net wt. of 2 weighings within .5 mg (g) .0329

Minus H₂O Blank .0010

Ave. Net Wt. (g) .0319

Raw Production and Control Equipment Data:

Coke Battery No. 1 was on idle hot during the test.
Coke Battery No. 2 was on a push schedule of 22 ovens per 8 hour shift.

Three modules of the baghouse were operated at all times during the test. Stacks from two of the three modules were tested each day.

Records of operating parameters were made available to Agency Personnel to use as desired.

Raw Production Data
Pushing Schedule
10/19/82

10-19-82 #2

ONE BATTERY PUSHING SCHEDULE

✓1	8:06	35	MOD
✓2	:27	55	
✓3	:49	65	
✓4	9:11	7	
✓5	:33	17	
✓6	:55	27	Chip p/s
✓7	10:17	47	MOD
✓8	:39	67	
✓9	11:01	9	
✓10	:23	19	Chip p/s
✓11	:45	39	Chip p/s
✓12	12:07	49	
✓13	:29	59	
✓14	:51	69	
✓15	1:13	2	
✓16	:35	22	MOD chip p/s
✓17	:57	32	
✓18	2:19	52	
✓19	:41	62	MOD
✓20	3:03	4	
✓21	:25	14	
✓22	:47	34	

MT: 15

10-19-82

#3

ONE BATTERY PUSHING SCHEDULE

✓1	4:06	(37)	
✓2	:27	54	
✓3	:49	64	
✓4	5:11	6	
✓5	:33	16	
✓6	:55	36	MOD.
✓7	6:17	46	SHORT CHG.
✓8	:39	56	
✓9	7:01	66	
✓10	:23	8	
✓11	:45	18	
✓12	8:07	38	
✓13	:29	48	
✓14	:51	68	
✓15	9:13	1	
✓16	:35	11	
✓17	:57	21	
✓18	10:19	31	
✓19	:41	41	MOD chip c/s
✓20	11:03	51	
✓21	:25	61	
✓22	:47	3	
	MT	34	

Raw Production Data
Pushing Schedule
10/20/82

10-20-82 #2

ONE BATTERY PUSHING SCHEDULE

✓ 1	8:06	32		
✓ 2	:27	52	chip c/s	
✓ 3	:49	62	MOD	
✓ 4	9:11	4		
✓ 5	:33	14		
✓ 6	:55	34	chipp/s	c/d
✓ 7	10:17	54	chip c/s	
✓ 8	:39	64		
✓ 9	11:01	6		
✓ 10	:23	16		
✓ 11	:45	36	MOD	
✓ 12	12:07	46	SHORT	
✓ 13	:29	56		
✓ 14	:51	66		
✓ 15	1:13	8		
✓ 16	:35	18		
✓ 17	:57	38		
✓ 18	2:19	48		
✓ 19	:41	68		
✓ 20	3:03	1		
✓ 21	:25	11		
✓ 22	:47	21		
	M.T.	22	MOD	

work safety

10-20-82

#3

ONE BATTERY PUSHING SCHEDULE

1	4:06	31 ✓
2	:27	(37) ✓
3	:49	41 MOD.
4	5:11	51
5	:33	61
6	:55	31
7	6:17	33 ✓
8	:39	53
9	7:01	63
10	:23	5
11	:45	15 ✓
12	8:07	35 MOD
13	:29	55
14	:51	65
15	9:13	7
16	:35	17
17	:57	27 ✓
18	10:19	47 MOD
19	:41	67
20	11:03	9
21	:25	19 ✓
22	:47	39
	MT	21

Chronological Order of Test Events:

October 19, 1982

0800 Test equipment in place ready to start test.
 Visual observations started.

0831.5 Impinger froze in equipment on stack No. 5.

0931 Impinger replaced and started test on 2nd point
 of stack No. 5.

1650 Test completed on stack No. 10.

1756.5 Test completed on stack No. 5.

1757 Visual observations terminated.

October 20, 1982

0800 Test equipment in place ready to start
 test. Visual observations started.

1626.5 Tests completed.

1628 Visual observations terminated.

Calibration Procedures and results:

Calibration of the test equipment including the console dry gas meters, pitot tubes, nozzle diameters, and temperature sensors were carried out in accordance with the procedures outlined in the quality assurance handbook. The appropriate calibration data are presented in the following pages. The nozzle calibrations are recorded on the first page of the field data sheets.

Copies of VED certification are also included.

METER BOX CALIBRATION DATA AND CALCULATION FORM

(English units)

Date 4 Aug 1982

Meter box number I

Barometric pressure, $P_b = 25.50$ in. Hg Calibrated by MRK & KK

Orifice manometer setting (ΔH), in. H ₂ O	Gas volume		Temperatures				Time (Θ), min	Y_i	ΔH_{e10} in. H ₂ O
	Wet test meter (V_w), ft ³	Dry gas meter (V_d), ft ³	Wet test meter (t_w), °F	Dry gas meter					
				Inlet (t_{d1}), °F	Outlet (t_{d0}), °F	Avg ^a (t_d), °F			
0.5	4.997	5.040	75.74 74	78.82	78.79	79.5	11.0	1.000	1.87
1.0	5.000	5.102	77.74 74	82.86	80.81	83.2	7.9	.994	1.91
1.5	10.004	10.312	74.74 74	87.91	83.86	88.3	13.15	.992	1.96
2.0	10.003	10.438	74.74 73	92.98	88.89	92.7	11.5	.987	1.98
3.0	10.000	10.502	71.73 73	97.99	91.93	95.2	9.55	.983	2.04
4.0	4.997		75.74 74						
Avg								.991	1.95

