A-82-39
II-A-80

Bruce King
GOVERNOR

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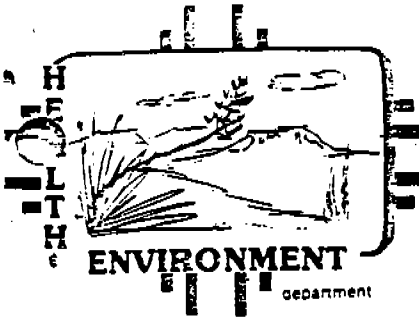
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY



STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87503
(505) 827-5271
Thomas E. Baca, M.P.H., Director

AP-42 Section 11.30
Reference 7
Report Sect. 4
Reference 4

AIR QUALITY SOURCE SAMPLING REPORT #198

JOHNS MANVILLE PERLITE PLANT
DRYER AND MILL BAGHOUSE EXHAUSTS
TOTAL PARTICULATE
NO AGUA, NEW MEXICO

ABSTRACT

On February 17, 18 and 19, 1981 the Johns Manville Perlite processing plant in No Agua was tested to determine total particulates exhausted from the dryer and mill baghouse. An average of three Method 5 runs from the dryer exhaust, show the plant to be emitting 3.89 lb/hr. One Rader test from each of the four mill baghouse exhausts, show the stacks to be emitting an average of 7.06 lb/hr which makes a total of 10.95 lb/hr of total particulates vented to the atmosphere. Air Quality Regulation 505 allows an emission rate of 34 lb/hr.

Report Prepared By

Jimmy T. Romero
Environmental Scientist III

Report Reviewed By

for Robert Kirkpatrick
Steve Schwebke
Assistant Engineer

TABLE OF CONTENTS

INTRODUCTION

1. Name and Address of Company Tested

   Johns Manville Perlite Mill
   No Agua, New Mexico
   Antonito, Colorado 81120
   Contact: J.A. Larson, Plant Manager
   (303) 376-5666

2. Location of Plant Tested

   The plant is located approximately 7 miles north of Tres Piedras on U.S. Highway 285.

3. Dates of Testing

   February 17, 18 and 19, 1981

TEST PROCEDURES

1. Testing and Analytical Procedures (Dryer Stack)

   Figure 3 shows a schematic of the sampling train. The procedures followed EPA Methods 1, 2 and 5 as described in Federal Register, Title 40, Part 60, Thursday, August 18, 1977. Method 1 was used for determining the number of traverse points across the duct. Method 2 was used in measuring the velocity of the stack gases and Method 5 was used in the collection of the particulate samples. In the procedures, particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter. The particulate mass which includes any material that condenses at or above the filtration temperature is determined gravimetrically after removal of uncombined water. Filters from the tests were desiccated and then weighed on a balance which measures accurately to the .00001 gram level. The particulate collected in the nozzle, probe and glassware prior to the filter are rinsed and the washings are analyzed at the Scientific Laboratory Division in Albuquerque, New Mexico. Analysis there includes evaporation of the liquid and weighing of the particulate residue.

2. Testing and Analytical Procedures (Mill Stacks)

   a. Pre-test

      Twenty-seven glass-fiber matte filters were desiccated for at least 48 hours before being weighed. Twenty-four of the filters were to be used in sampling while three were for determining any changes in tare weights. The sampler was washed with acetone, allowed to air-dry, and then was sealed before going to the test site.

At the site, a velocity profile of the stack was established using an S-type pitot tube. From the profile, an average velocity was determined for use in calculating the average stack gas flow rate. Determinations of CO_2 and O_2 content of the gas stream were made with fyrite combustion gas indicators. Moisture content was determined using wet bulb-dry bulb thermometers.

From the stack gas flow rate, the flow rate through the chosen nozzle was calculated so that isokinetic flow could be maintained. A sampling point was chosen which represented the average velocity head in the stack.

The probe was heated about 30 minutes prior to sampling to reduce condensation in the sampling train.

b. Rader Test

A preliminary run was made to check the assumed value for the orifice temperature. The orifice pressure drop was then adjusted to correct for changes in the orifice temperature in subsequent runs.

During each run, a preweighed filter was mounted in the heated sampler, the sampler was turned on, and the flow rate was adjusted. The sampler was then inserted into the stack gas stream at the same time that a stopwatch was started. When the flow could no longer be maintained at isokinetic conditions, the sampler and timer were stopped, and the train was removed from the stack. After removal from the stack, the soiled filter was removed and a new filter was inserted.

c. Post-test

After removal from the sampler, the filters were folded twice, with the collected material inside.

After the runs were completed, the sampler was cleaned. Probe and filter holder wash were taken to the Scientific Lab in Albuquerque. Filters were weighed to the nearest .0001 gram level at the Air Quality Lab after being desiccated for 48 hours.

3. Description of the Sampling Location (Dryer Baghouse)

Figure 2 shows a cross-section of the duct with the traverse and sample points for the dryer baghouse. The ports are located approximately 1.0 equivalent diameters upstream of the exhaust fan and 4.4 diameters downstream from any constriction to the flow.

4. Description of Sampling Location (Mill Baghouse)

Figure 4 shows a schematic of the stack tests. All four stacks were identical in size and area. The stacks were 39" by 37" in size. They are 10 feet from a constriction at the fan. The samples were taken at all four stack exits.

5. Personnel Conducting the Tests

Jimmy T. Romero - Environmental Scientist, III (Supervisor)
Mario Romero - Environmental Technician, III
Tim Booker - Environmental Technician, III

PROCESS DESCRIPTION

Perlite is a glassy volcanic rock consisting of oxides of silicone and aluminum combined as a natural glass by water of hydration. By a process called exfoliation, the material is rapidly heated to release water of hydration and thus to expand the spherules into low-density particles used primarily as aggregate in plaster, concrete or insulation.

The perlite ore in No Agua is mined from a quarry adjacent to the plant. It is then transferred by heavy trucks to the primary jaw crusher, which is then conveyed to secondary crushers. It is then stored in bins until the material is fed into two diesel fired dryers which removes surface moisture. The material is then milled, sized and transferred by truck to Antonito, Colorado.

Exhaust gases and particulates from the dryers are routed through dual cyclones to an Industrial Clean Air Baghouse. The dust collected from the baghouse is stored in dust bins, until it can be disposed of near the plant. Fugitive emissions collected, resulting from various process equipment, are routed through a separate baghouse comprised of five compartments.

RESULTS

The following table summarizes the results of the tests performed:

Johns Manville Perlite Plant

Date	2-17-81	2-18-81	2-19-81
Test Number	II	III	IV
Perlite Production Rate ton/hr.	85	85	80
Allowable Emission Rate lbs/hr.	34	34	34
Measured Emission Rate lbs/hr. (dryer)	4.55	4.24	2.87
Percent off Isokinetic Testing	95.70	96.60	97.10
Measured Emission Rate lbs/hr. (mill)		7.06	

Volume of gas sampled:

$$V_{(std)} = \frac{17.65\,(V)\,(Ncf)\,(Pb + \frac{\Delta H}{13.6})}{Tm + 460} = \text{scf (dry)}$$

Weight of particulate in stack gas:

$$Wg_{(std)} = .0154 \quad \frac{W}{V_{(std)}} = \text{grains/scf (dry)}$$

Volume of moisture collected, if expressed as a vapor:

$$Vwv = .0474\ (Vwf) = \text{scf}$$

Portion of stack gas volume which is moisture:

$$\% H_2O = \frac{100\ (Vwv)}{V_{(std)} + Vwv} = \%$$

Fraction of stack gas volume which is dry:

$$F = \frac{100 - \% H_2O}{100} =$$

Molecular weight of dry stack gas:

$$Md = \% CO_2\ (.44) + \% O_2\ (.32) + \% N_2\ (.28) = \text{lb./lb./mole}$$

Molecular weight of wet stack gas:

$$Mw = Md\ (F) + 18\ (1-F) = \text{lb./lb. mole}$$

Absolute stack pressure:

$$Ps = Pb \pm \frac{Pg}{13.6} = \text{"Hg}$$

Velocity of the stack gas:

$$Vs = 5124\ \ Cp\ \sqrt{\Delta P}\ \sqrt{\frac{Ts + 460}{Ps\ Mw}} = \text{fpm}$$

Stack gas flow rate:

$$Q = Vs\ (A) = \text{acfm}$$

$$Q_{(std)} = \frac{17.65\ (Vs)\ (A)\ (F)\ (Ps)}{Ts + 460} = \text{scfm (dry)}$$

Isokinetic sampling validation expression:

$$I = \frac{1039\ (Ts + 460)\ V_{(std)}}{Vs\ (t)\ (Ps)\ (F)\ (Dn)^2} = \%$$

Particulate emission rate:

$$E = 8.6 \times 10^{-3}\ \ [Wg_{(std)}]\ [Q_{(std)}] = \text{lb./hr.}$$

CALCULATIONS

Mill Baghouse - Johns Manville

1. Moisture content of stack gas, wet blub-dry bulb method:

   $Ts = \_\_\_\_\_ \ ^0F$

   $Tw = \_\_\_\_\_ \ ^0F$

   From psychrometric chart, volume percent $H_2O = \_\_\_\_\_ \%$

2. Molecular weight of stack gas:

   $$Mw = 18\ (XH_2O) + \boxed{44}\ (XCO_2) + 32\ (XO_2) + 28\ (XN_2)\ \boxed{1 - (XH_2O)} = \text{lb/lb mole}$$

   $\_\_\_\_\_$ lb/lb mole

3. Velocity of stack gas:

   $$Vs = 5124 \sqrt{\Delta p}\ Cp \sqrt{\frac{Ts + 460}{(Ps)\ (Mn)}} = \text{fpm}$$

4. Stack gas flow rate:

   $$A = \frac{(Ds/12)^2}{4} \pi = \text{ft.}^2$$

   $A = W \times L = \text{ft.}^2$

   $Q = Vs\ A$

5. Isokinetic flow:

   $$An = \frac{(Dn/12)^2}{4} \pi = \text{ft.}^2$$

   For isokinetic sampling, Vs = Vn, so

   $Qo = Vn\ An = Vs\ An = \_\_\_\_\_$ acfm

   $$(Qo)_{std} = Qo\left(\frac{60^0 + 460^0}{Ts + 460}\right) = \_\_\_\_\_ \text{ cfm}$$

   From this flow at 60 ^{0}F, an orifice ΔH can be chosen from curve 4 (see appendix) when the orifice temperature is known. The orifice temperature was assumed to be 60 ^{0}F for the preliminary run and then determined from that run.

