DOCUMENT DESCRIPTION (Completed By Requesting Division)

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Unclassified Title: STACK INFORMATION - AREA FIVE, VOLUMES 1 & 2

Author(s) Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

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☐ Journal Article (Identify Journal):

☒ Other (Specify): To Be Released to ChemRisk, Phase II

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Document will be distributed at meeting ☑ No ☐ Yes

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Document has been previously released ☑ No ☐ Yes (Reference)

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): Unclassified Abstract: -

DOCUMENT: Level Unclassified Category -

R. F. Cough 6 Nov 1995

Signature Date

Y-12 Plant Classification Office

DOCUMENT REQUEST APPROVED (Division or Department)

[signature] 11-1-95

Signature Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

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APPROVAL AND RELEASE

Date Received

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Level V Category

Weapons Data Sigma

[signature] 11-8-95

Y-12 Classification Office Date

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☐ Date

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#2994

UNCLASSIFIED

STACK INFORMATION AND INVENTORY RECORD

7530-290-5028
FEDERAL SUPPLY SERVICE

UNCLASSIFIED

Emch & Poe.

81-13 81-12 81-11

E →

TO BE TRAVERSED

11NF-16	1000	(9064)	13JF-01	70,000	(64,967)
11NF-18	1000	(887)	13JF-03		(18,116)
11NF-20	1000	(435)	15EF-02	Too BIG.	
11NF-38	14000	(12,203)	20JF-03T		(3253)
11NF-54	EMPTIES INTO 58		20JF-04T		(12,487)
11NF-55	" " "		20JF-06T		(8533)
11NF-56	" " "		20JF-11	44000	(53,562)
11NF-57	" " "		13JF-37	40,000	(4707)
11NF-58	12000	(15,101)	17FF-05	56000	(65,697)

BAD LOCATION [illegible] HYGIENE PROBLEM

[illegible] 15DE-36 [illegible]

[illegible]

TRAVERSED [illegible] TRAVERSE

[illegible]-04	[illegible]	[illegible]	11NF-52	5,000	(7,655)
11NF-14	20,000	(18,686)	11NF-53	5,000	(5,616)
11NF-21	[illegible]	(13,416)			
11NF-22	15,000	(7,934)			
11NF-23	15,000	(13,554)			
11NF-25	10,000	(9,173)			
11NF-28	4,000	(3,218)			
11NF-29	4,000	(3,105)			
11NF-32	10,000	(9,850)			
11NF-33	10,000	(3,024)			
11NF-[illegible]	[illegible]	(1302)			
11NF-50	[illegible]	([illegible])			
11NF-51	15,000	(TO LOW)			

9212 + 9215 Samples 5-9-85

"STACK SAMPLE LINE-UP"

MONDAY & FRIDAY	TUESDAY & THURSDAY	WEDNESDAY	E-WING SAMPLES: MONDAY, WEDNESDAY & FRIDAY
20KF06	20KF06	20KF06	13PF16
20KF04	20KF04	20KF04	13PF15
20KF03	20KF03	20KF03	13PF14
17FF05	15EF02	17FF05	13PF13
20JF11	11NF34	20JF11	13PF12
15EF02	11NF14	15EF02	13JF01
11NF03	11NF02	11NF03	13JF37
11NF34	11NF22	11NF34	13JF03
11NF25		11NF25	
11NF28		11NF35	
11NF14	TOTAL: 8	11NF29	TOTAL: 8
11NF52		11NF28	
11NF53		11NF14	
11NF02		11NF50	
11NF01		11NF51	TUESDAY & THURSDAY
11NF22		11NF52	
11NF23		11NF53	13PF16
11NF04		11NF02	13PF15
11NF16		11NF01	13PF14
11NF38		11NF22	13PF13
		11NF23	13PF12
		11NF21	13JF01
TOTAL: 20		11NF04	
		11NF16	
		11NF38	TOTAL: 6
		11NF20	
		11NF18	
		TOTAL: 27	

All 9206 Stack

12FF-01 056	Bldg. 9768 Underground Exhaust
-02 034	Room 25 Incinerator Exhaust
-03 033	Rooms 24, 28, and 29 Exhaust (S-System)
-04 078	Room 19 Machining Room Exhaust
-05 079	Room 19 Machining Hood Exhaust
-06 035	Rooms 20 and 22 Exhaust (Carbon Burner)
-07 036	Room 30 Exhaust (L-System)
-08 080	Room 20 Chip Handling Exhaust
-12 082	Room 30 Leaching Hood East
-13 083	Room 30 Leaching Hood West
12RF-09	Room 30 West Dock Exit
12RF-10	Room 30, Fluid Bed
12RF-11	Room 29, 3rd Floor

Charged Daily

NOTE: Only pages which contained information were copied

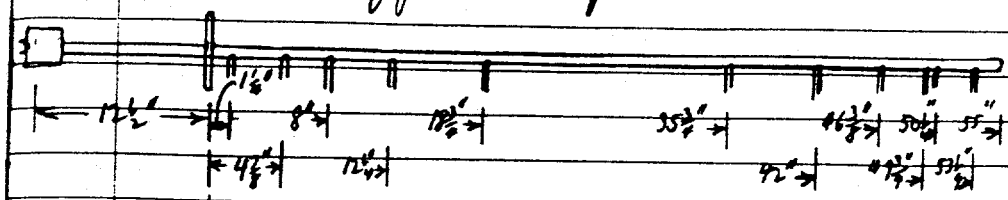
STACK INFORMATION
AREA FIVE

IF FOUND, RETURN TO;
J.D. EMCH 9212 3-7565
M.B. POTTER 9212 3-7756
D. ZUCKER 9723-25 3-5584

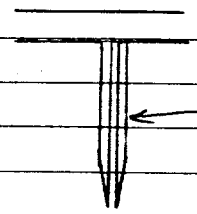
13JF-01 E-wing Dust Collector

1

Stack 55" I.D.; no cap.
Probe ½" O.D. tubing with 11 side tubes, about 12 ft from top of stack and about 12 ft above top of duct entering from side of stack.



← All dimensions from near side of flange.



← ¼" O.D.; about 3/32" I.D.

Some tips plugged when probe was pulled on or about 10-26-71.
Nominal stack flow 70,000 CFM.
" sampling " 0.91 CFM. 11-7-71 DJ.

→ Caution till Wiehabb before pulling probe, has been known to sound his alarm.

7/21/71 traverse 64,401 CFM. Y-12 Eng No. 70,000 CFM. JC.

3/20/72 Operators reported that sampler pump is [illegible] noted while changing stack samples reported to M. Potter/operators. JC

4/3/72 pulled probe + steam cleaned. Gem
4/27/72 " " " " Beasley

5/18/72 Pulled probe and cleaned, within past 3 weeks several leaks have been repaired on historical sample. JC.