ΔH , in. H ₂ O	$\frac{\Delta H}{13.6}$	$Y_i = \frac{V_w P_b (t_d + 460)}{V_d (P_b + \frac{\Delta H}{13.6}) (t_w + 460)}$	$\Delta H_{e10} = \frac{0.0317 \Delta H}{P_b (t_d + 460)} \left[\frac{(t_w + 460) \theta}{V_w} \right]^2$
0.5	0.0368	$\frac{4.997 \times 25.50 \times 539.5}{5.040 \times 25.574 \times 534.3} = 1.000$	$\frac{0.0317 \times 0.5}{25.50 \times 539.5} \left[\frac{534.3 \times 11.0}{4.997} \right]^2 = 1.87$
1.0	0.0737	$\frac{5.000 \times 25.50 \times 543.2}{5.102 \times 25.574 \times 534} = .994$	$\frac{0.0317 \times 1.0}{25.50 \times 543.2} \left[\frac{534 \times 7.9}{5.000} \right]^2 = 1.91$
1.5	0.110	$\frac{10.004 \times 25.50 \times 548.3}{10.312 \times 25.610 \times 534} = .992$	$\frac{0.0317 \times 1.5}{25.50 \times 548.3} \left[\frac{534 \times 13.15}{10.004} \right]^2 = 1.96$
2.0	0.147	$\frac{10.003 \times 25.50 \times 552.7}{10.438 \times 25.699 \times 533.7} = .987$	$\frac{0.0317 \times 2.0}{25.50 \times 552.7} \left[\frac{533.7 \times 11.5}{10.003} \right]^2 = 1.98$
3.0	0.221	$\frac{10.000 \times 25.50 \times 555.2}{10.502 \times 25.721 \times 533.3} = .983$	$\frac{0.0317 \times 3.0}{25.50 \times 555.2} \left[\frac{533.3 \times 9.55}{10.000} \right]^2 = 2.04$
4.0	0.294		

^a If there is only one thermometer on the dry gas meter, record the temperature under t_d .

METER BOX CALIBRATION DATA AND CALCULATION FORM

(English units)

Date Feb 13, 1982

Meter box number II

Barometric pressure, $P_b = 25.65$ in. Hg Calibrated by MRK

Orifice manometer setting (ΔH), in. H_2O	Gas volume		Temperatures				Time (θ), min	Y_i	$\Delta H @ i$ in. H_2O
	Wet test meter (V_w), ft ³	Dry gas meter (V_d), ft ³	Wet test meter (t_w), °F	Dry gas meter					
				Inlet (t_{d_i}), °F	Outlet (t_{d_o}), °F	Avg ^a (t_d), °F			
0.5	4.998	4.910	77 77 77	85 87 88	80 80 80	83.3	13' 14"	1.028	1.97
1.0	5.001	4.974	77 76 76	90 91 91	82 82 82	86.3	105"	1.021	—
1.5	10.004	10.024	76 76 76	95 95 97	83 83 83	89.3	13' 49"	1.018	1.86
2.0	10.008	10.211	76 76 76	92 100 105	88 88 90	93.8	13' 5"	1.007	1.87
3.0	10								
4.0	10								
Avg							1.0185	1.90	(1.02)

ΔH , in. H_2O	$\frac{\Delta H}{13.6}$	$Y_i = \frac{V_w P_b (t_d + 460)}{V_d (P_b + \frac{\Delta H}{13.6}) (t_w + 460)}$	$\Delta H @ i = \frac{0.0317 \Delta H}{P_b (t_d + 460)} \left[\frac{(t_w + 460) \theta}{V_w} \right]^2$
0.5	0.0368	$\frac{4.998 \times 25.65 \times 543.3}{4.910 \times 25.6868 \times 537.0} = 1.028$	$\frac{0.0317 \times 0.0368}{25.654 \times 543.3} \left[\frac{537 \times 13.25}{4.998} \right]^2 = 1.97$
1.0	0.0737	$\frac{5.001 \times 25.65 \times 546.3}{4.974 \times 25.7237 \times 536.2} = 1.021$	
1.5	0.110	$\frac{10.004 \times 25.65 \times 549.3}{10.024 \times 25.76 \times 536} = 1.018$	$\frac{0.0317 \times 0.110}{25.65 \times 549.3} \left[\frac{536 \times 13.85}{10.004} \right]^2 = 1.86$
2.0	0.147	$\frac{10.008 \times 25.65 \times 553.8}{10.211 \times 25.797 \times 536} = 1.007$	$\frac{0.0317 \times 0.147}{25.65 \times 553.8} \left[\frac{536 \times 13.08}{10.008} \right]^2 = 1.87$
3.0	0.221		
4.0	0.294		

If there is only one thermometer on the dry gas meter, record the temperature under t_d .

Quality Assurance Handbook M5-2.3A (front side)

POSTTEST DRY GAS METER CALIBRATION DATA FORM (English units)

Test number 1 Date 10-21-82 Meter box number 21 Plant USS-Genova No. 6, Baghouse
 Barometric pressure, $P_b = 25.66$ in. Hg Dry gas meter number Pretest Y

Orifice manometer setting, (ΔH), in. H_2O	Gas volume		Temperature					Vacuum setting, in. Hg	Y_i	Y_i	$V_w P_b (t_d + 460)$ $V_d \left(P_b + \frac{\Delta H}{13.6} \right) (t_w + 460)$
	Wet test meter (V_w), ft^3	Dry gas meter (V_d), ft^3	Wet test meter (t_w), of	Dry gas meter		Time (θ), min					
				Inlet (t_{d_i}), of	Outlet (t_{d_o}), of						
							Average (t_d), of				
1.0	10.000	10.270	72.72	78.67 71	72.77	16.57	4.5	0.987		$10.000 \times 25.66 \times 541$ $10.270 \times 25.73 \times 532$	
1.0	10.000	10.402	72.72	91.98 103	80.83	17.11	4.5	0.992		$10.000 \times 25.66 \times 551$ $10.402 \times 25.73 \times 532$	
1.0	10.000	10.601	73.72	100.107 102	88.92 92	17.18	4.5	0.987		$10.000 \times 25.66 \times 558$ $10.601 \times 25.73 \times 532$	
									$Y = 0.99$		

^a If there is only one thermometer on the dry gas meter, record the temperature under t_d where

V_w = Gas volume passing through the wet test meter, ft^3 .