6. Particulate weight calculations:

   a. Wpr = gross filter weight = filter tare weight

   b. Adjusted particulate weight (including probe catch):

      $$Waj = \text{net filter wt.} + \left(\frac{\text{sample time}}{\text{total sample time}}\right)(Wpr) \pm \text{tare wt. change}$$

7. Emission rate:

   a. $Vm = (t)\ (Qo)$

   b. $Wt = \left(\frac{Waj}{Vm}\right)\ (Q)\ (K)$

TEST DATA

Test No.	I	II	III
V..... Actual metered sample volume (CF)	48.46	49.88	47.[illegible]
..... Barometric pressure (Hg")	22.07	22.18	22.[illegible]
Tm..... Average dry gas meter temp. (^{0}F)	88	99 7	96
ΔH..... Average pressure drop across orifice (H_2O")	.84	.97	.[illegible]
Mcf..... Meter correction factor	.99	.99	.99
W..... Total particulate collected (mg)	42.65	38.78	26.0
Vwf..... Total H_2O collected from impingers (ML)	133	131	128
$\%CO_2$..... Percent carbon dioxide in stack gas (dry)	1.0	2.0	2.0
$\%O_2$..... Percent oxygen in stack gas (dry)	20.0	19.0	19.0
$\%N_2$..... Percent nitrogen in stack gas (dry)	79.0	79.0	79.0
Pg..... Stack pressure in stack	-.9	-.9	-8.5
Ts..... Average stack gas temperature (^{0}F)	180	180	180
Cp..... S-type pitot tube correction factor	.83	.83	.83
$\sqrt{\Delta P}$..... Average square roots of velocity heads	.63	.63	.58
A..... Area of stack (ft.^{2})	20	20	20
t..... Sample time (minutes)	72	72	72
Dn..... Sampling nozzle diameter (inches)	.255	.255	.250

CALCULATED RESULTS

Ps..... Absolute stack pressure ("Hg)	21.495	21.495	21.4[illegible]
$V_{(std)}$..... Corrected metered volume (SCF)	34.178	34.786	31.5[illegible]
$Wg_{(std)}$..... Weight of particulate in stack gas (grains/SCF)	.0189	.0175	.012
Vwv..... Volume of water vapor collected (SCF)	6.304	6.209	6.06
$\%H_2O$..... Percent H_2O in stack gas by volume	15.6	15.15	16.1
F..... Mole fraction of stack gas (dry)	.849	.849	.83[illegible]
Md..... Dry molecular wt. of stack gas (lb/lb-mole)	28.96	29.08	29.0
Mw..... Wet molecular wt. of stack gas (lb/lb-mole)	27.25	27.416	27.2
Vs..... Velocity of stack gas (FPM)	2803.96	2781.87	2512.
Q..... Actual stack volumetric flow (ACFM)	56079	55637	5024
$Q_{(std)}$..... Stack volumetric flow (SCFM)	27976	28199	2625
I..... Percent isokinetics	95.7	96.6	97.1
E..... Particulate emission rate (lb/hr.)	4.547	4.243	2.868

NOMENCLATURE

Mill Baghouse

A = Area of stack, $ft.^2$

An = Area of nozzle, $ft.^2$

Vm = Sample volume, $ft.^3$

Cp = Calibration factor, pitot tube, dimensionless

ΔH = Pressure drop across orifice, inches H_2O

ΔP = Velocity head, inches H_2O

Dn = Diameter of sampling nozzle, inches

Ds = Diameter of stack, inches

K = Constant, .1323, $\frac{\text{min.} - \text{lb.}}{\text{hr.} \cdot \text{gram}}$

$\%\ H_2O$ = % moisture in stack gas by volume

Mw = Molecular weight of stack gas, (wet basis) lb./lb. mole

Pb = Barometric pressure, inches Hg

Ps = Absolute stack gas pressure, inches Hg

Qo = Flow through orifice at orifice temperature, cfm

$Qo_{(std)}$ = Flow through orifice at 60^oF, fpm

Q = Stack gas flow, acfm

t = sample time, minutes

To = Orifice temperature, ^oF

Ts = Stack temperature, ^oF

Tw = Wet bulb temperature, ^oF

Vn = Velocity at nozzle, fpm

Vs = Velocity of stack gas, fpm

Waj = Adjusted particulate weight, grams

Wpr = Weight of particulate in probe washings, grams

Wt = Emissions, lbs./hr.

Xi = Mole fraction of component i, dimensionless

CALCULATIONS with baghouse Johns Manville

1. Moisture Content of Stack Gas, Wet Bulb-Dry Bulb Method:

Ts = 542 °F

Tw = 120° °F

From psychrometric chart, volume percent H_2O = 2.5 %

X_{H2O} = _____

2. Molecular Weight of Stack Gas:

X_{CO2} = 0 X_{O2} = 18% X_{N2} = 82

$$Mw = 18(X_{H2O}) + \left[44(X_{CO2}) + 32(X_{O2}) + 28(X_{N2})\right]\left[1-(X_{H2O})\right]$$

$$= 18(2.5) + \left[44(0) + 32(18) + 28(82)\right]\left[.98\right]$$

= 28.58 lb./lb. mole

3. Velocity of Stack Gas:

Cp = .83 Pb = 22.28 "Hg $\bar{\Delta}p$ = .73 "H_2O

$$Vs = 5129\ Cp\sqrt{\frac{(\bar{\Delta}p)(Ts+460)}{(Pb)(Mw)}} = 5129\ (.83)\sqrt{\frac{(.73)(542)}{(22.28)(28.58)}} = 3355 \text{ fpm}$$

4. Stack Gas Flow Rate:

$$A = \frac{(Ds/12)^2}{4}\pi = \frac{(\ \ /12)^2}{4}\pi = 10.02 \text{ ft.}^2$$

$$Q = Vs\ A = (3355)(10.02) = 33617 \text{ acfm}$$

5. Isokinetic Flow:

Dn = 1.75 inches

$$An = \frac{(Dn/12)^2}{4}\pi = \frac{(1.75/12)^2}{4}\pi = .01039 \text{ ft.}^2$$

For isokinetic sampling, Vs = Vn, so

$$Qo = Vn\ An = Vs\ An = (3355)(.01039) = 34.85 \text{ acfm}$$

$$(Qo)_{std} = Qo\left(\frac{60°+460°}{Ts+460}\right) = (34.85)\left(\frac{520}{542}\right) = 33.44 \text{ cfm}$$

From this flow at 60°F, an orifice ΔH can be chosen from Curve 4 (see appendix) when the orifice temperature is known. The orifice temperature was assumed to be 60 °F for the preliminary run and then determined from that run.

FACILITY: — DATE:

LOCATION: [illegible] TIME:

CONTACT: ___ ___ J. A. Larson POSITION: Plant Manager

AMBIENT TEMPERATURE: 50 °F WEATHER: Clear

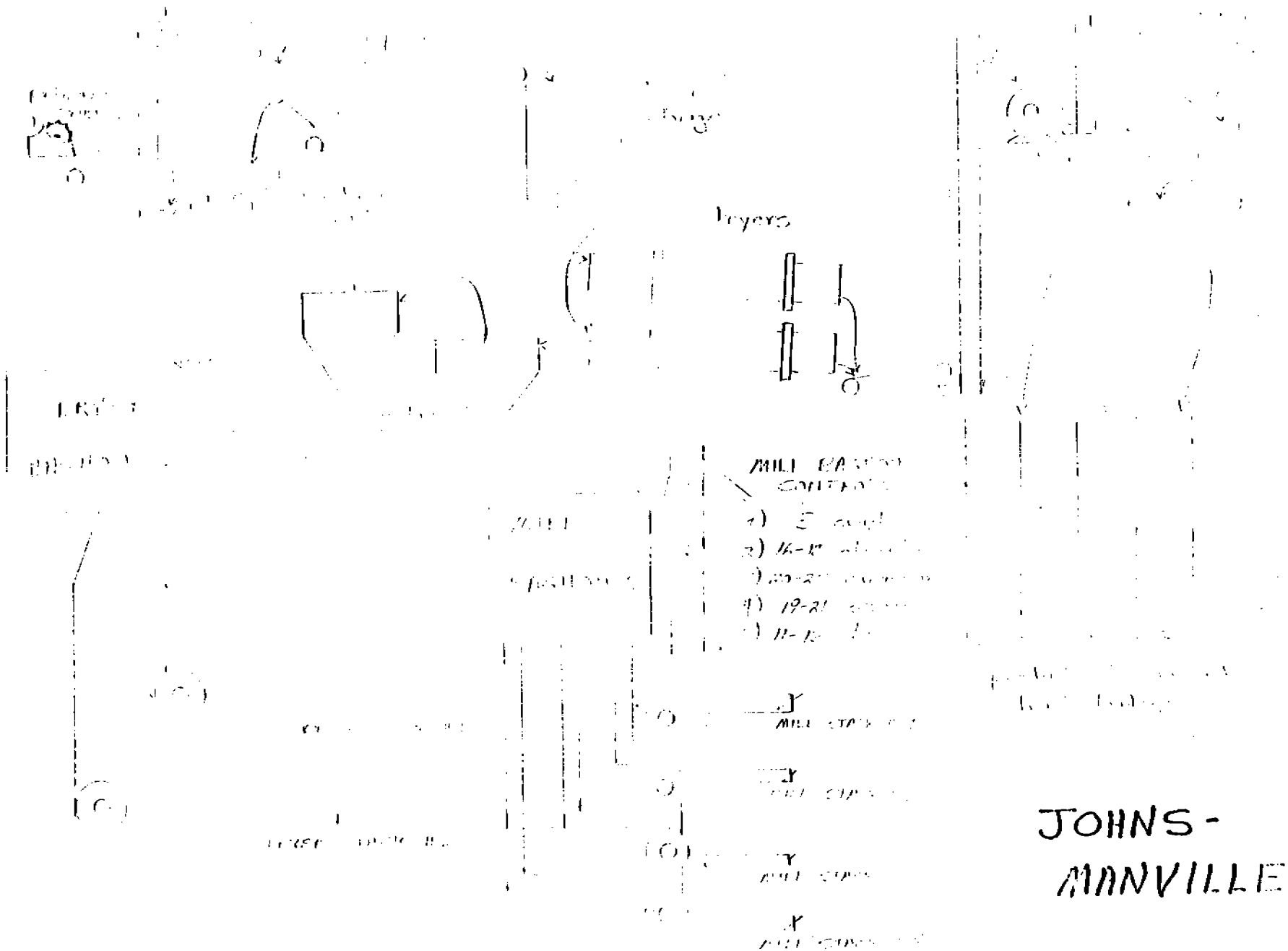
BAROMETRIC PRESSURE: 29.28 "Hg

PLANT PRODUCTION: 85 Tons/hr. TONS PER — HOURS

	Run No.	Filter No.	Sample Time minutes	ΔH inches H_2O	Orifice Temperature °F
South Stack	1	13	2.0	.46	75
	2	14	2.0	.46	75
	3	15	2.0	.46	75
	4	16	2.0	.46	75
	5	17	2.0	.46	75
	6	18	2.0	.46	75
South Stack	1	19	2.0	.46	75
	2	20	2.0	.46	75
	3	21	2.0	.46	75
	4	22	2.0	.46	75
	5	23	2.0	.46	75
	6	24	2.0	.46	75
	Total		48 min		