5-9-71 Flowback [illegible] with [illegible] for [illegible] (13JF-01)

13JF-01

2

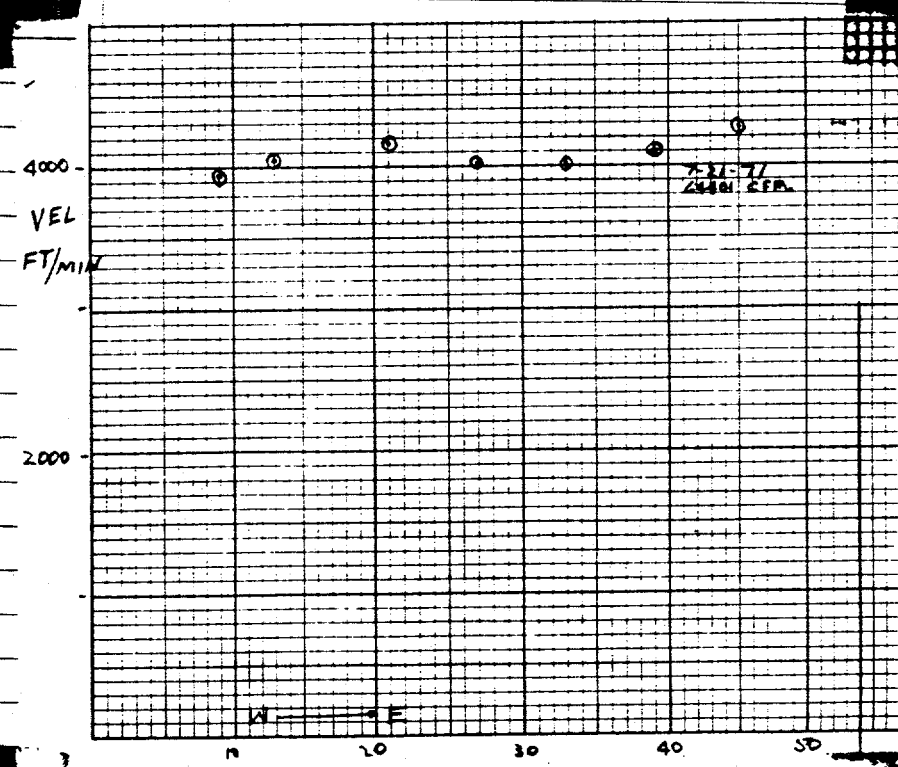
high stack loss this day, sample results. Sample probe worked out as a vacuum with no flow in stack. JE

5-26-72 [illegible] 4188 [illegible]

6/16/72 - Found hole in suction to vac pump on historic sample. actual sample flow/rotameter was ~0.2 CFM instead of requested 0.91. Reported same to McNabb. [illegible]

6-20-72 Probe changed - cleaned - spare identical probe installed. Flynn will clean and run flux [illegible] JE

7-28-72



54" DIA.

135F-01

8-11-72 Installed 2 more probes in 13JF-01, there will be BJF-01T - top and 13JF-01B. Bottom, Data from all three will be compared. the Middle 13JF-01 will be the historical sample.

8-14-72 Had BFR change sample rate on 13JF-01 from 0.91 to 1.00 CFM. to conform to New probe design. this at request of G McMahon

[signature]

8-9-72 Existing probes have 10 ea orfices of .09" ID 1.056 CFM for isokinetic sampling at 4.000 FPM exp

8-7-73 New sample location and stack rate per Paul Reagan 13JF-01. 13PF-12 +13 located downstream of absolute filters. Samples 13PF-14, 15, 16 located upstream of absolute filters and down stream of the dust collector.
New stack rate is 60.000 cfm

15EF-02 Sunflower Dust Collector FW No H-1-4 17

9998 roof

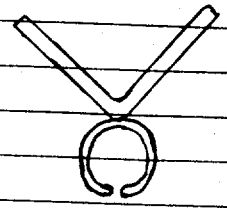
10-26-71 Probe pulled for checking dimensions. Not cleaned.

Duct 72" × 80" at probe (typical), nearly horizontal.

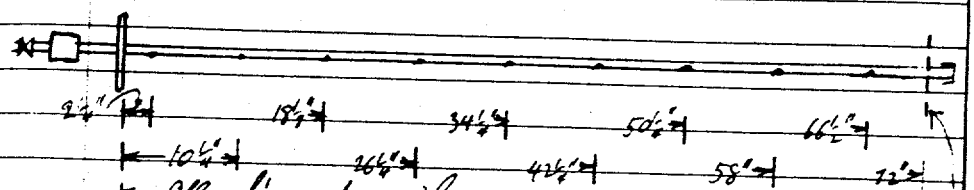
Probe ¼" pipe schedule 40 (.540" OD × .364" ID × .088" wall).

9 holes about 5/64" in probe. Probe stiffened by 1"×1"×⅛" angle tacked to pipe opposite row of holes.

9 holes in probe. Horizontal.

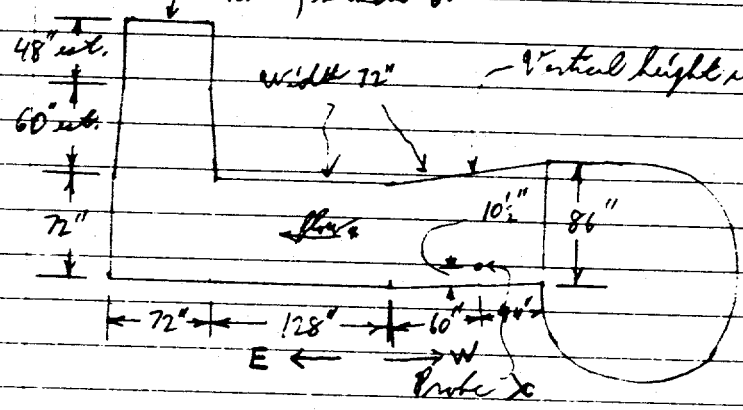


.078" orifices 9 ea



All dimensions from near edge of flange.

Edge of duct



Nominal stack flow 90,000 CFM

sampling 0.65 CFM 11-8-71 DG

10-6-71 inspected probe - cleaned - the probe was found to be positioned wrong. 90° to flow. The probe after being cleaned was placed back in service in correct position. - same flow as before or sample - not changed. 1.45 CFM. Correct is 0.65 CFM

15EF-02

[redacted]

10-20-71 Removed probe and rotated back 90° out to check sample. left at 1.45 CFM.

10-27-71 Reset flow from 1.45 CFM to correct flow of 0.65 CFM still 90° out. to [illegible] loss out of stack

11-9-71 Rotated probe to correct position, flow was high ~ 25 l/m. - reset to correct flow of 18 l/m

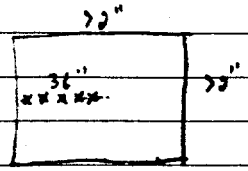
~3/15/72 Replaced Vac. system, with a new individual Vac pump - / Noah - approx. date JE

3/21/72 Calibrated Sampler to 18.4 l/m ~ 0.65 CFM. JE.

6/23/72 Made partial traverse of 15EF-02, flow ~ 48000 CFM. Need holes punched to make a good survey. JE

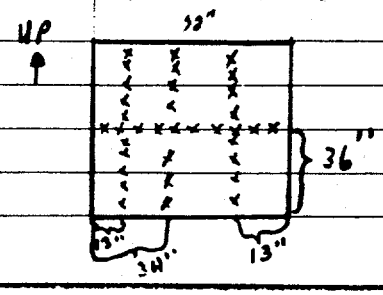
11-8-72 FAN No. H1-4 Sample line needs rotameter. Sampling probe needs to be relocated ≈ 6 feet East and raised ≈ 2 feet. New probe design needed. Pitôt hole located on south side of duct. Ladder Needed [illegible]

11-14-72 Made partial traverse this stack



Result 1030 FPM
37,080 CFM

1-18-73 Made 4 ea complete traverses - 3 vertical 1 ea Horizontal



Result 1067 FPM
38,412 CFM

2-6-73 Traversed H-1-4 Exhaust stack this date after roughing filters were changed on 2-5-73.