V_d = Gas volume passing through the dry gas meter, ft^3 .

t_w = Temperature of the gas in the wet test meter, $^{\circ}F$.

t_{d_i} = Temperature of the inlet gas of the dry gas meter, $^{\circ}F$.

t_{d_o} = Temperature of the outlet gas of the dry gas meter, $^{\circ}F$.

t_d = Average temperature of the gas in the dry gas meter, obtained by the average of t_{d_i} and t_{d_o} , $^{\circ}F$.

ΔH = Pressure differential across orifice, in. H_2O .

Y_i = Ratio of accuracy of wet test meter to dry gas meter for each run.

Y = Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest $Y \pm 0.05Y$.

P_b = Barometric pressure, in. Hg.

θ = Time of calibration run, min.

POSTTEST DRY GAS METER CALIBRATION DATA FORM (English units)

Test number 1 Date 10-21-82 Meter box number II Plant USS-Beneva, Coke Baghouse
 Barometric pressure, $P_b = 25.66$ in. Hg Dry gas meter number _____ Pretest Y _____

Orifice manometer setting, (ΔH), in. H_2O	Gas volume		Temperature						Time (θ), min	Vacuum setting, in. Hg	Y_i	Y_i	
	Wet test meter (V_w), ft^3	Dry gas meter (V_d), ft^3	Wet test meter (t_w), of	Dry gas meter			Average (t_d), of	$V_w P_b (t_d + 460)$ $V_d (P_b + \frac{\Delta H}{13.6}) (t_w + 460)$					
				Inlet (t_{di}), of	Outlet (t_{do}), of	Average (t_d), of							
.50	10.000	10.195	73.72 72	77.86 91	72.78 81	81	22.18	.5	0.996	10,000 X 25.66 X 541 10,195 X 25.70 X 532			
.50	10.000	10.207	72.72 72	92.10 103	82.49 92	93	23.35	.5	1.017	10,000 X 25.66 X 553 10,207 X 25.70 X 532			
.50	10.000	10.403	72.72 72	101.06 103	93.97 98	101	22.45	.5	1.012	10,000 X 25.66 X 561 10,403 X 25.70 X 532			
										$Y = 1.01$			

^a If there is only one thermometer on the dry gas meter, record the temperature under t_d where

V_w = Gas volume passing through the wet test meter, ft^3 .

V_d = Gas volume passing through the dry gas meter, ft^3 .

t_w = Temperature of the gas in the wet test meter, $^{\circ}F$.

t_{di} = Temperature of the inlet gas of the dry gas meter, $^{\circ}F$.

t_{do} = Temperature of the outlet gas of the dry gas meter, $^{\circ}F$.

t_d = Average temperature of the gas in the dry gas meter, obtained by the average of t_{di} and t_{do} , $^{\circ}F$.

ΔH = Pressure differential across orifice, in. H_2O .

Y_i = Ratio of accuracy of wet test meter to dry gas meter for each run.

Y = Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest $Y \pm 0.05Y$.

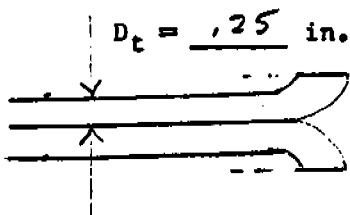
P_b = Barometric pressure, in. Hg.

θ = Time of calibration run, min.

TYPE S PITOT TUBE INSPECTION DATA

Date 10/18/82

Pitot Tube Identification 5-A



$P_A = .368$ in.

$P_A = P_B$ ☒

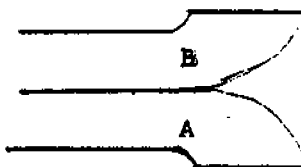
$P_B = .368$ in.

($1.05 - 1.50 D_t$) ☒



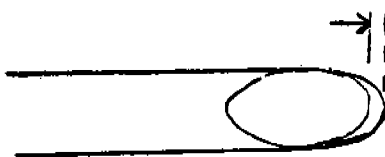
$\alpha_2 (10^\circ) = 2^\circ$

$\alpha_1 (10^\circ) = 1^\circ$

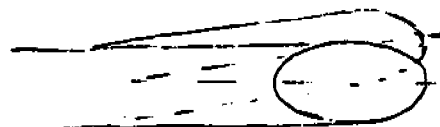


$\beta_2 (5^\circ) = 0^\circ$

$\beta_1 (5^\circ) = 1^\circ$



$z (1/8") = 0$ in.

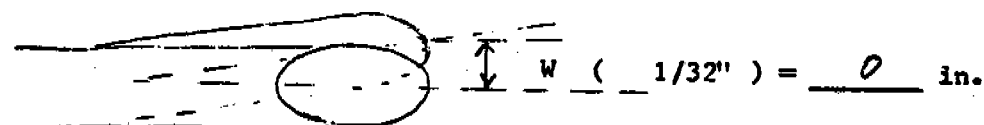
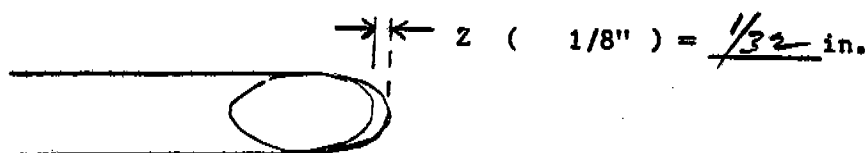
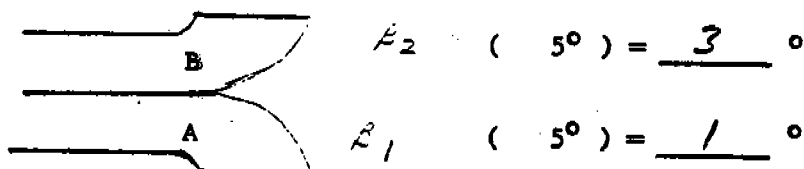
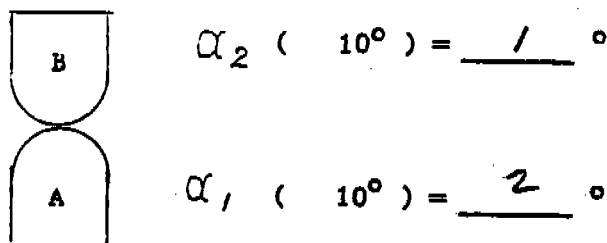
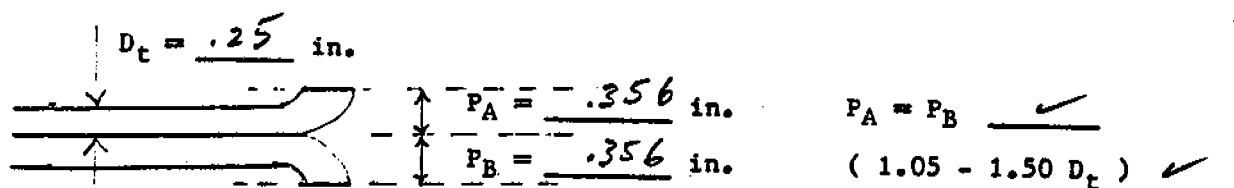