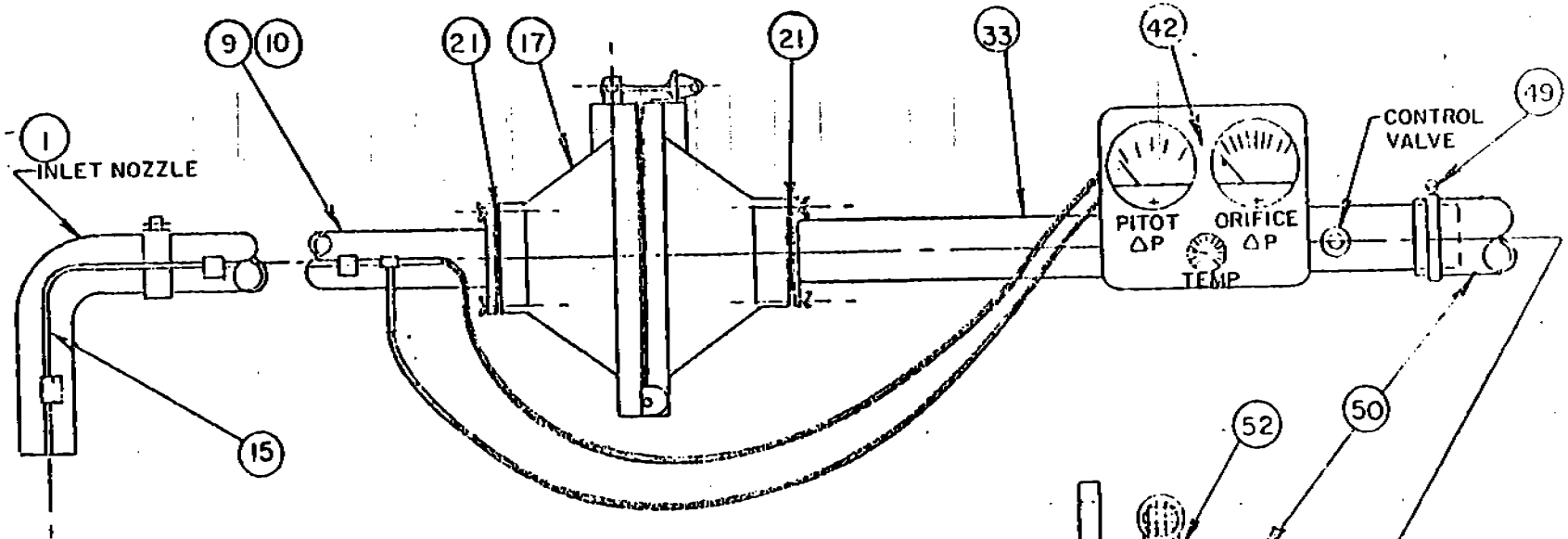
NOTES:

T_o	ΔH

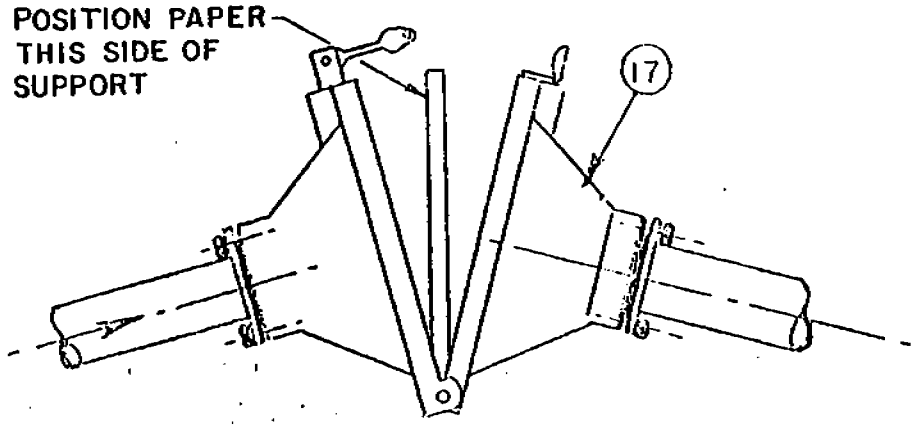

JOHNS-
MANVILLE

used at
MILL Baghouse

REV.
REV. A — MINOR WORDING CHANGE



17. FILTER HOUSING ASSEMBLY
9-10. INLET SECTION (30" & 48")
33. CONTROL SECTION
42. TEST PANEL
15. PITOT TUBE
21. NEOPRENE GASKETS
50. FLEX HOSE
52. SUCTION BLOWER
1. INLET NOZZLE
51. BLOWER HOSE ADAPTOR
49. HOSE CLAMPS