Vertical ↓ Inches	Pitot hole South to North 13" FPM	38" FPM	57" FPM
69	1133	1387	1266
63	981	1266	1266
57	801	1266	1133
51	801	1387	1133
45	801	1266	981
39	801	1266	981
33	981	1266	801
27	981	1266	981
21	1133	1266	1133
15	1133	1387	1387
9	1133	1387	1387
3	1387	1498	1602

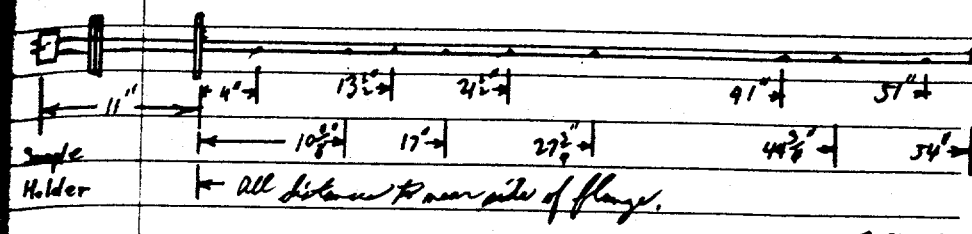
36 readings averaged 1167.36 FPM
92,025 CFM

2-13-73 Improved prope and sampler head have been installed at this location. The probe has been repositioned in the duct.

9-10-73 Found probe with no flow. Pump appeared to be bad. Asked Pappas to have repaired.

11NF-03 C-Wing Stack

6-71 Probe pulled for checking dimensions; not cleaned.
Stack 54" I.D.; no cap.
Probe 7'7" from top of stack, about 17' above nearest duct entering side of main duct. ½" O.D. tubing with holes about 1/16" diameter.



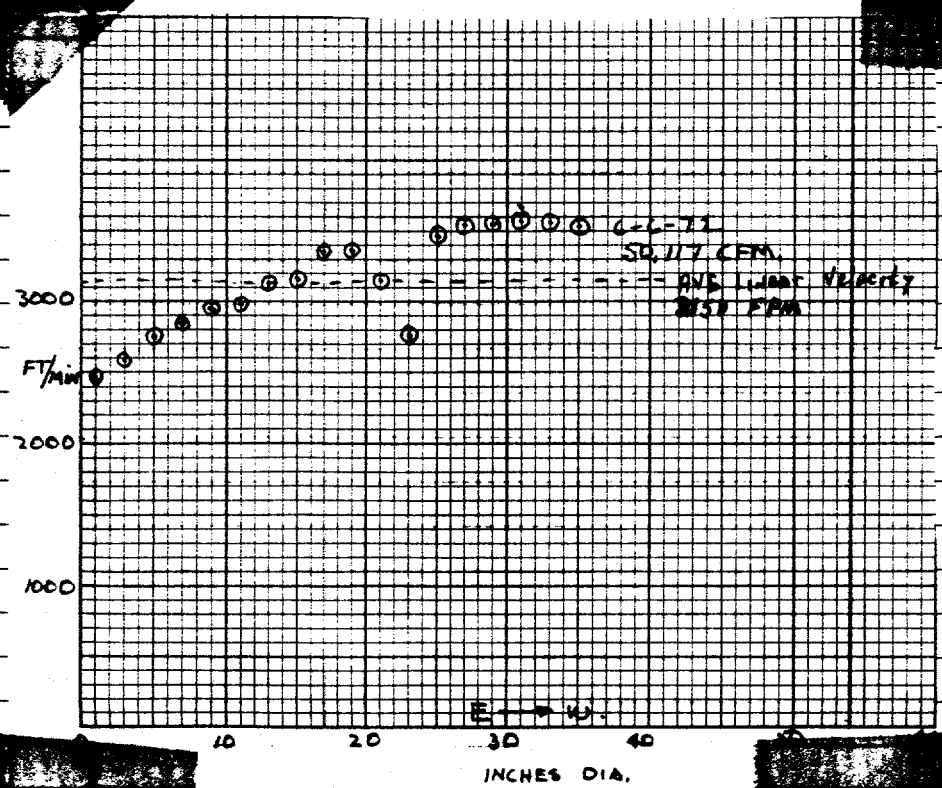
10-26-71 [illegible]

Nominal stack flow 13,000 CFM
" sampling " .81 CFM

6/6/72 traverse run on 11NF-03, used 36" pitot tube
averaged results - 50,117 CFM.

6/27/72 Probe cleaned / Hazlet. [illegible]

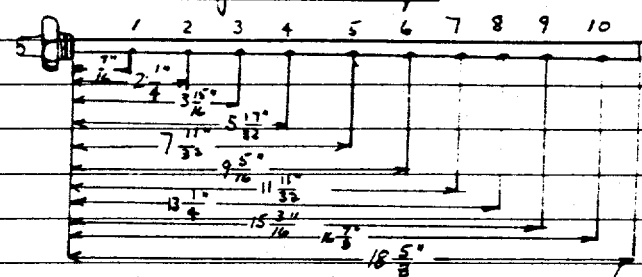
11NF-03


6-6-71
50,117 CFM.
AVG. LINEAR VELOCITY
3000
FT/MIN
2000
1000
10
20
30
40
INCHES DIA.

13JF-03 36" Circular duct, Room 1008, 1009 at 17000 CFM -/Y-12 Engineering - H.P traverse = 17,760 FCM

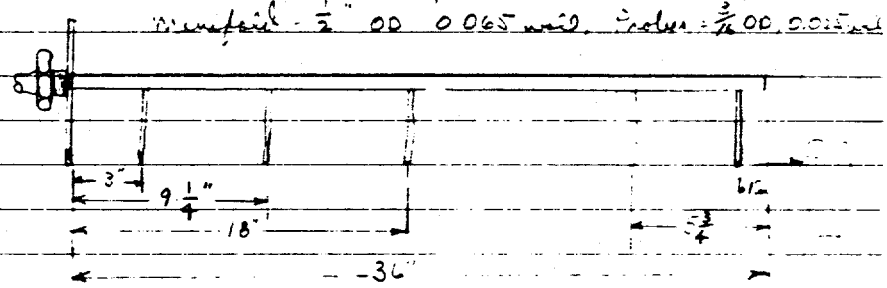
10/25/71 Changed probe and also probe location and position - probe had been shadowed by piping immediately below it - probe traversed half way across duct - positioned new probe 90° from old probe - distance from stack to sample collection point is 134" - this section cleaned

Old probe design - Removed 10/25/71



(10) 1/16" ID holes 7/16" ID Tube, 1/2" OD Tube.
Sample flow = 0.52 CFM

New Probe design - Installed 10/25/71
Manifold - 1/2" OD 0.065 wall. Probes = 3/16 OD, 0.025 wall