$w (1/32") = 0$ in.

Pitot tube meets specifications for calibration factor of .84 - Yes ☒ No ☐

TYPE S PITOT TUBE INSPECTION DATA

Date 10/18/82 Pitot Tube Identification 5-B



Pitot tube meets specifications for calibration factor of .84 - Yes ☒ No ☐

SAMPLE BOX TEMPERATURE SENSOR CALIBRATION

Date 8-4-82

Sample Box No. #1 + Meter #1

Ambient temperature _____

Barometric pressure _____ in. Hg

Calibrator MRK

Reference thermometer glass in Mercury

Thermocouple location	Reference point	Temperature source	Reference thermometer temperature	Thermocouple temperature	Temperature difference %
Box					
Imp. In	1	Ice Bath	43	44	
	2	H ₂ O	72	73	
	3	Hot H ₂ O	182	184	
Imp. Out	1	Ice Bath	45	45	
	2	H ₂ O	72	71	
	3	Hot H ₂ O	180	178	
Meter #1					
Meter in	1	Ice Bath	46	45	
	2	H ₂ O	73	72	
	3	Hot H ₂ O	178	177	
Meter out	1	Ice Bath	47	48	
	2	H ₂ O	72	73	
	3	Hot H ₂ O	175	177	

SAMPLE BOX TEMPERATURE SENSOR CALIBRATION

Date 8-4-82 Sample Box No. # II Meter # II

Ambient temperature _____ Barometric pressure _____ in. Hg

Calibrator M R K Reference thermometer Glass in Mercury

Thermocouple location	Reference point	Temperature source	Reference thermometer temperature	Thermocouple temperature	Temperature difference %
Box In P. In	1	Ice Bath	44	45	
	2	H ₂ O	72	73	
	3	Hot H ₂ O	186	188	
Imp. out	1	Ice Bath	46	47	
	2	H ₂ O	73	74	
	3	Hot H ₂ O	184	187	
Meter Meter in	1	Ice Bath	45	47	
	2	H ₂ O	73	74	
	3	Hot H ₂ O	184	186	
Meter out	1	Ice Bath	46	45	
	2	H ₂ O	73	72	
	3	Hot H ₂ O	180	179	

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM

Date 10/18/82 Thermocouple number 5-A
 Ambient temperature _____ °C Barometric pressure _____ in. Hg
 Calibrator MRK Reference: mercury-in-glass ☒
 other _____

Reference point number ^a	Source ^b (specify)	Reference thermometer temperature, °F	Thermocouple potentiometer temperature, °F	Temperature difference, % ^c
1	H ₂ O	72	72	
2		141	140	
3		186	184	

^aEvery 30°C (50°F) for each reference point.

^bType of calibration system used.

^c
$$\left[\frac{(\text{ref temp, } ^\circ\text{C} + 273) - (\text{test thermom temp, } ^\circ\text{C} + 273)}{\text{ref temp, } ^\circ\text{C} + 273} \right] 100 \leq 1.5\%$$

Quality Assurance Handbook M2-2.10

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM

Date 10/18/82 Thermocouple number 5-B
 Ambient temperature _____ °C Barometric pressure _____ in. Hg
 Calibrator MRK Reference: mercury-in-glass ✓

other _____

Reference point number ^a	Source ^b (specify)	Reference thermometer temperature, °F	Thermocouple potentiometer temperature, °F	Temperature difference, % ^c
1	H ₂ O	72	71	
2		139	140	
3		185	183	

^a Every 30°C (50°F) for each reference point.

^b Type of calibration system used.

^c
$$\left[\frac{(\text{ref temp, } ^\circ\text{C} + 273) - (\text{test thermom temp, } ^\circ\text{C} + 273)}{\text{ref temp, } ^\circ\text{C} + 273} \right] 100 \leq 1.5\%$$

Quality Assurance Handbook M2-2.10

Utah State
Division of Environmental Health

Awards This Certificate To

MELVIN R. KITCHEN

For Successfully Completing The

Visible Emissions Evaluation Course

Conducted By

The Bureau of Air Quality

Arvin E. Richard

Director, Division of Environmental Health

Robert E. Jones

Director, Bureau of Air Quality

Date April 29, 1982

Utah State
Division of Environmental Health
Awards This Certificate To

SUSAN FERGUSON

For Successfully Completing The
Visible Emissions Evaluation Course
Conducted By
The Bureau of Air Quality