RADER ENVIRONMENTAL PRODUCTS

TITLE: RADER HI-VOLUME SAMPLER
SCALE: —
DRWN. J.W. HIRSCH
CKD.
DATE 7-30-71
A-100332A

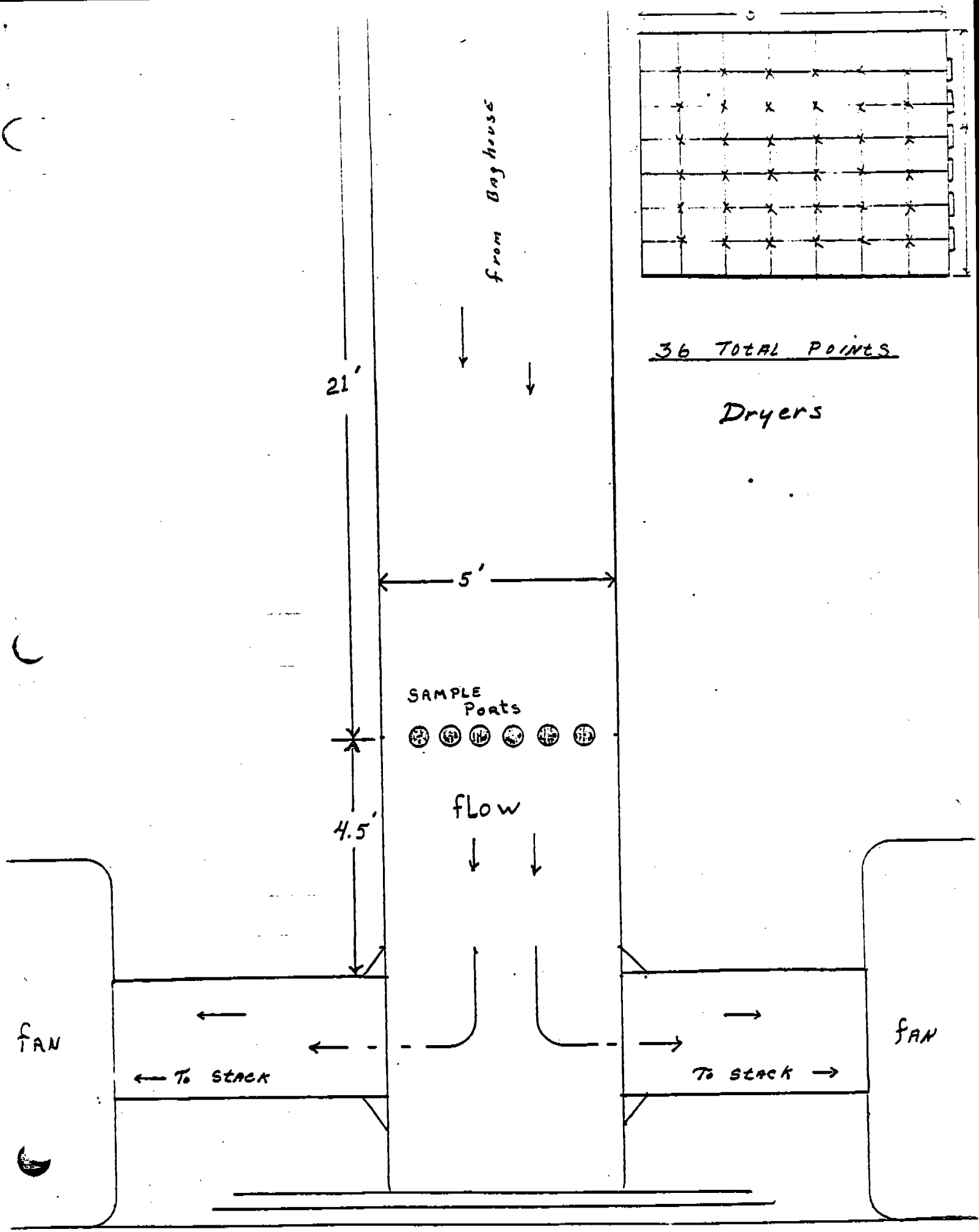
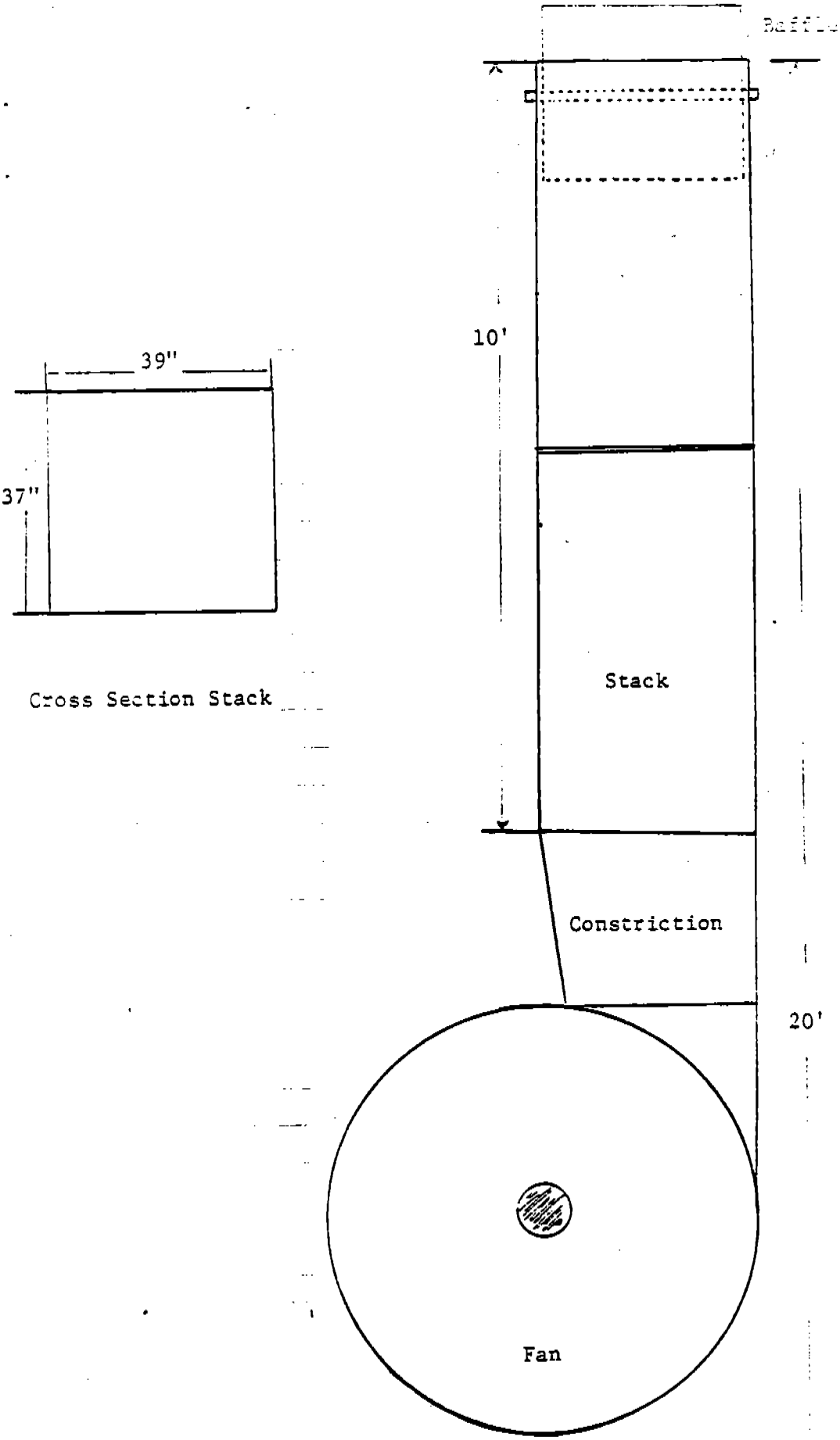
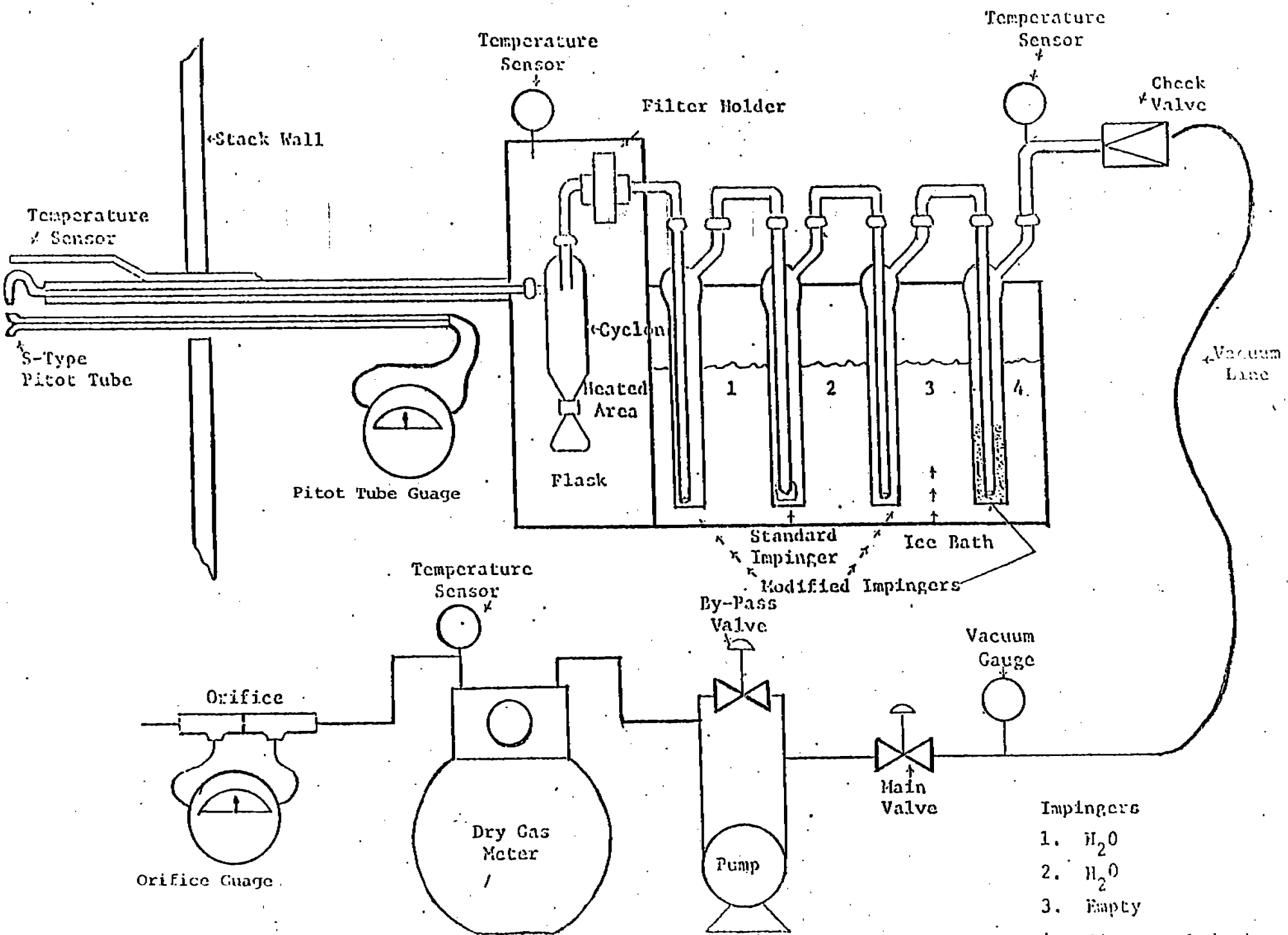

from Bag house
21'
5'
4.5'
SAMPLE Ports
flow
36 Total Points
Dryers
FAN
To stack
To stack
FAN

Figure 2



One of four stacks from the mill baghouse.

Figure 1


Temperature Sensor
Filter Holder
Temperature Sensor
Check Valve
Stack Wall
Temperature Sensor
S-Type Pitot Tube
Pitot Tube Guage
Cyclon
Heated Area
Flask
1
2
3
4
Vacuum Line
Standard Impinger
Ice Bath
Modified Impingers
Temperature Sensor
By-Pass Valve
Vacuum Gauge
Orifice
Orifice Guage
Dry Gas Meter
Pump
Main Valve
Impingers
1. H_2O
2. H_2O
3. Empty
4. Silica gel dessicant

[illegible] FIELD DATA

Plant: [illegible]
Date: 2/12/21
Location: Los Lunas New Mexico
Operators: [illegible]
Stack No.: Dryer Port Identif: South
Run No: or Test: II
Type of Test: Total Particulate
Stack Diameter, in.: 48" x 1.0"
Meter Box No.: IV
Probe No.: 110

Ambient Temperature: 0C
Barometric Pressure: 23.07
Static Pressure:
Pitot Tube Coeff: .83
Probe Length, in.: 72"
Process Weight Rate: [illegible] T/hr.
Time Test Started: 5:00 P.M.
Time Test Ended: [illegible]
Plant Arrival: 3:00 P.M.
Plant Contact: Dave [illegible]

1. Meter ΔH: 1.92
2. Moisture %: 18.0%
3. Meter Temperature: 95
4. Ps/Pm:
5. Temperature of Stack:
6. Average ΔP:
7. Actual Nozzle Diameter: .255
8. Average ΔH:

Traverse Point Number	Sampling Time In Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H2O	Gas Sample Volume (Vm) ft.3	Stack Temperature (Ts) °F	Temperature Probe °F	Temperature Box °F	Temperature Impinger Out °F	Temperature Impinger In °F	Temperature Meter Out °F	Pump Vacuum in Hg Guage
1	2	.12	.346	.27	7142.13	180	230	290	60	175	70	5.5
2	4	.12	.346	.27		180	230	290	55	175	70	5.5
3	6	.42	.648	.94	7149.6	180	240	250	60	175	70	7.0
4	8	.34	.624	.88		180	240	250	60	175	75	7.0
5	10	.40	.632	.90	7157.0	180	240	250	55	190	75	8.0
6	12	.44	.663	1.0	7165.93	180	230	250	55	190	75	8.0
1	2	.64	.800	.45	7145.93	180	220	240	60	160	75	11.0
2	4	.50	.707	.112		180	200	210	55	170	75	8.5
3	6	.50	.707	.112	7157.6	180	200	210	55	170	75	8.5
4	8	.40	.632	.90		180	250	250	60	190	75	7.5
5	10	.40	.632	.90	7154.7	180	250	260	60	200	75	7.5
6	12	.38	.616	.80		180	250	250	65	215	80	7.0
1	2	.55	.742	1.12	7157.7	180	250	300	65	175	80	9.0
2	4	.54	.735	1.2		180	250	300	65	175	80	9.0
3	6	.44	.663	1.0	7160	180	250	300	60	225	85	8.0
4	8	.42	.648	.94		180	250	300	60	230	85	7.5
5	10	.44	.663	1.0	7163.5	180	250	300	60	210	85	7.5
6	12	.53	.728	1.2	7166.0	180	250	300	60	250	85	9.0
Average			.63		.84						88°	

Initial Leak Check: [illegible]
Final Leak Check:

AVERAGE

	VOLUME OF LIQUID WATER COLLECTED	IMPINGER VOLUME (ml) 1	2	3	4	SILICA GEL WEIGHT (g)
FINAL		208	109	1		679
INITIAL		100	100	0	-	659
LIQ COLLECTED		108	9	1		+15
TOTAL VOLUME COLLECTED						

TYPE OF GAS MEASUREMENT: Fyrite

	TIME	CO2	O2	CO	N2
1		1.0	20.0		
2		1.0	20.0		
3		1.0	20.0		

High [illegible] used a Orifice ΔH of 1.50" H2O
Changed [illegible] at the second point.