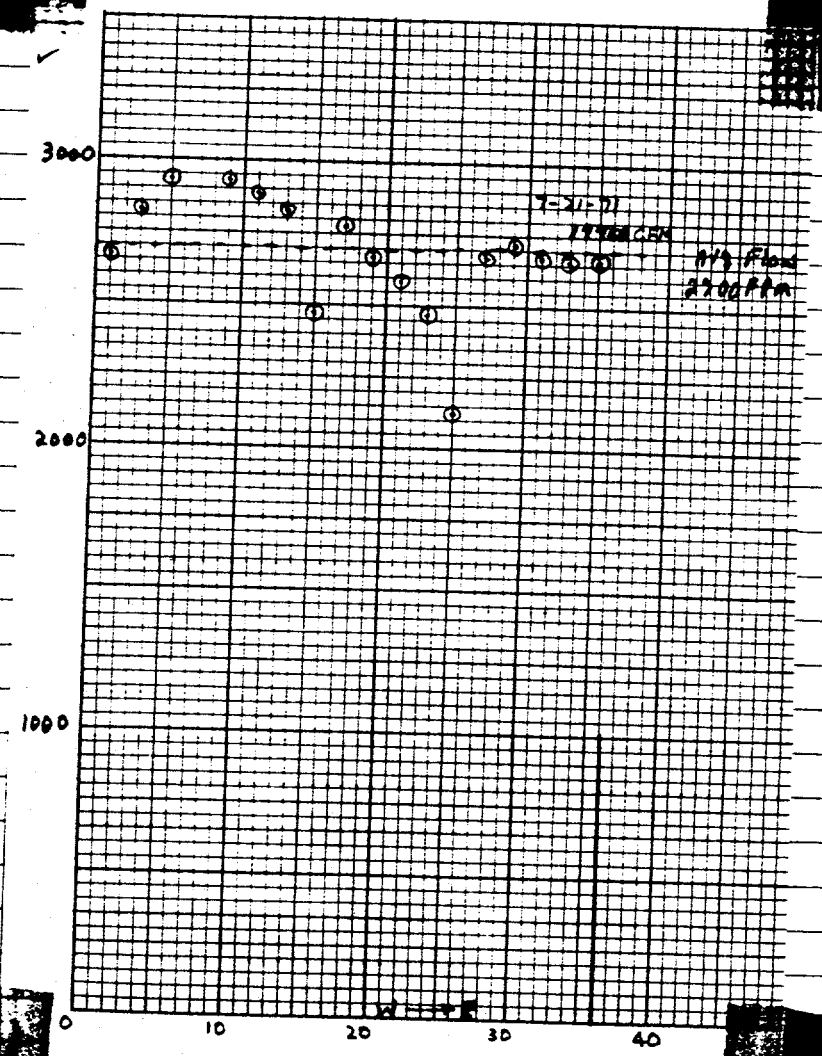


(5, 0.137 in holes = flow @ 36.3 l/min, .123 FCM
@ 17,760 FCM. stack flow traverse.

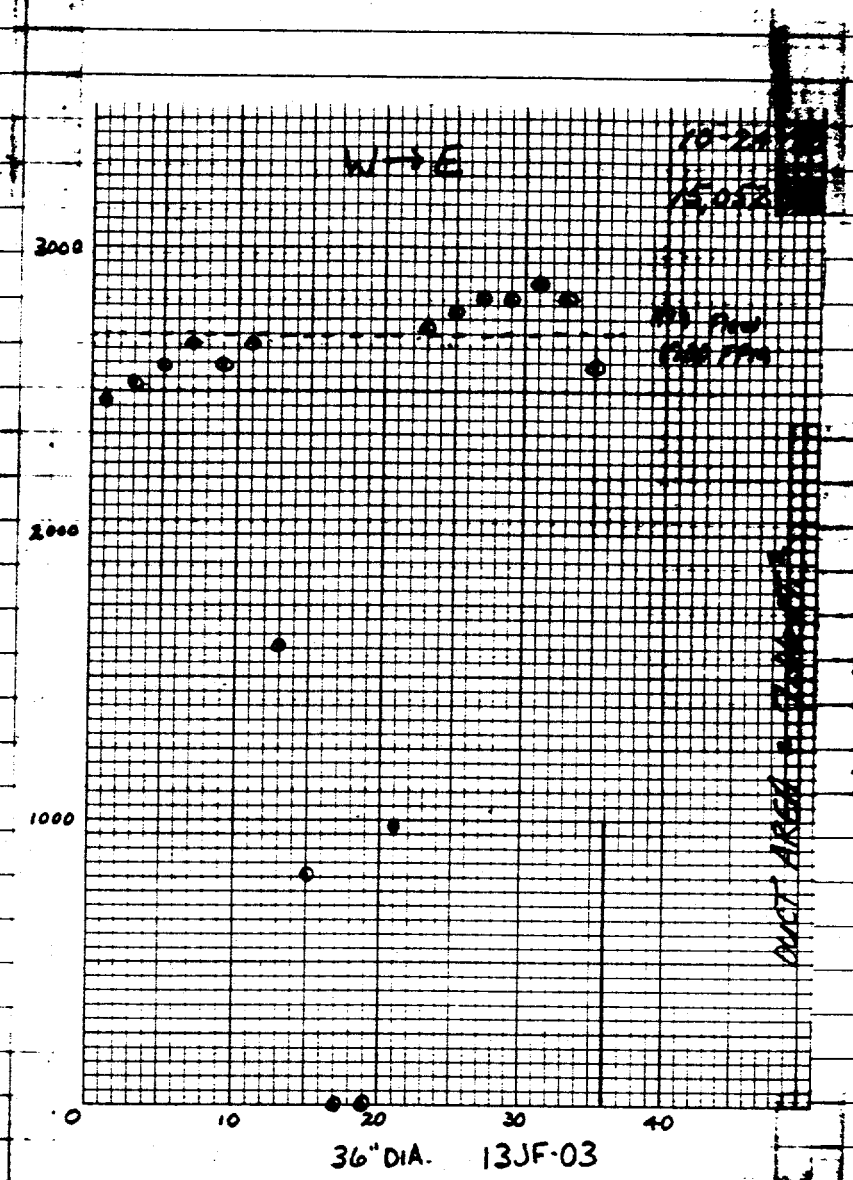
3/16 OD, 0.025 wall: 07265-7090 INC.
1/2 OD 0.065 wall = 07272-2870 SS
this should be new flow
(later - [illegible])

13JF-03

11-9-72 .137" ID orfice has Area of 1.02×10^{-4} ft^2
At 2700 Avg FPM A probe having 5 openings
must have A Sampling rate of 1.38 CFM
for ISOKinetic sampling A. King



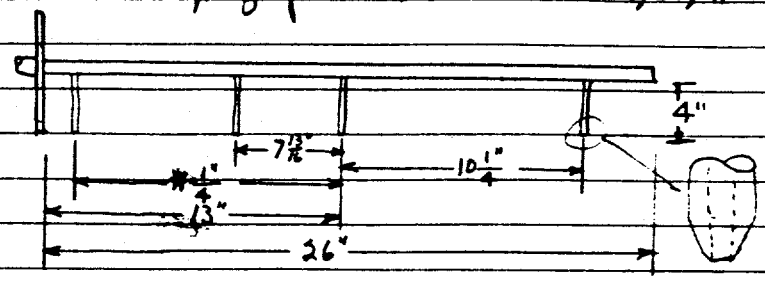
13JF-03 TRAVERSE TAKEN FROM NEW PROBE LOCATION 10-24-72
FLOW = 15,052 C.F.M.



36" DIA. 13JF-03

20JF-03 "M" wing Machine hood exhaust
3.67 ft² = πr² 26 inch Dia duct located at inlet
to primary filter - No probe
Y-12 Eng. flow
HP traverse 3189 CFM 8/2/71
No probe installed.

Design of probe installed on 9/20/71



(4) 0.137" holes = flow of 8.8 l/min
@ 3253 CFM - should be 10 l/m.

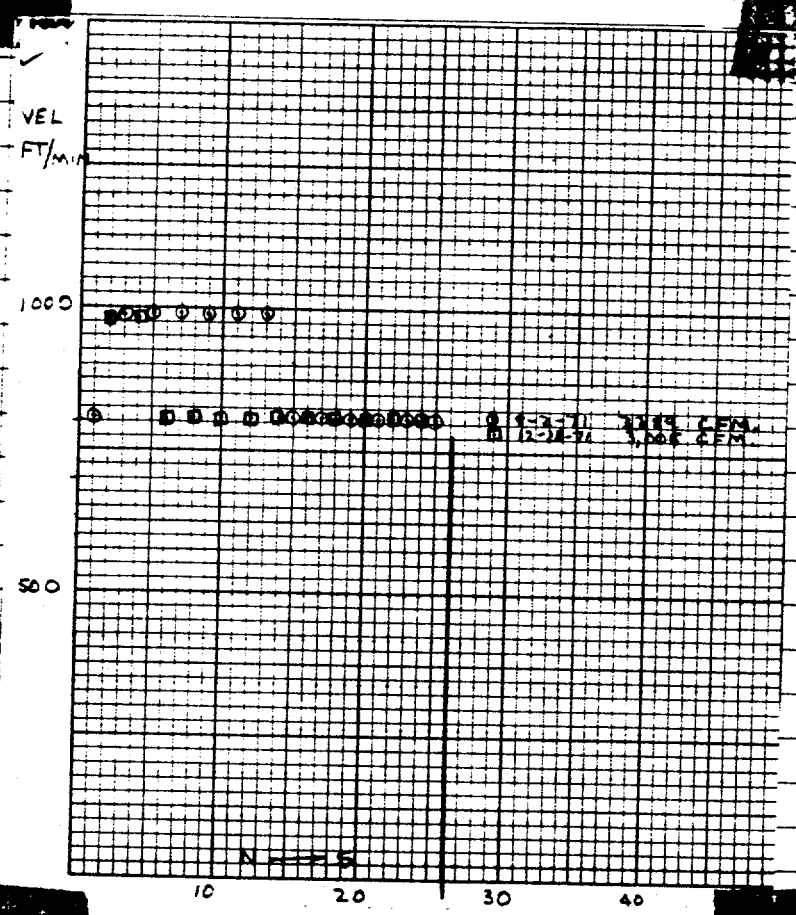
Probe Material 3/16 OD 0.025 wall
1/2 OD 0.065 wall.