Mon R. Maell
Director, Division of Environmental Health

ES 111

Director, Bureau of Air Quality

August 26, 1982

Date

Utah State
Division of Environmental Health

Awards This Certificate To

NEWELL KITCHEN

For Successfully Completing The

Visible Emissions Evaluation Course

Conducted By

The Bureau of Air Quality

Kevin E. Richards
Director, Division of Environmental Health

Robert E. Jones (Jr.)
Director, Bureau of Air Quality

Date April 29, 1982

Utah State
Division of Environmental Health

Awards This Certificate To

KEITH B. SMITH

For Successfully Completing The

Visible Emissions Evaluation Course

Conducted By

The Bureau of Air Quality

Allen E. Richers

Director, Division of Environmental Health

Keith B. Smith

Director, Bureau of Air Quality

Date _____ April 29, 1982

Utah State
Division of Environmental Health

Awards This Certificate To

JAMES WILSON

For Successfully Completing The
Visible Emissions Evaluation Course

Conducted By
The Bureau of Air Quality

Arvin E. Richards
Director, Division of Environmental Health

Robert E. Swartz
Director, Bureau of Air Quality

Date April 29, 1982

Utah State
Division of Environmental Health

Awards This Certificate To

NORMAN B. JOHNSON

For Successfully Completing The

Visible Emissions Evaluation Course

Conducted By

The Bureau of Air Quality

David E. Richards

Director, Division of Environmental Health

Robert E. Smith

Director, Bureau of Air Quality

Date April 29, 1982

Project Participants and Titles:

Utah Department of Health, Bureau of Air Quality
Jim Stephens Observer
Dave Kopta Observer
Dave McNeill Observer
Environmental Protection Agency
Marius Gedgaudis Observer
Paul Wolf Observer
Brian Hobbs Observer
Facility
Boyd Erickson Supt. Env. Control Eng.
James R. Starley Sr. Env. Control Eng.
Patti Hatton Env. Control Engineer
Ronald Harris Env. Control Engineer
H. A. Brown Supt. Coke Plant
Dave Torofo USS Research Engineer
Mark Peotter Mikropul Engineer
Timp Environmental Testing
Melvin Kitchen Director
Jack Ruckman Consultant
Arthur Holloman Consultant
Boyd Davis Technician
Cory Colledge Technician
Travis Fraughton Technician
Susan Ferguson VEO
Newell Kitchen VEO
Keith B. Smith VEO
James Wilson VEO
Norman B. Johnson ... VEO

Related Correspondence:

The testing protocol is presented in the following pages.

PRETEST MEETING
COKE PLANT PUSHING EMISSION CONTROLS

OCTOBER 18, 1982 - 3:00 P.M.

AGENDA

1. A review of safety requirements for the contractors and the agencies.
 - a. Review the safety requirements.
 - (1) Clearance in to operating area - above bench - safety attire.
 - (2) Railroad traffic and loading equipment.
 - (3) Driving - requirements.
 - (4) Baghouse fan platform and above use - ear plugs.
 - (5) Quench car tracks - shed - area - top battery.
 - b. Review the safety handout and sign.
2. Review protocol for pushing emission controls.
3. Visit test areas.
 - a. Contractors may set up equipment and run preliminaries.
 - b. Opacity observers - locations.

All watches will be coordinated with the U. S. Steel Coordinator's watch and all time will be recorded on that basis. U. S. Steel will call out the start of the push and the contractor will then start and test for 2 1/2 minutes.

no changes between
this & the 1/4/82 protocol
I earlier reviewed
this protocol has deficiencies
& was not approved by EPA

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PARTICULATE EMISSION TESTING FOR COMPLIANCE - U. S. STEEL GENEVA WORKS

PROVO, UTAH

COKE PLANT PUSHING EMISSION CONTROL BAGHOUSE AND FUGITIVE TEST PROTOCOL

I. Project Organization and Responsibility

The following personnel and the testing contractor are presently anticipated to be involved in the testing program. EPA and UDH are invited to have their own personnel or contractor to observe all phases including the process.

Testing Contractor:

Timp Environmental Testing Company, Mel Kitchen, President

USSC Personnel:

Boyd C. Erickson, General Supervisor, Environmental Control Engineering

Jim R. Starley, Sr. Environmental Control Engineer - USSC Coordinator

Patti Hatton, Environmental Control Engineer - USSC Coordinator

During these tests only USSC personnel listed above or an assigned personnel from the operation are authorized to answer or obtain answers to pertinent questions on the process conditions or the test protocol.

II. Project Description

This protocol outlines the specific test procedures to be employed in demonstrating compliance with the mass, opacity, and flow rate limitations of the Geneva Consent Decree as specified in Appendixes 1.2, 1.3 and 1.6 as applied to Nos. 1 and 2 coke battery pushing-emission-control baghouse. This protocol specifically covers testing the south baghouse and Nos. 1 and 2 batteries. Battery No. 2 will be operating on normal coking cycle and No. 1 battery is idle hot. Testing will be done on the basis that No. 2 battery is the operating battery for all pushes and

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and No. 1 the idle battery for all pushes. Geneva employs two identical pushing-emission-control systems, each consisting of two shed-type enclosures (one per battery) for the capture and containment of pushing emissions and one Pulsaire-type baghouse for two batteries, comprised of 10 identical modules for dust removal. Cleaned gases are discharged to the atmosphere via separate fans and exhaust stacks located on each module. The number of modules in service during the compliance demonstration will be determined by USSC and this information will be given to the agencies in the pre-test meeting on Monday, October 18, 1982. The testing procedure will include accumulating process data and production data as well as testing for particulate emissions using EPA Method 5. Visible stack and fugitive emissions will be determined during each test run using Method 9. The total particulate will be determined under current operating levels with No. 1 battery idle hot and No. 2 battery operating on normal coking cycle to demonstrate compliance of the subject emission points with limitations provided in consent decree case No. C-80 paragraph B.2(f)(1)(2)(3) and (4).