PLANT

TEST NUMBER

I

DATE:

Traverse Point Number	Sampling Time in Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H₂O	Gas Sample Volume (Vm) ft.³	Stack Temperature (Ts) °F	Temperature Probe °F	Box °F	Impinger Out °F	Impinger In °F	Meter Out °F	Pump Vacuum in Hg Gauge
1	2	33	.574	~~.54~~ .79	7166.0	180	260	300	65	220	85	6.5
2	4	.26	.510	.79		180	260	300	65	225	85	6.0
3	6	.34	.583	.76	7168.5	180	260	300	65	230	85	6.5
4	8	.42	.648	.94		180	260	300	60	240	90	7.5
5	10	.39	.616	.86	7171.5	180	260	300	60	240	90	7.0
6	12	.46	.698	94	7173.75	180	260	300	60	240	95	7.5
1	2	.50	.707	1.12	7173.75	180	260	300	70	240	100	7.8
2	4	.44	.663	.99		180	260	300	70	245	100	7.5
3	6	.40	.632	.90	7177.0	180	260	300	60	245	100	7.0
4	8	.38	.616	.86		180	260	300	60	245	100	7.0
5	10	.42	.698	94	7179.5	180	260	300	55	245	100	7.5
6	12	.40	.632	90	7182.24	180	260	300	55	245	100	7.0
1	2	.58	.762	1.30	7182.24	180	260	300	55	245	105	8.5
2	4	.44	.693	1.07		180	260	300	55	245	105	8.0
3	6	.42	.698	.94	7185.5	180	260	300	55	245	105	7.0
4	8	.38	.616	.86		180	260	300	55	245	105	7.0
5	10	.34	.583	.76	7188	180	260	300	55	245	105	6.0
6	12	.28	.529	63		180	255	290	60	245	105	5.5

.63 Final 7190.59

48.46 C.F.

Pressure Drops Baghouse ("H₂O)

#1	#2	#3	#4	-s-Pheviate		Plenum
5.5	5.4	5.3	5.7	5.9	5.7	2.4"

PARTICULATE FIELD DATA

Plant: [illegible]
Date: [illegible]
Location: [illegible]
Operators: [illegible]
Stack No.: [illegible] Port Identif: [illegible]
Run No. or Test: [illegible]
Type of Test: [illegible]
Stack Diameter, in.: [illegible]
Meter Box No.: [illegible]
Probe No.: 116

Ambient Temperature: [illegible]
Barometric Pressure: [illegible]
Static Pressure: [illegible]
Pitot Tube Coeff: .83
Probe Length, in.: [illegible]
Process Weight Rate: [illegible]
Time Test Started: [illegible]
Time Test Ended: [illegible]
Plant Arrival: [illegible]
Plant Contact: [illegible]

1. Meter ΔH@: [illegible]
2. Moisture %: [illegible]
3. Meter Temperature: [illegible]
4. Ps/Pm: [illegible]
5. Temperature of Stack: [illegible]
6. Average ΔP: [illegible]
7. Actual Nozzle Diameter: [illegible]
8. Average ΔH: [illegible]

Traverse Point Number	Sampling Time in Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H₂O	Gas Sample Volume (Vm) ft.³	Stack Temperature (Ts) °F	Temperature Probe °F	Temperature Box °F	Temperature Impinger Out °F	Temperature Impinger In °F	Temperature Meter Out °F	Pump Vacuum in Hg guage
1	2	.38	.616	.90	7190.82	180	260	270	60	165	85	8.5
2	4	.36	.600	.87		180	260	260	55	155	85	8.0
3	6	.38	.616	.92	7193.8	180	260	270	55	160	85	8.5
4	8	.46	.678	1.0		180	260	270	55	160	85	9.5
5	10	.50	.707	1.2	7196.7	180	260	270	55	175	95	11.0
6	12	.54	.735	1.3		190	260	270	60	190	85	11.0
7												
1	2	.4	.632	.97	7199.1	180	260	270	65	195	90	8.5
2	4	.36	.600	.87		180	260	270	65	195	90	8.0
3	6	.46	.678	1.0	7202.5	180	250	270	65	200	90	8.5
4	8	.50	.707	1.2		190	260	270	65	200	90	11.0
5	10	.54	.735	1.3	7205.6	190	260	270	65	200	95	11.0
6	12	.54	.735	1.3		190	260	270	65	205	95	11.0
1	2	.50	.707	1.1	7208.6	180	250	270	65	205	95	9.5
2	4	.34	.583	.92		190	250	270	65	205	95	8.0
3	6	.46	.678	1.0	7211.3	180	250	270	65	205	95	9.0
4	8	.48	.693	1.15		180	260	270	65	205	95	9.5
5	10	.52	.721	1.25	7214.3	180	260	270	65	205	95	11.0
6	12	.54	.735	1.3	7217.19	180	260	270	65	205	95	11.0
TOTAL			.939	.969							99.7	
AVERAGE												

Initial Leak Check: [illegible]
Final Leak Check: [illegible]

VOLUME OF LIQUID WATER COLLECTED	IMPINGER VOLUME (ml) 1	2	3	4	SILICA GEL WEIGHT (g)
FINAL	202	115	4		669
INITIAL	100	100	0	—	654
NET COLLECTED	102	15	4		15
TOTAL VOLUME COLLECTED	131				

PYRITE OR ORSAT MEASUREMENT

	TIME	CO_2	O_2	CO	N_2
1	[illegible]	2.0	19.0		
2		2.0	19.0		
3		2.0	19.0		

TEST NUMBER

DATE:

Traverse Point Number	Sampling Time In Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H₂O	Gas Sample Volume (Vm) ft.³	Stack Temperature (Ts) °F	Temperature Probe °F	Box °F	Temperature Impinger Out °F	In °F	Temperature Meter Out °F	Pump Vacuum in Hg Gauge
1	2	.34	.583	.82	721719	180	270	[illegible]	65	210	100	7.5
2	4	.32	.616	.92		180	270	[illegible]	65	215	100	8.0
3	6	.40	.632	.98	7220.0	180	270	280	65	230	105	8.5
4	8	.40	.632	.98		180	270	280	65	235	105	8.5
5	10	.42	.648	1.02	72225	180	270	[illegible]	60	235	105	8.5
6	12	.40	.632	.99	722543	180	270	280	60	235	105	8.5
1	2	.50	.707	1.2	722543	180	270	290	65	225	105	10.5
2	4	.30	.548	.72		180	270	290	65	225	105	7.0
3	6	.20	.447	.48	7228.4	180	270	290	60	240	110	5.0
4	8	.16	.400	.39		180	270	290	60	245	110	4.5
5	10	.16	.400	.39	7230.0	180	270	290	60	245	110	4.5
6	12	.19	.436	.46	7232.	180	270	[illegible]	60	245	110	5.0
1	2	.45	.671	1.1	72332.06	180	270	300	70	225	105	9.5
2	4	.40	.632	.98		180	270	300	70	225	115	9.0
3	6	.44	.663	1.07	7235.3	180	270	300	70	235	115	9.0
4	8	.36	.600	.88		180	270	290	60	240	115	8.0
5	10	.40	.632	.98	7237.8	180	270	280	60	245	115	8.5
6	12	.42	.648	1.02		180	270	290	60	230	115	9.0

Final Reading 7240.70

PARTICULATE FIELD DATA

Plant:	[illegible]	Ambient Temperature:	52	1. Meter ΔH@:	1.47
Date:	2/21/[illegible]	Barometric Pressure:	29.93	2. Moisture %:	
Location:	[illegible]	Static Pressure:	-0.5	3. Meter Temperature:	85
Operators:	A. P[illegible], T. [illegible]	Pitot Tube Coeff:	.83	4. Ps/Pm:	.97
Stack No.:	Dryers	Port Identification:	[illegible]	5. Temperature of Stack:	180
Run No. or Test:	II	Probe Length, in.:	72"	6. Average √ΔP:	.58
Type of Test:	Total Particulate	Process Weight Rate:	80 Ton/hr	7. Actual Nozzle Diameter:	.250
Stack Diameter, in.:	48" x 60"	Time Test Started:	5:00 P.M.	8. Average ΔH:	.769
Meter Box No.:	II	Time Test Ended:	7:20 P.M.		
Probe No.:	110	Plant Arrival:	2:00 P.M.		
		Plant Contact:	David LAIRD		

Traverse Point Number	Sampling Time in Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H₂O	Gas Sample Volume (Vm) ft.³	Stack Temperature (Ts) °F	Temperature Probe °F	Temperature Box °F	Temperature Impinger Out °F	Temperature Impinger In °F	Temperature Meter Out °F	Pump Vacuum in Hg guage
1	2	.52	.721	1.15	7241.05	180	280	280	70	125	80	11.5
2	4	.52	.721	1.15		180	280	280	70	155	80	11.5
3	6	.52	.721	1.15	7246.00	180	290	300	70	160	80	11.5
4	8	.50	.707	1.1		180	290	300	60	170	85	11.5
5	10	.50	.707	1.1	7247.[illegible]	180	290	300	60	190	85	11.5
6	12	.50	.707	1.1	7250.0	180	290	300	60	190	85	11.5
						10						
1	2	.46	.678	1.08	7250.0	180	270	290	65	180	85	10.5
2	4	.44	.663	.98		180	270	290	60	180	85	10.5
3	6	.44	.663	.98	7253.0	180	270	290	60	180	85	10.5
4	8	.44	.663	.98		180	270	290	60	215	85	10.5
5	10	.48	.693	1.07	7255.7	180	270	290	60	220	90	11.0
6	12	.48	.693	1.07	7258.65	180	270	290	60	220	90	11.0
1	2	.34	.583	.76	7258.65	180	270	290	65	190	95	8.5
2	4	.24	.490	.53		180	270	300	65	220	95	7.5
3	6	.28	.529	.62	7261.0	180	270	300	65	225	95	7.5
4	8	.32	.566	.71		180	270	300	65	225	95	8.0
5	10	.34	.583	.78	7263.7	180	275	300	65	275	95	8.5
6	12	.36	.600	.80	7266.0	180	275	300	65	235	95	8.5
TOTAL												
AVERAGE												

Initial Leak Check: Dryer Stop @ 17" Hg [illegible]

Final Leak Check: Dryer Stop @ 10" Hg

VOLUME OF LIQUID WATER COLLECTED	Impinger Volume (ml) 1	2	3	4	Silica Gel Weight (g)
FINAL	202	114	3	-	269
INITIAL	100	100	0	-	200
LIQUID COLLECTED	102	14	3		69
TOTAL VOLUME COLLECTED					

FYRITE OR ORSAT MEASUREMENT — T. Bo[illegible] J. [illegible]

	TIME	CO₂	O₂	CO	N₂
1		2.0	19.0		
2		2.0	19.0		
3		2.0	[illegible]		

Pressure drop across [illegible]
#1 #2 #3 #4 #5 #6 Plenum
? 5.0 5.0 4.6 4.7 4.5 2.9

TEST NUMBER

DATE: 12/19/91

Traverse Point Number	Sampling Time In Min.	Velocity Head (ΔPs)	(√ΔPs)	Pressure Differential Across Orifice Meter (ΔH) "H2O	Gas Sample Volume (Vm) ft.3	Stack Temperature (Ts) °F	Temperature Probe °F	Box °F	Temperature Impinger Out °F	In °F	Temperature Meter Out °F	Pump Vacuum in Hg Guage
1	2	.36	.600	.90	7266.0	180	290	310	65	265	100	8.5
2	4	.35	.529	.62		180	280	310	65	240	100	7.0
3	6	.31	.557	.68	7268.9	180	285	310	65	240	100	7.5
4	8	.29	.530	.64		180	285	310	65	245	100	7.5
5	10	.29	.539	.64	7270.9	180	285	310	65	250	100	7.5
6	12	.32	.566	.71	7273.5	180	285	310	65	250	100	8.0
1	2	.26	.510	.58	7273.5	180	285	310	65	220	100	6.5
2	4	.20	.447	.44		180	280	320	70	245	105	5.5
3	6	.22	.469	.48	7276.5	180	280	320	70	245	105	5.5
4	8	.26	.510	.58		180	280	320	70	245	105	6.5
5	10	.25	.529	.62	7278.6	180	280	320	65	250	105	6.5
6	12	.32	.566	.71	7281.8	180	280	320	65	250	105	7.5
1	2	.44	.663	.98	7279.8	180	280	320	70	235	110	9.0
2	4	.14	.379	.31		180	280	320	65	250	110	4.0
3	6	.22	.469	.48	7282.4	180	280	315	65	250	110	5.5
4	8	.18	.429	.40		180	280	315	65	250	110	4.5
5	10	.20	.447	.44	7284.0	180	280	295	65	240	110	5.5
6	12	.22	.469	.48		180	280	290	65	240	110	5.5

55 Final Reading 7286.11 96

.769

Pressure drops across bag house (Last Port)

#1	#2	#3	#4	#5	#6	Plenum
5.5"	5.3	5.3	5.8	5.8	5.7	2.8

CALCULATED EMISSIONS

MILL

Table 2.