12-28-71 H.P Traverse 3005 CFM.

11-9-72 For .137" holes with 4 openings at avg exhaust of 878 FPM needs sample rate of .089 CFM
probe opening area = 1.02×10^{-4} ft²
.089 CFM = .0025 m³/min = 2.5 l/min @ King

Area of Duct = $\left(\frac{13}{12}\right)^2 \pi$ = 3.68 ft²
3250 CFM ÷ 3.68 ft² = 883 FPM per probe
883 FPM × 1.02×10^{-4} ft² × 4 probes = .36 CFM
.36 CFM × 28.32 l/ft² = 10 2 lpm

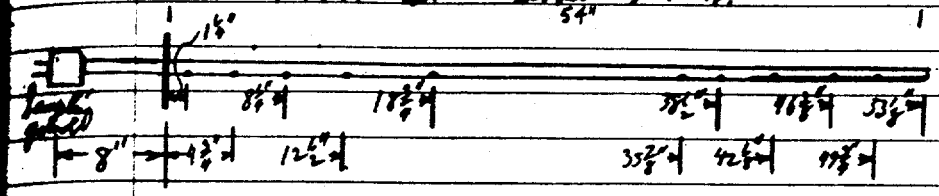
20JF-03



26" DIA. OF DUCT 20JF-0

11NF-04 D-Wing Stack

10-26-71 Probe pulled for checking dimensions. Closed holes opened, otherwise not cleaned.
Stack 54" ID.; no cap.
Probe 7' from top of stack, 14'10" above roof, about 20 feet above duct entering side of stack.
½" O.D. with holes about 5/64" ID.



Badly coated with wet black stuff; one hole plugged, others partially.

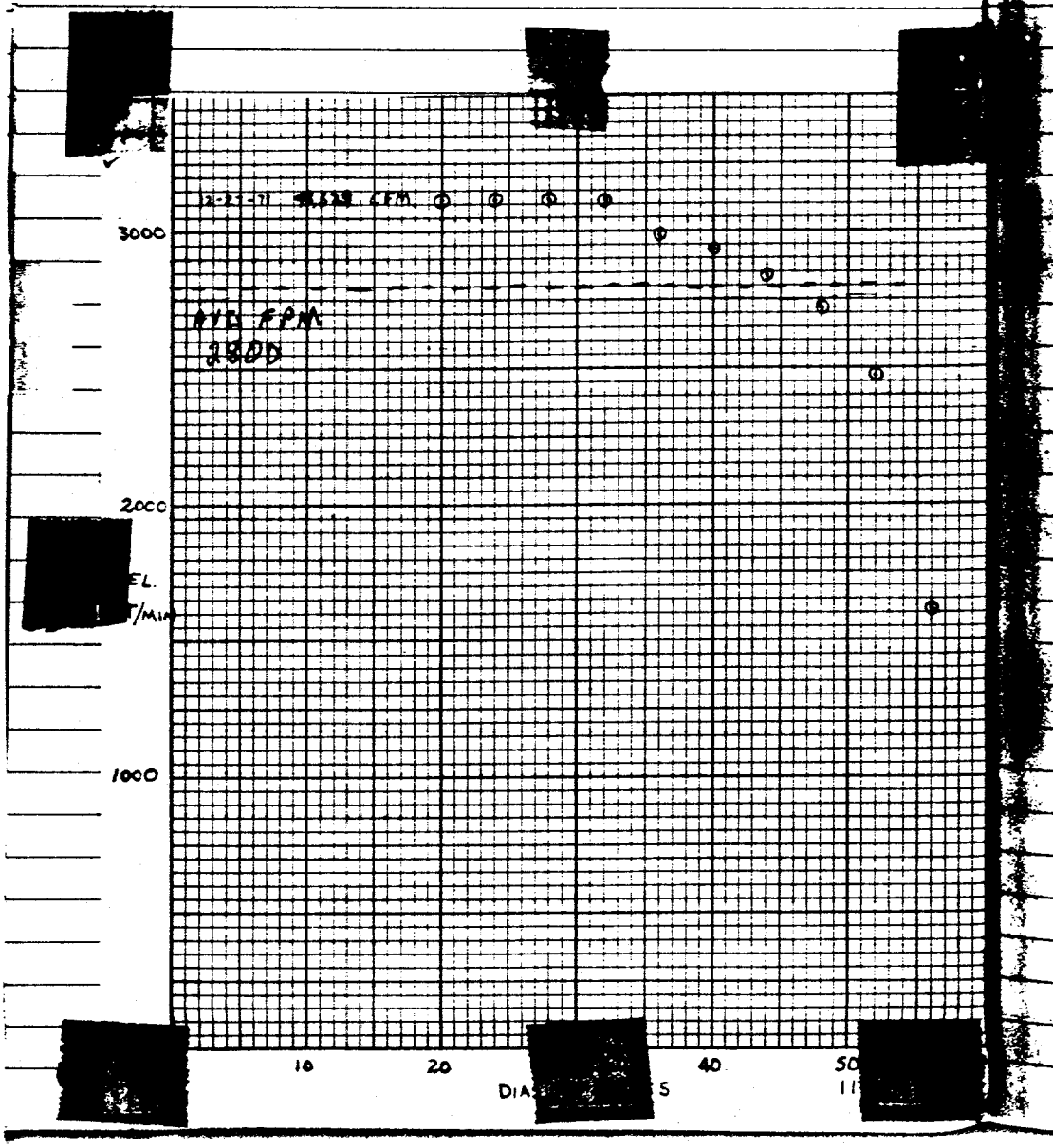
Nominal stack flow 41,000 CFM
" sampling " .67 CFM 10-27-71 D.G.

12/27/71 Pulled probe for traverse, dirty, cleaned.
Sample flow found at 0.2 CFM. Should be 0.67 CFM reset to 0.3 CFM. this is max obtainable flow.
Traverse 48,329 CFM, Y-12 Eng No. 41000 CFM JE.