III. Test Schedule

Compliance test for the pushing emission controls requires the testing of four (4) out of the 10 stacks on each of two baghouses. Testing will start on two of the stacks of the south baghouse running simultaneously. One test run will be made on two stacks and then a second test run on the other two stacks, the second pair of stacks will be completed the following day. Each test will take approximately 10 hours to sample the 24 pushes. A pre-test meeting will be held at 10 a.m. on Monday, October 18, 1982. The tentative time schedule for testing activities is as follows:

On Monday, October 18, 1982, at 08:00 a.m. Contractor and USS Representatives will meet at Geneva Administration Building in the environmental control lab for

orientation, safety and final test preparation and review meeting. The Contractor will set up his equipment in Geneva's Air Quality laboratory and on the stack for taking preliminary data. The lab crew will clean all probes and set up a complete set of equipment. Then the crew will begin preliminary tests for moisture, temperature and velocities on two of the stacks of the south baghouse. When complete, secure equipment for next day's testing.

On October 19, 1982, shortly before 0800, pick up equipment and move to the stacks on the south baghouse. Begin test run No. 1 and continue until 24 pushes have been sampled. Each for 2 1/2 minutes at each of 24 points in the two stacks being tested. There will be VEO's made during the test run by four observers and one relief observer rotating every half hour to provide relief. This same schedule will be repeated the next day, October 20, on the other two stacks to be tested on the south baghouse.

IV. Test Procedures

A. General

Stack testing will follow Appendix 1.6 of the consent decree and Appendix 1.3 as modified in Appendix 1.6.

B. Other Detail Procedures

1. Prior to any testing, simultaneous velocity traverses will be performed at a suitable location in the outlet duct from each shed before the baghouse, to verify attainment of the maximum exhaust rate specified in the Consent Decree for the shed system and to correlate the continuous measurements of the annubar probe device for each battery. This determination will be made with 10 modules in operation. However, Mass-emissions

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measurements for compliance purposes will be performed with the number of modules in operation that has been determined by USSC pursuant to Par. B.2(f)(7)(A).

2. To help assure the representativeness of mass-emission rates determined for each baghouse pushing-emission-control system, one test run will be performed on each of four modules. Selection of the stacks to be tested has been made by consulting with agency personnel prior to test set-up period which will allow the contractor adequate time to install his test equipment prior to start-up. Simultaneous testing, although not a requirement of this protocol, may be performed if desired.
3. Sampling will be performed in accordance with Methods 1 through 5 of 40 CFR, Part 60, Appendix A, for the determination of volumetric flow rate and particulate mass emissions. 24 point points (12 per diameter), will be sampled at the rate of one point per coke-oven push in each exhaust stack tested (stack drawing attached). Sampling will commence at the start of the push and continue for a duration of 2-1/2 minutes, resulting in a total sampling time of 60 min. Based on an estimated pushing rate of three ovens per hour for one battery in operation, approximately ten hours will be required to complete one test run. During nonsampling periods, the sampling probe will be removed from the exhaust stack.
4. If the vacuum exceeds the value to maintain isokinetic flow during the tests, the filter will be changed in the field with an extra loaded filter holder which will be ready if needed.
5. No cyclone will be used ahead of the filter.

Volume will collect? 35-40 dscf

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6. An integrated sample of the flue gas will be taken from the exhaust line after the orifice of the dry gas meter during the first run. These gases will be analyzed with an orsat to determine the molecular weight. If the samples are essentially air, sampling will be discontinued on further tests.
7. Any necessary preparation and clean-up by the contractor will be performed in the laboratory at Geneva Works Administration Building. The laboratory work and analyses will be done by the contractor as soon as possible after each test in Geneva's Air Quality Lab.
8. Back half will be determined by the UDH Method dated October 19, 1981. Back half particulate should be included in the report and not used to determine compliance with State Regulations.
9. Testing will be performed only during periods of normal production and at normal coking times on No. 2 battery. Partially charged ovens will be counted the same as normally charged ovens because emissions appear the same as with a normal size push. The temperatures maintained on partially charged ovens are essentially the same as the normally charged ovens. Green pushes or "sticker" ovens are not considered abnormal conditions. In the event of any non-representative plant activity or any equipment malfunction, testing will be temporarily suspended until the problem is corrected and normal production resumes. This determination will be made in the field by USSC coordinator upon consultation with EPA and UDH representatives.

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10. Data Reduction

Data reduction will include the calculation of volumetric flow rate for each module tested. Individual and average dust concentrations will be calculated on the basis of front-half particulate weight. Compliance with the emission standard in par. B.2(f)(3)(A)(i) shall be determined by flow weight averaging the test results in grains/DSCF for all stacks tested.

V. Process Information

A. Specific Data

The process conditions that exist now, as proposed during the compliance demonstration and as can best be projected subsequent to the compliance demonstration are as follows:

Nos. 1, 2, 3 and 4 Coke Plant Batteries Process Operating Conditions

	<u>Now</u>				<u>Proposed</u>				<u>Projected</u>			
	<u>Batt. No.</u>				<u>Batt. No.</u>				<u>Batt. No.</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Identity of Ovens Un- available		14				14				14		
Identity of Ovens Partially Charged	Hot	6	Hot	Hot	Hot	6	Hot	Hot	Hot	6	Hot	Hot
Ovens Blank Off	Idle	14	Idle	Idle	Idle	14	Idle	Idle	Idle	14	Idle	Idle