Run No.	Time minutes	Filter No.	Particulate Weight, gm		Vm cf	Wt. lb./hr.
			Net	Adjusted		
1	2.0	1	.0527	.0554	69.7	3.535
2	2.0	2	.0385	.0412	69.7	2.629
3	2.0	3	.0273	.0300	69.7	1.914
4	2.0	4	.0435	.0462	69.7	2.948
5	2.0	5	.0215	.0242	69.7	1.549
6	2.0	6	.0263	.0290	69.7	1.850
7	2.0	7	.0418	.0445	69.7	2.840
8	2.0	8	.0387	.0414	69.7	2.642
9	2.0	9	.0531	.0558	69.7	3.561
10	2.0	10	.0305	.0332	69.7	2.118
11	2.0	11	.0276	.0303	69.7	1.933
12	2.0	12	.0417	.0444	69.7	2.833
13	2.0	13	.0222	.0249	69.7	1.589
14	2.0	14	.0201	.0228	69.7	1.455
15	2.0	15	.0339	.0366	69.7	2.335

Tare Weight Changes

Filter No.	Wt. Change gm
26	.0009
27	.0017
Average	.0013

Average: 1.764 lb./hr.

Standard Deviation: .9102 lb./hr.

Total Sampling Time: 48 minutes

Probe Washing Weight: 99.4 grams

" " Blank – 4.2

95.2 grams

CALCULATED EMISSIONS

MILL

Table 2.

Run No.	Time minutes	Filter No.	Particulate Weight, gm		Vm cf	Wt. lb./hr.
			Net	Adjusted		
16	2.0	16	.0119	.0146	69.7	.9316
17	2.0	17	.0114	.0141	69.7	.8997
18	2.0	18	.0269	.0296	69.7	1.8888
19	2.0	19	.0063	.0090	69.7	.574
20	2.0	20	.0049	.0071	69.7	.453
21	2.0	21	.0043	.0070	69.7	.447
22	2.0	22	.0055	.0082	69.7	.523
23	2.0	23	.0046	.0073	69.7	.466
24	2.0	24	.0041	.0068	69.7	.434

Tare Weight Changes

Filter No.	Wt. Change gm
26	.0009
27	.0017
Average	.0013

Average: 1.764 lb./hr.

Standard Deviation: .9102 lb./hr.

Total Sampling Time: 48 minutes

Probe Washing Weight: .0994 grams

Probe washing Blank - 4.2 grams

.0952 grams

El Paso Natural Gas Company
San Juan Basin Area
Albuquerque, New Mexico 87174

DATE RECEIVED 2-23-11 LABORATORY NUMBER FK-3318-33

CHEMICAL ANALYSES OF STATIONARY SOURCE EMISSIONS IN AIR

COLLECTION DATE 2/16-17-18-19-11
COLLECTED BY J. Romero, F. Brown, J. Ruiz
REPORT TO Jimmy Romero, Env. Scientist III
ADDRESS E.I.D. - Air Quality Bureau
P. O. Box 968 - Crown Bldg.
Santa Fe, NM 87503

SOURCE San Juan 32-9 Unit #1
SOURCE LOCATION NE 12-31N-11W
OTHER INFORMATION

Dryer Baghouse

SAMPLE DESCRIPTION AND NUMBER	SAMPLE VOLUME (ml)	TOTAL PARTIC-ULATE (mg)	OXIDES OF NITROGEN (µg)	SULFUR DIOXIDE VOLUME TITRATED V_a (ml)	SULFUR DIOXIDE VOLUME TITRANT V_t (ml)	OTHER ANALYSES	NOTES
Test #1 FK-3306	130.	15.4					
Test #2 FK-3309	147.	5.9					
Test #3 FK-3310	196.	30.7					
Test #4 FK-3311	140.	22.7					
Train Blank FK-3313	328.	2.5					
FK-3312	164.	99.4					
Train Blank FK-3314	316.	2.2					

DATE ANALYSED 2-23-11
ANALYST

FILTER WEIGHT RECORD

Facility [illegible] Testing Dates [illegible]

Date of Tare Weighing [illegible] Weighed By [illegible]

Date of Final Weighing [illegible] Weighed By [illegible]

Type of Test:
- [x] EPA Particulate
- [ ] ASME Alundum Thimble
- [ ] Rader
- [ ] Other _____

Type of Filter 110 cm Glass Fiber

Dryer Baghouse

Filter No.	Tare Weight grams	Final Weight grams	Particulate Weight grams
E-1	[illegible]	[illegible]	[illegible]
E-2	[illegible]	[illegible]	[illegible]
E-3	[illegible]	[illegible]	[illegible]
E-4	[illegible]	[illegible]	[illegible]
E-5	[illegible]	[illegible]	[illegible]
E-6	[illegible]	[illegible]	[illegible]

Test not calculated

FILTER WEIGHT RECORD

Facility Dallas Plant Testing Dates 2-10-91

Date of Tare Weighing 2-12-91 Weighed By Tim Bonds

Date of Final Weighing 3-6-91 Weighed By Tim Bonds

Type of Test:
- ☐ EPA Particulate
- ☐ ASME Alundum Thimble
- ☑ Rader
- ☐ Other _____

Type of Filter Type A Glass Fiber 8x10 inch

Mill Baghouse

Filter No.	Tare Weight mg	Final Weight mg	Particulate Weight Drams
1	3.6955	3.7462	0.0327
2	3.4366	3.4691	0.0345
3	3.4322	3.4595	0.0273
4	3.7113	3.7548	0.0435
5	3.4[illegible]	3.4397	0.0215
6	3.4[illegible]	3.4[illegible]	0.0263
7	3.4493	3.4911	0.0418
8	3.7014	3.7401	0.0387
9	3.4[illegible]	3.4963	0.0353
10	3.4[illegible]	3.4[illegible]	0.0365
11	3.4[illegible]	3.4[illegible]	0.0[illegible]
12	3.7140	3.7557	0.0417
13	3.[illegible]	3.4412	0.0222
14	3.7[illegible]	3.7[illegible]	0.[illegible]
15	3.4[illegible]	3.4[illegible]	0.[illegible]

FILTER WEIGHT RECORD

Facility [illegible] Testing Dates [illegible]

Date of Tare Weighing [illegible] Weighed By [illegible]

Date of Final Weighing [illegible] Weighed By [illegible]

Type of Test:
- ☐ EPA Particulate
- ☐ ASME Alundum Thimble
- ☑ Rader
- ☐ Other _____

Type of Filter Type A Glass Fiber 8 x 10 inch

Mill Baghouse.

Filter No.	Tare Weight grams	Final Weight grams	Particulate Weight grams
16	3 [illegible]	3 [illegible]	[illegible]
17	3 [illegible]	3 [illegible]	[illegible]
18	3 [illegible]	3 [illegible]	[illegible]
19	3 [illegible]	3 [illegible]	[illegible]
20	3 [illegible]	3 [illegible]	[illegible]
21	3 [illegible]	3 [illegible]	[illegible]
22	3 [illegible]	3 [illegible]	[illegible]
23	3 [illegible]	3 [illegible]	[illegible]
24	3 [illegible]	3 [illegible]	[illegible]
25	[illegible]		
26	3 [illegible]	3 [illegible]	[illegible]
27	3 [illegible]	3 [illegible]	[illegible]

N.M. Environmental Improvement Agency

ENVIRONMENTAL SAMPLE TRANSMITTAL

TO: (Name & Address)	FROM: (Name & Address)

Sample Location:

Field Sample Number	Preservative	Analysis Required	Lab Number
Test #1	Acetone	Total Particulates	Hg. 3308
Test #2	"	"	Hg. 3309
Test #3	"	"	Hg. 3310
Test #4	"	"	Hg. 3311
Travel Test	"	"	Hg. 3312
Dryer Front	"	"	Hg. 3313
Blank JK	"	"	Hg. 3314

To Be Completed By Field Personnel

Prepared By: _____ (signature) Date: 2/22/91 Time: _____

Field Notebook Number: _____ Method of Shipment: _____

To Be Completed By Receiving Laboratory

Received By: Barbara Bird-Stuart (signature) Date: 2-23-91 Time: 2:05 pm

Originating Office: Prepare in quadruplicate. The original and one copy will accompany sample shipment. Mail one copy directly to the addressee and one copy will be retained by the Survey Coordinator for reference.

Receiving Office: After receiving samples, assign Lab Number and return the original to the Survey Coordinator. Retain one copy for laboratory files.