Rm-1010 duct 58 empties into this stack. JE

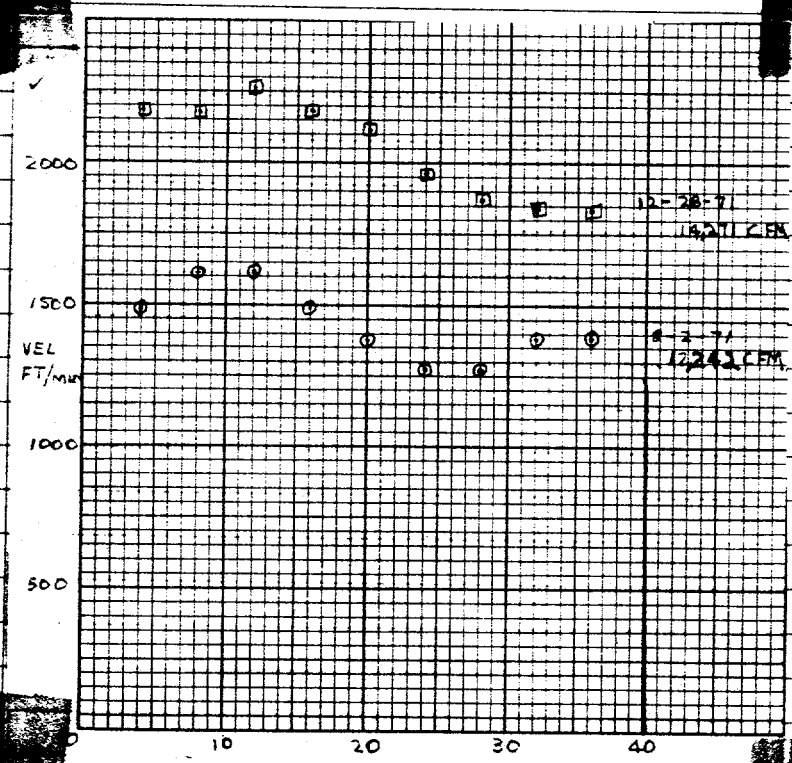
6/27/72 Probe cleaned. JE

Assume 0-20" looks like 36 to 56" probe 36" log



20JF-04 - "M" wing Machine hood exhaust.
40" Dia. Circular duct located at
inlet to primary filters.
Y-12 Engineering flow ??
H.P traverse ? 12487 CFM 8/2/71
No probe.

20JF-04

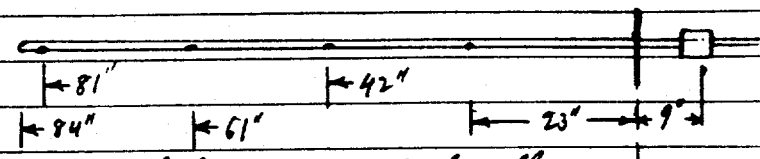


40" DIA OF DUCT 20JF-04

17FF-05 O-wing Mill & Room Exhaust
West of 9245

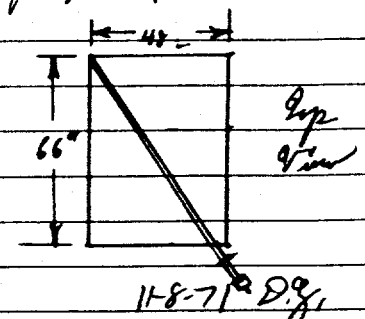
10-26-71 Probe pulled for checking dimensions; not cleaned

Stack 48" x 66"; no cap.
Probe ½" OD. with 4 holes about 7/64" diameter, 26" from top of stack, about 9 ft above fan. Probe located diagonally in stack & is long enough to touch the opposite corner while the flange is still about 4" from the stack.



All distances measured from flange

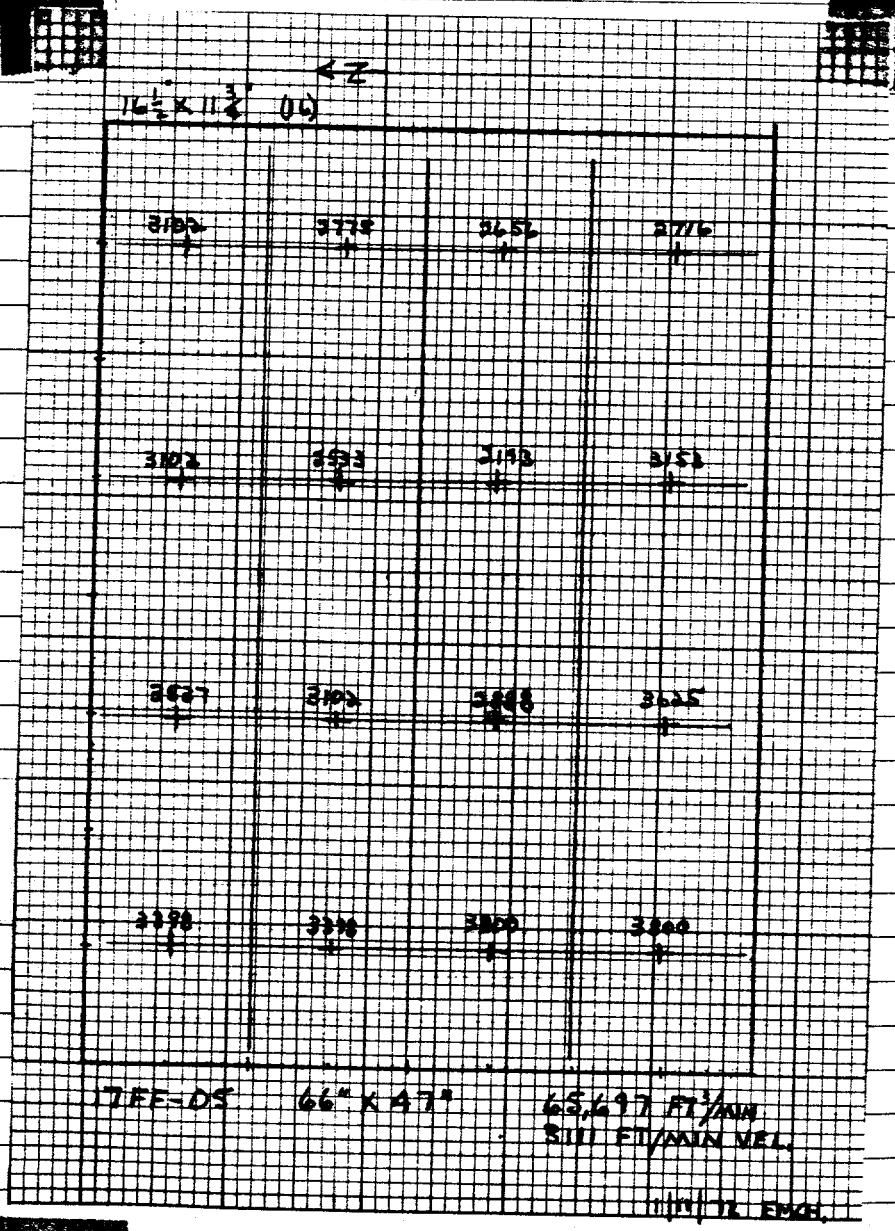
Nominal stack flow
56,000 CFM.
Nominal sampling flow
0.75 CFM



11-10-71 Probe removed, cleaned - modified so that it will always retain correct position - re-installed and calibrated. JE

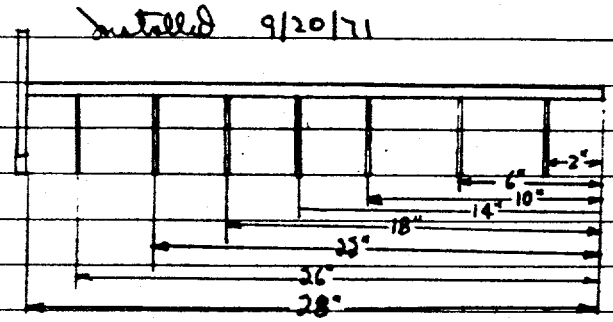
1/11/72 traverse 65,697 CFM JE

17FF-05


16½ X 11¾" (16)
3102
2775
2656
2716
3102
3533
3153
3527
3102
3625
3398
3398
3800
3800
17FF-D5
66" X 47"
65,697 FT³/MIN
3111 FT/MIN VEL.