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	Now Batt. No.	Proposed During Test Batt. No.	Projected Following Test Batt. No.
	<u>1</u> <u>2</u> <u>3</u> <u>4</u>	<u>1</u> <u>2</u> <u>3</u> <u>4</u>	<u>1</u> <u>2</u> <u>3</u> <u>4</u>
Approximate Length of Coking Cycle in General (Hrs.)	18	18	18
<u>Applies to All Batteries</u>			
Charging sequence for the ovens	-10 (21-31-41)	-10 (21-31-41)	-10 (21-31-41)
Amount of Coal charged and length of a charge in general, partially charged ovens.	13.7 tons 2-2½ min. Approx. 10 Tons About 1 min.	13.7 tons 2-2½ min. Approx. 10 Tons About 1 min.	13.7 tons 2-2½ min. Approx. 10 Tons About 1 min.
Battery pressure, as measured at the Askania house.	5-6½ mm Hg	5-6½ mm Hg	5-6½ mm Hg
Quantity and quality of oil sprayed on the coal prior to charging	1-2 pts/ton #2 fuel oil	1-2 pts/ton #2 fuel oil	1-2 pts/ton #2 fuel oil
Oven temperature, including variations from oven to oven and/or through the coking cycle.	7th flue P.S. & C.S. Avg. Range 1980 2050 2030 2100	7th flue P.S. & C.S. Avg. Range Same	7th flue P.S. & C.S. Avg. Range Same
Frequency of change of gas flow direction through the checkers	30 min.	30 min.	30 min.
Bulk density	48#/CF at Larry Car	Same	Same
Pulverization	77-80% -1/8" 79-83	Same	Same
Stability (Std. ASTM D-3402 - 76 Test)	54	Same	Same
Hardness (Std. ASTM D-3402 - 76 Test)	68-72	Same	Same
Moisture	Avg. 5.3% May vary depending on weather.	Same	Same

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Battery No.

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Ovens Unavailable		12, 13, 24, 25, 26, 28, 29, 45, 57, 58, 23, 42, 43, 44		
Ovens Partially Charged*		35, 36, 41, 46, 47, 62		

Quality of coal charged, as measured by an ultimate analysis.

	<u>Range in Percent</u>
Carbon	76.70 - 79.61
Hydrogrn	4.41 - 6.13
Nitrogen	1.68 - 1.82
Ash	6.80 - 7.20
Sulphur	.62 - .67
Oxygen	6.10 - 9.04
Fixed H ₂ O	5.947 - 6.890

*Partially charged ovens - the reason for short or modified charges is because of wall damage to the ovens. The procedure in charging these ovens, is to charge the No. 3 hole then the No. 2 hole followed by charging No. 1 until it hangs up and then cut the charge off and then level. When pushed emissions are about the same.

B. Process data that is recorded and is available is as follows:

1. Stack draft in mm H₂O.
2. Flue temperature.
3. Oxygen analyzer.
4. Fuel gas volume.
5. Fuel gas temperature.

6. Gas pressure - Fuel
7. Charging-pushing report.
8. Oven schedules.
9. Daily operator's report.
10. Spraying log.
11. Flue leakage log.
12. Daily battery emission monitoring data.
13. Daily heating report.
14. Collector main pressure.
15. Oven temperature report.
16. Ultimate analysis of the coal.

C. Control Facilities Operating Parameters

1. Baghouse temperature. 100°F - 150°F.
2. Pressure drop. - 3" - 4" W.C.
3. Bag cleaning frequency - automatic with pressure drop.
4. Pulse-air pressure 100-120 psig.
5. Flow rate from each of No. 1 and No. 2 battery sheds and total flow rate during pushing and non-pushing modes.
6. Bag material - polyester - felt.
7. Bag weight - 16 oz./sq. yard.

VI. Test Area

The test area shall include the Nos. 1 and 2 coke batteries, process control center for both batteries and the south baghouse stacks and control center. Also areas appropriate for visible observations outside the coke plant proper and the laboratory area for preparation, clean-up and laboratory activities located in the administration building at Geneva Works.

VII. The Visible Emissions Observation Program Method

Concurrent with mass-emission determinations, visible emission observations will be recorded by certified smoke observers in accordance with 40 CFR, Appendix A, Method 9. A single observer will make simultaneous observations of the discharge of the two baghouse stacks being tested during each 2-1/2-minute sampling period. Three other visual emission observers will be making continuous observations of emissions escaping from any part of either shed. These readings will be made as specified in par. B.2(f)(6) and (7)(B) and Appendix 1.2 of the consent decree. An additional observer will rotate making observations every one-half hour to allow rest time for the other four observers.

VIII. Contacts by Agencies or Their Representatives During Tests and Process Observations

1. The contractor will have complete responsibility for all test work and analysis, including preparation and clean-up.
2. The U. S. Steel representative will make all necessary clearances for entering and leaving the plant.
3. The contractor may be continuously monitored by UDH, EPA and USS representatives but no information will be given out or made available either verbally or in writing to any person or organization without first clearing with the USSC coordinator in charge of the test.
4. All agencies agree to provide notice to USSC before arranging to make any observations performed under this protocol. Notice shall be sufficient to give USSC an opportunity to have a representative present.

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5. The agencies agree that agency observers will make all reasonable effort to identify and report to USSC conditions in the field which may constitute a basis for invalidating the tests while in the field. However, each agency reserves its right to assess the validity of inspections based on later review and evaluation.
6. The agencies agree that agency observers will act as observers only, and will not physically participate in any of the pretest, testing, cleanup, and laboratory procedures, including personally making any adjustments or changes to the operating facilities.
7. During the inspections and observations of the process, agency representatives and/or their representatives, shall not question any operating personnel. If information is needed, which is pertinent to the testing evaluation, contact will be made with the USSC coordinator, who will obtain the required data. USSC shall make a coordinator available at all times during the inspections.

IX. Quality Assurance (General)

1. Quality assurance will be applied to assure consistency with all inspections and all observers. United States Steel Observers will review and be completely familiar with the protocol and the consent decree for demonstration for compliance.
2. UDH, EPA and USSC personnel will meet to agree on definitions, inspection methods and reporting to assure accuracy and quality assurance.

X. Reporting

Reports will be prepared by USS contractor and copies of raw data and calculations will be submitted as verification of compliance. All requested process and production data will be provided by U. S. Steel to EPA and UDH.