CALIBRATIONS

Johns-Manville February 16, 17, 18 and 19, 1981

EPA Box	MCF	ΔH@	Date	By
I	1.02	1.53	2/10/81	M. Romero
IV	.99	1.47	10/17/80	M. Romero

Probe	T.S. dev.	Date	By
110	- 0.09	8/27/80	T. Booker
107	no recent data		

EPA Box	M.O. dev.	Date	By
I	1.4	11/18/80	T. Booker
IV	0	8/28/80	T. Booker

Pitot Tube	Cp	Cp w/nozzle	Date	By
110	.83	.83	2/12/81	M. Romero
102	.83	.81	5/16/80	M. Romero

Probe Tip	Size	Actual Size	Date	By
A	1/4	.255	2/17/81	J. Romero
B	1/4	.250	2/19/81	J. Romero

ENVIRONMENTAL IMPROVEMENT DIVISION
RECORD OF VISUAL DETERMINATION OF OPACITY

STATE OF NEW MEXICO — HEALTH — ENVIRONMENT

Company Tah-Mar Ne Perlite
Location Ft. Apache Observer Steve Schwebke
Test Number 4 Observer Certification Date 10-22-80
Date 3-17-81 Observer Affiliation NM EID Air Quality
Type of Facility perlite plant Point of Emission top of stack #1
Control Device Baghouse Height of Discharge Point 30'

	Initial	Final
Clock Time	12:40	12:51:15
Observer Location		
Distance to Discharge	75'	"
Direction from Discharge	east	"
Height of Observation Pt.	55'	"
Background Description	Dust red	"
Weather Conditions		
Wind Direction	SE → NW	"
Wind Speed	0-10	"
Ambient Temperature	55°F	"
Sky Condition (clear, overcast, % clouds, etc.)	clear	"
Plume Description		
Color	white	"
Distance Visible	5' max	"
Other Information		

Record Opacity in % 5% Smallest Division

sec / min	0	15	30	45
1	5	0	0	5
2	0	0	5	5
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	5	0	0
7	5	10	10	5
8	5	0	5	0
9	10	10	5	0
10	5	0	5	0

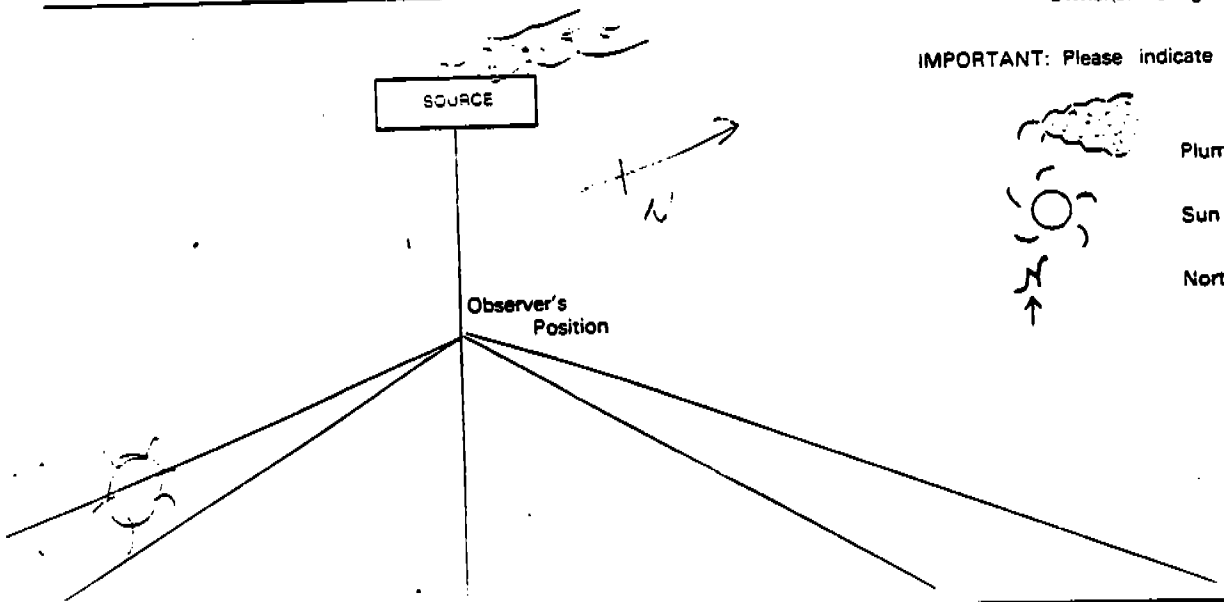
OPACITY AVERAGE

Sum of No. Recorded: 100
Sum No. of Readings: 40
Average Opacity: 2.5
Opacity Range: 0 % to 10 %

Comments:

Steve Schwebke
Observer's Signature

Owner or Manager of Operation



IMPORTANT: Please indicate the following by sketch:

Plume Direction
Sun
North

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

ENVIRONMENTAL IMPROVEMENT DIVISION
RECORD OF VISUAL DETERMINATION OF OPACITY

Company Taos - Questa Pipeline

Location Questa Observer Steve Schwebke

Test Number 3 Observer Certification Date 11-22-80

Date 8-17 Observer Affiliation NMEID Air Quality

Type of Facility mill baghouse Point of Emission top of stack #2

Control Device baghouse Height of Discharge Point 30'

	Initial	Final
Clock Time	12:22	12:32:45
Observer Location		
Distance to Discharge	75'	"
Direction from Discharge	east	"
Height of Observation Pt.	55'	"
Background Description	rust red	"
Weather Conditions		
Wind Direction	SW to NW	"
Wind Speed	0-5	"
Ambient Temperature	55°F	"
Sky Condition (clear, overcast, % clouds, etc.)	clear	"
Plume Description		
Color	white	"
Distance Visible	0-5 ft.	continuous puffing
Other Information		

Record Opacity in % — 5% Smallest Division

sec / min	0	15	30	45
1	0	0	0	5
2	0	5	0	0
3	0	0	5	5
4	0	5	5	5
5	5	5	5	5
6	5	5	5	0
7	0	0	0	0
8	0	0	5	5
9	0	5	0	0
10	0	0	0	5

OPACITY AVERAGE

Sum of No. Recorded: 90

Sum No. of Readings: 40

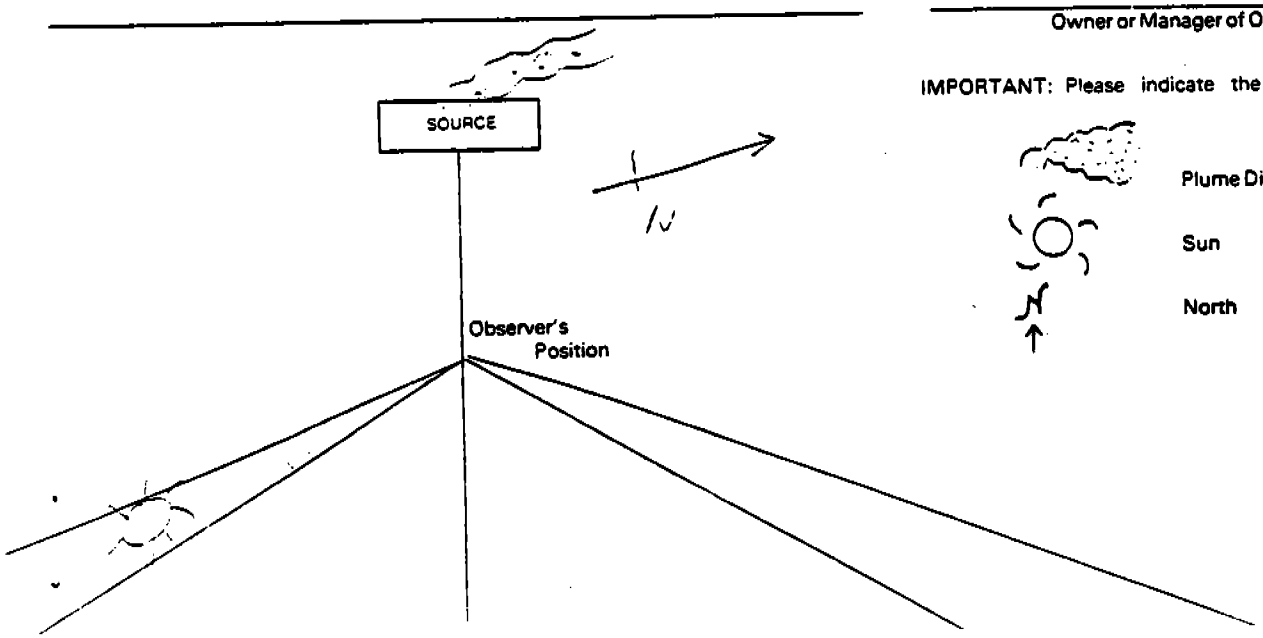
Average Opacity: 2.25

Opacity Range: 0 % to 5 %

Comments:

Steve Schwebke
Observer's Signature

Owner or Manager of Operation



IMPORTANT: Please indicate the following by sketch:

Plume Direction

Sun

North

ENVIRONMENTAL IMPROVEMENT DIVISION
RECORD OF VISUAL DETERMINATION OF OPACITY

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

Company [illegible] Potash

Location [illegible] Observer Steve Schmaltz

Test Number 2 Observer Certification Date 11-22-81

Date 5-15-81 Observer Affiliation NM EID Air Quality

Type of Facility [illegible] Point of Emission stack # 3 (2nd from right)

Control Device baghouse Height of Discharge Point 30'

	Initial	Final
Clock Time	12:05	12:16:15
Observer Location		
Distance to Discharge	75'	"
Direction from Discharge	east	"
Height of Observation Pt.	55'	"
Background Description	rust + tan	"
Weather Conditions		
Wind Direction	SE → NW	"
Wind Speed	0 - 10	"
Ambient Temperature	50°F	"
Sky Condition (clear, overcast, % clouds, etc.)	5% cly	"
Plume Description		
Color	white	"
Distance Visible	4-5 ft unless puffing	
Other Information		

Record Opacity in % 5% Smallest Division

sec / min	0	15	30	45
1	0	5	5	0
2	0	0	5	10
3	10	10	5	10
4	5	5	10	5
5	5	0	0	5
6	0	0	0	0
7	0	0	0	0
8	5	5	0	5
9	0	0	0	0
10	5	5	0	10

OPACITY AVERAGE

Sum of No. Recorded: 130

Sum No. of Readings: 40

Average Opacity: 3.25

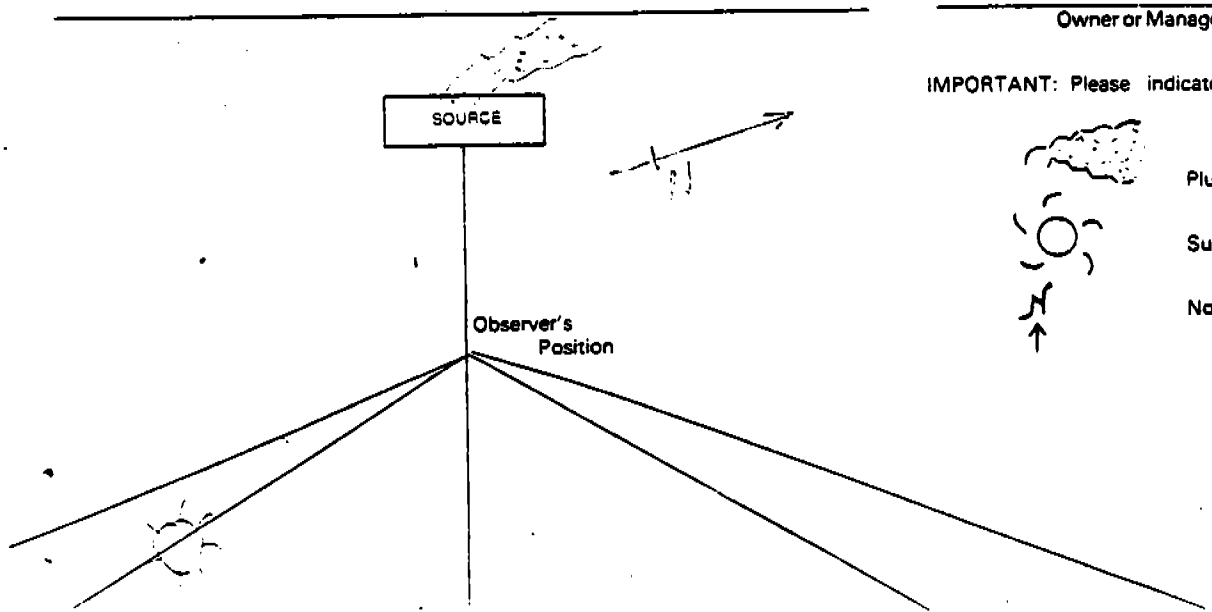
Opacity Range: 0 % to 10 %

Comments:

Steve Schmaltz
Observer's Signature

Owner or Manager of Operation

IMPORTANT: Please indicate the following by sketch:



ENVIRONMENTAL IMPROVEMENT DIVISION
RECORD OF VISUAL DETERMINATION OF OPACITY

STATE OF NEW MEXICO — HEALTH — ENVIRONMENT

Company Johns-Manville Perlite

Location Rio Agua Observer Steve Schmeiser

Test Number 1 Observer Certification Date 11-22-80

Date 2-18-81 Observer Affiliation NMI EID Air Quality (Guest)

Type of Facility Perlite Point of Emission STACK #4

Control Device Baghouse Height of Discharge Point 20'

	Initial	Final
Clock Time	11:29	11:40:30
Observer Location — Distance to Discharge	75'	"
Direction from Discharge	east	"
Height of Observation Pt.	55'	"
Background Description	rust + tan	"
Weather Conditions — Wind Direction	SE → NW	"
Wind Speed	0-5	"
Ambient Temperature	50°F	"
Sky Condition (clear, overcast, % clouds, etc.)	5% cldy	"
Plume Description — Color	white	"
Distance Visible	5 ft. w/fan puffing	
Other Information		

Record Opacity in % — 5% Smallest Division

sec / min	0	15	30	45
1	0	0	0	0
2	0	0	5	5
3	15	10	5	5
4	5	0	0	0
5	5	0	0	5
6	0	0	5	0
7	0	0	0	0
8	0	5	0	10
9	5	5	5	5
10	5	5	5	5

OPACITY AVERAGE

Sum of No. Recorded: 120

Sum No. of Readings: 40

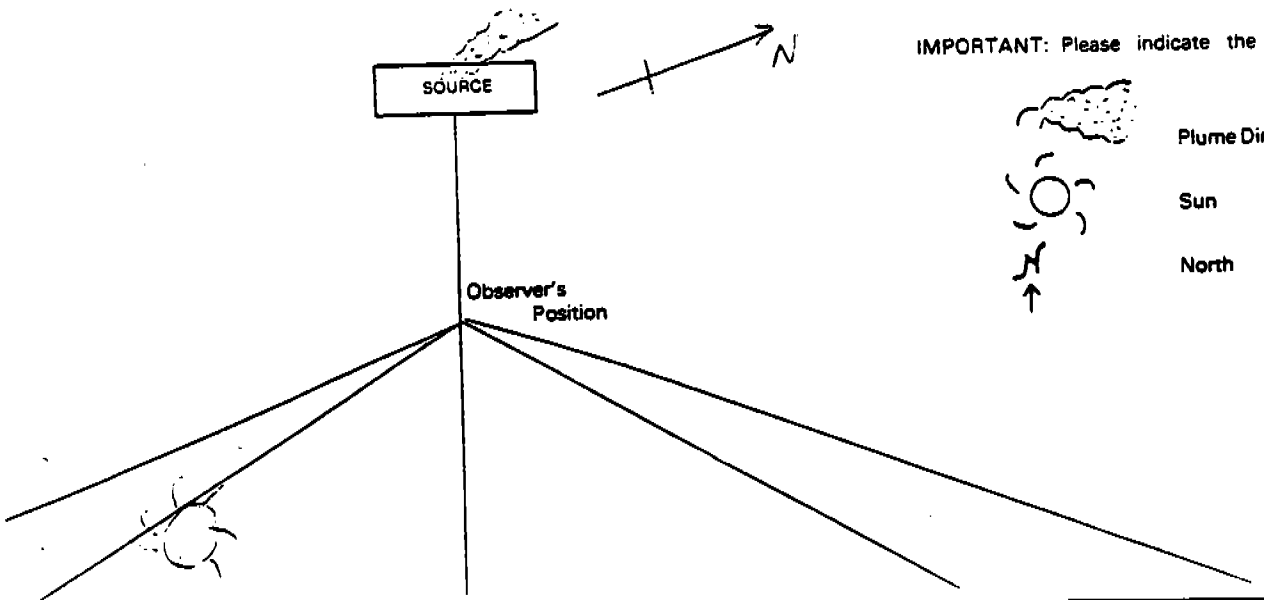
Average Opacity: 3 %

Opacity Range: 0 % to 15 %

Comments:

Steve Schmeiser
Observer's Signature

Owner or Manager of Operation



IMPORTANT: Please indicate the following by sketch:

Plume Direction

Sun

North

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

ENVIRONMENTAL IMPROVEMENT DIVISION
RECORD OF VISUAL DETERMINATION OF OPACITY

Company Johns-Manville Products

Location Los Hogan Observer Steve Schmelke

Test Number 2 Observer Certification Date 11-22-80

Date 5-17-81 Observer Affiliation Air Quality

Type of Facility Perlite Dryer Point of Emission Top of stack (south)

Control Device Baghouse Height of Discharge Point 30'

	Initial	Final
Clock Time	4:15	4:27:45
Observer Location		
Distance to Discharge	150'	"
Direction from Discharge	S-SW	"
Height of Observation Pt.	ground	"
Background Description	dk green	"
Weather Conditions		
Wind Direction	E → W	"
Wind Speed	0-5	"
Ambient Temperature	55°	"
Sky Condition (clear, overcast, % clouds, etc.)	90% Hi cld.	"
Plume Description		
Color	white	"
Distance Visible	30' into hillside	
Other Information		

Record Opacity in % 5% Smallest Division

sec / min	0	15	30	45
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	10
5	15	10	5	0
6	5	0	0	0
7	0	0	0	0
8	0	5	5	0
9	0	0	5	0
10	0	0	0	0

OPACITY AVERAGE

Sum of No. Recorded: 60

Sum No. of Readings: 40

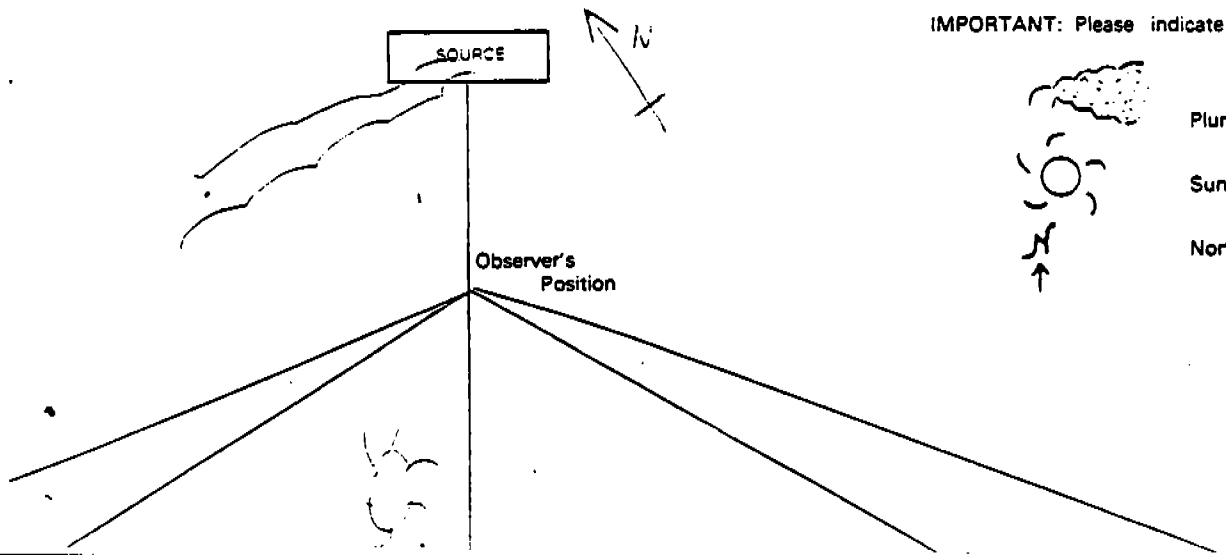
Average Opacity: 1.5

Opacity Range: 0 % to 15 %

Comments:

Steve Schmelke
Observer's Signature

Owner or Manager of Operation



IMPORTANT: Please indicate the following by sketch:

Plume Direction

Sun

North

RESUME OF STACK SAMPLING PERSONNEL

Jimmy T. Romero — Environmental Scientist III
HED/EID/Air Quality Bureau

Education: B.S. 1974, Biology and Chemistry
New Mexico Highlands University
Las Vegas, NM

Certification: Certificate in Propulsion Engineering School
U.S.N. 1969

Training: Air Pollution Training Institute, EPA Course #431,
Air Pollution Control Technology

Air Pollution Training Institute, EPA Course #450,
Source Sampling for Particulate Pollutants

Air Pollution Training Institute, EPA Course #468,
Source Sampling and Analysis for Gaseous Pollutants

Air Pollution Training Institute, EPA Course,
Supervisor and Management Training

Course in Method "9", Visible Emissions and Certification

Experience: 5½ years stack sampling with the State of New Mexico
HED/EID/Air Quality Bureau

Tim Booker — Environmental Technician III
HED/EID/Air Quality Bureau

Education: B.A. 1977, Biology and Psychology
New Mexico Highlands University
Las Vegas, NM

Training: Visible Emission Evaluation Certificate, Method "9"

Air Pollution Training Institute, EPA Course #450,
Source Sampling for Particulate Pollutants

Experience: 2½ years stack sampling with the State of New Mexico
HED/EID/Air Quality Bureau

Mario Romero — Environmental Technician III
HED/EID/Air Quality Bureau

Education: High School Diploma, 1968

Training: Registered with the New Mexico Department of Agriculture
as a pesticide applicator

Visible Emission Evaluation Certificate, Method "9"

Experience: 5 years with the State of New Mexico, Environmental Improvement Agency in Taos as an Environmental Technician under the CETA program: 2½ years stack sampling with the State of New Mexico
HED/EID/Air Quality Bureau