20JF-06 "M" wing Machine Shop hood.
odd shape (28) TOP SIDE Sample point
located on inlet to primary filter
y-12 Eng flow -
H.P traverse - 8532 CFM 8/2/71
28" at Sample point

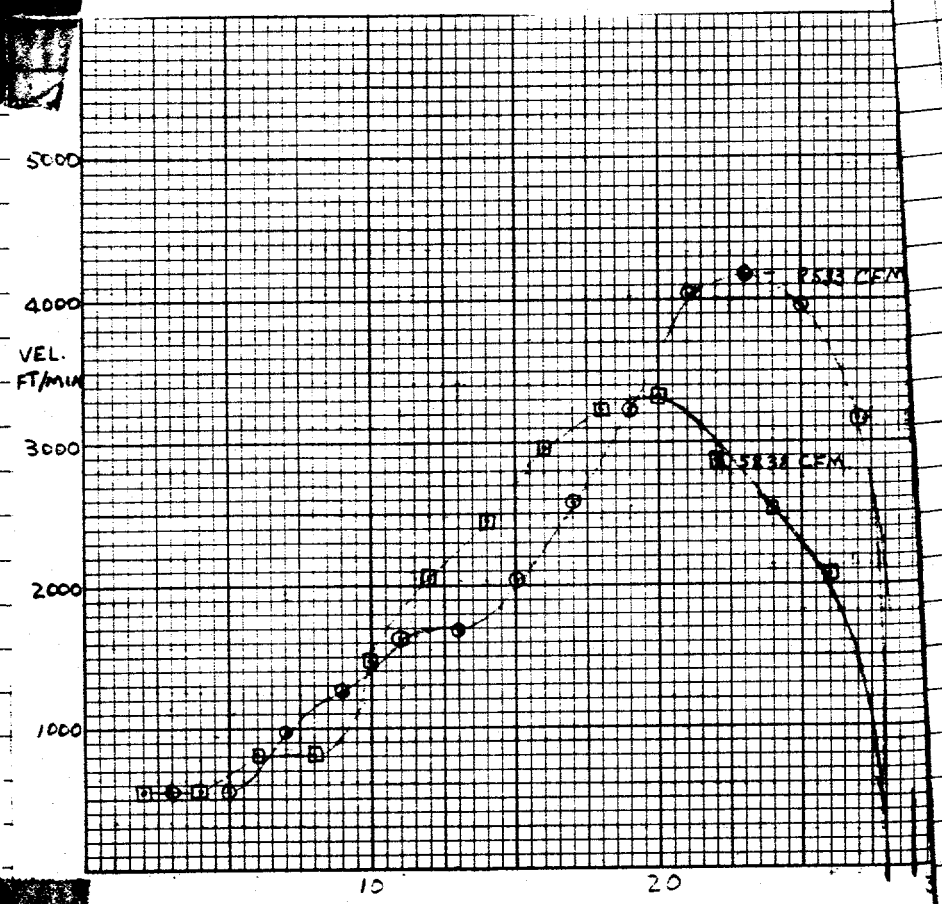
Installed 9/20/71



constructed from 3/8" OD 0.025 wall
1/2 OD 0.065 wall.
(7) 0.137 holes. sample flow 41 l/m
should be 45.43 l/min

Now 20 KF-06 (Non-Accountable)

20JF-06



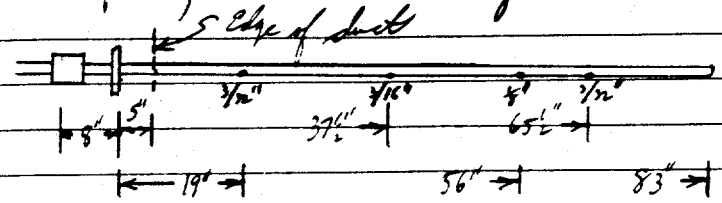
28" DIA

20SF-06

20JF-11 M-Wingexhaust

-16-71 Probe pulled for checking dimensions; not cleaned.

Stack: 56" x 64", no cap.
Probe: ½" OD. tubing with 4 holes of varying sizes.
26" below top of stack, 9'3½" above fan. Probe is diagonally across stack. This probe has nothing to prevent turning. On 11-9-71 it was found with holes on the side instead of down into the flow; was turned correctly.



All dimensions from flange, not duct.

Nominal stack flow 44,000 CFM.
" sampling flow 0.85 " , 11-9-71 DZ.

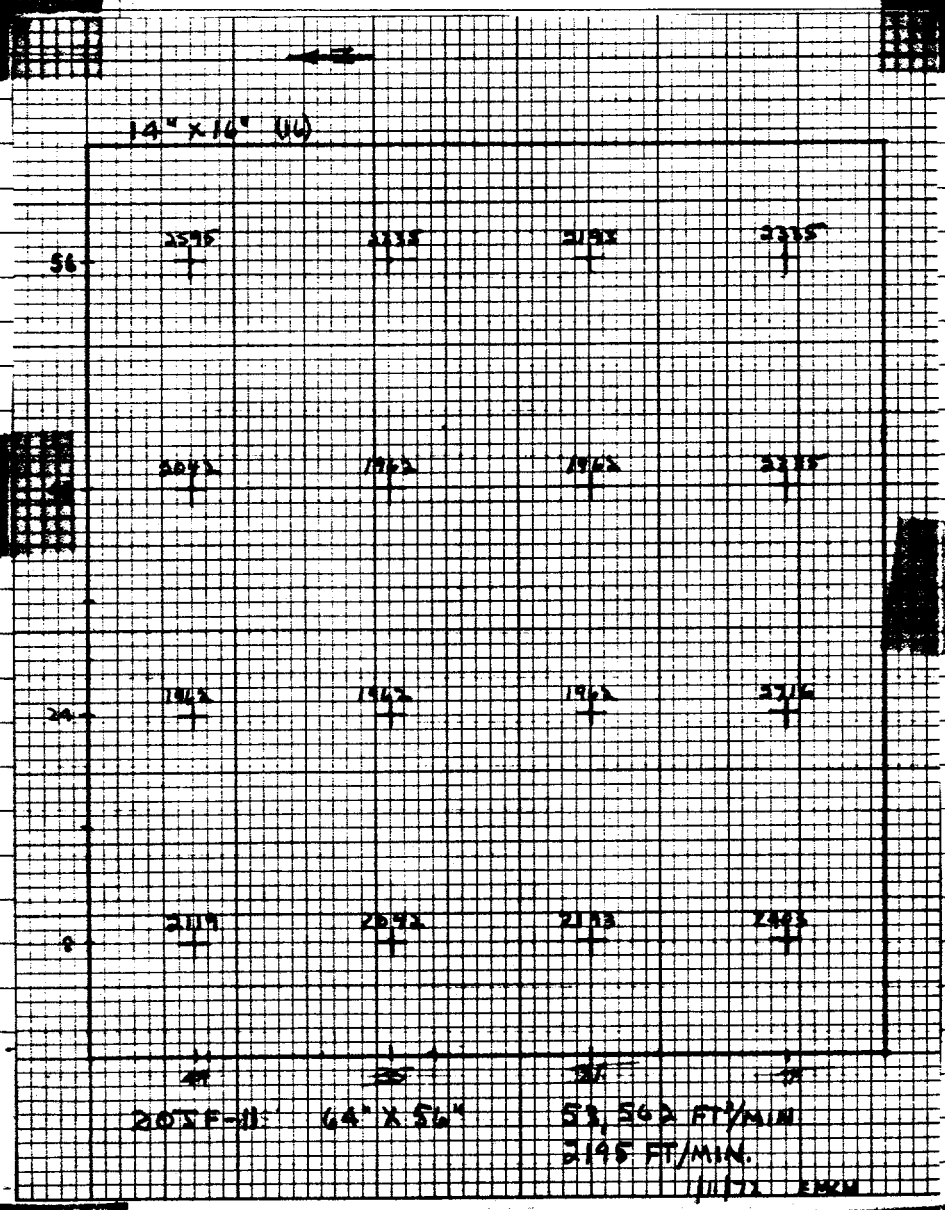
-9-71 Probe found rotated 90° out of position / DZ. JE