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Distribution of test reports:

R. W. Pett, Chief Engineer - Geneva-Pittsburg Works
John Hawthorne, USS Research
D. R. Cronin, USS Pittsburgh Environmental Control
T. W. Goettge, Division Supt. Coke and Coal Chemicals - Geneva Works
M. R. Curtis, Division Supt. Maintenance and Utilities
B. C. Bradford, Bureau of Air Quality, UDH
R. L. Duprey, EPA

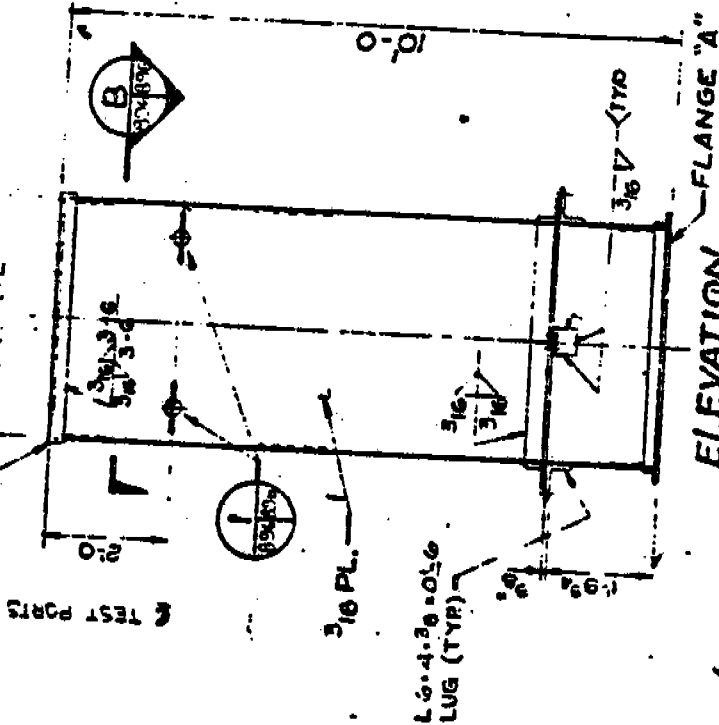
Distribution of this Protocol:

John Hawthorne, USS Research
D. R. Cronin, USS Pittsburgh, E/C
Brent Bradford, UDH
T. W. Goettge, Geneva Works
M. R. Curtis, Geneva Works
T. F. Bernarding, Geneva Works
Dick Wyse, Pittsburgh C.E.
R. L. Duprey, EPA

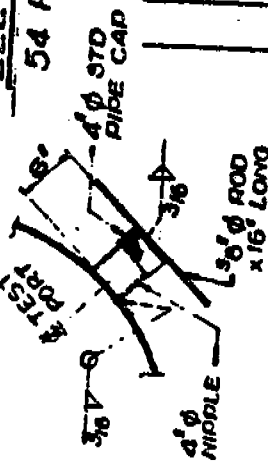
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BAR 3x5/16
STIFFENING RING

2x3 DIA
INSIDE



ELEVATION
54 REQ'D.



DETAIL

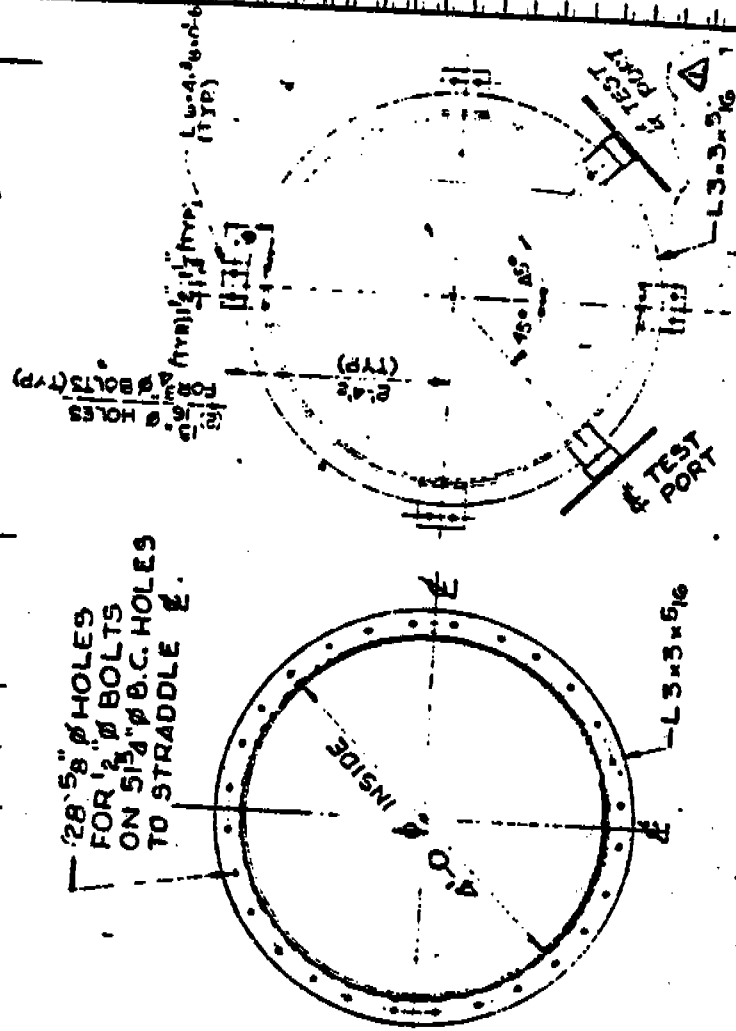
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NO	DATE	BY	DESCRIPTION
1	5-11-61	1	CALLED OUT SECT. B & A

REVISION

BILL OF MATERIAL

DET	REQ'D	PART NO	DESCRIPTION	WT
				1.05



FLANGE 'A'

SECTION B

NOTE: FOR FLANGE WELDING SEE SECT. A
ON DWG. N122897.

WORK SAFELY TODAY

THIS DOCUMENT CONTAINS NO INFORMATION AND NO SECRET INFORMATION AND SHALL NOT BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN PERMISSION OF THE WIRELESS DIVISION AND UNITED STATES OF THE LUMBERING DIVISION

10'-0 STACK

USED IN ASSEMBLY

TOLERANCES
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED

DRAWN	DATE	APPROVED	DATE	REVISION
J. A. ...	5-23-61	...	...	...

Mikropul

UNITED STATES
FILTER CORPORATION
SUMMIT NEW JERSEY 07901

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