-10-71 Removed probe - cleaned - modified so that probe can only be positioned in correct position to flow, it could be rotated prior to this - calibrated. JE

1/11/72 traverse 53,562 CFM. JE

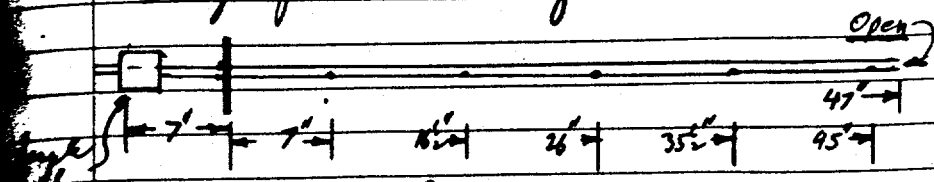
2-4-74 Operator Hazlett reported no sample flow on stack this date. Rotameter needs cleaning or replacing.

20JF-11


14" x 16" (16)
56
24
8
2595
2335
2193
2335
2042
1962
1962
2335
1962
1962
1962
2716
2119
2042
2193
2403
49
35
31
25
20JF-11
64" X 56"
53,562 FT³/MIN
2195 FT/MIN.

11NF-14 West Headhouse Stack

Probe pulled for checking dimensions; not cleaned.
Stack about 48"; no cap
Probe about 18' from top of stack, 39' from bottom of straight part. ½" O.D. tubing with holes about ¼" ID



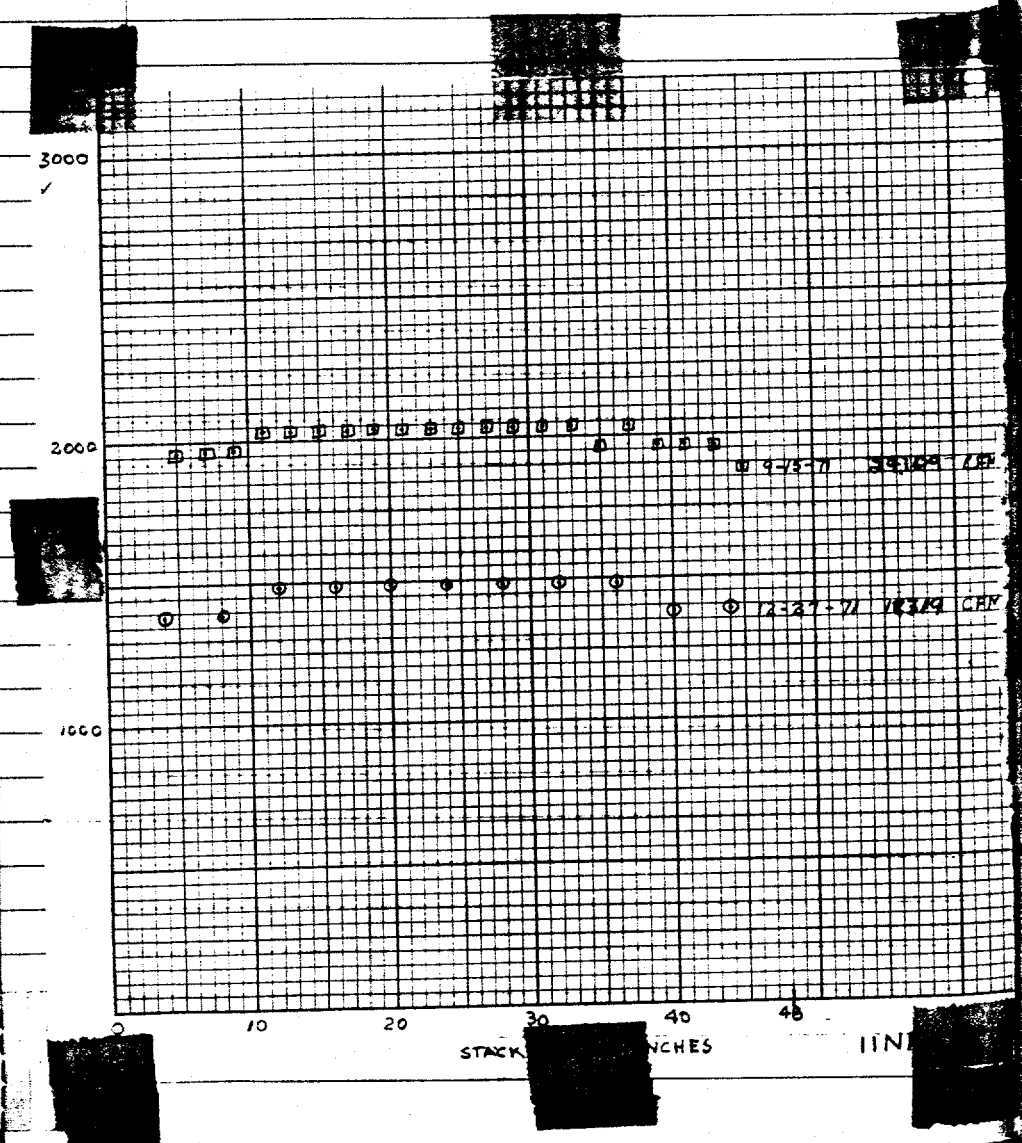
All distances to flange. 11-26-71 D.G.
Nominal stack flow 28,000 CFM.
" sampling " .81 CFM

/71 Probe pulled, dirty, not cleaned this date. Traverse 1. CFM. flow on sample -, reduced to 0.81 CFM
Traverse 18,319 corrected CFM, Y-12 Eng No 28000 CFM. JE

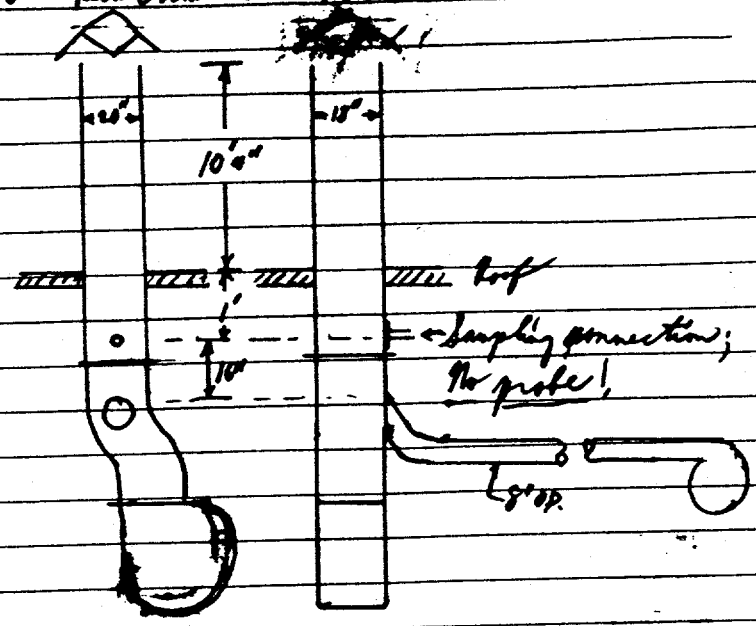
/72 Cleaned probe. / M.P. JE

/22/72 cleaned probe JE

11NF-14


3000
2000
1000
9-15-71
12-27-71
0
10
20
30
40
48
STACK
NCHES

UNF-16 Reduction Area Exhaust

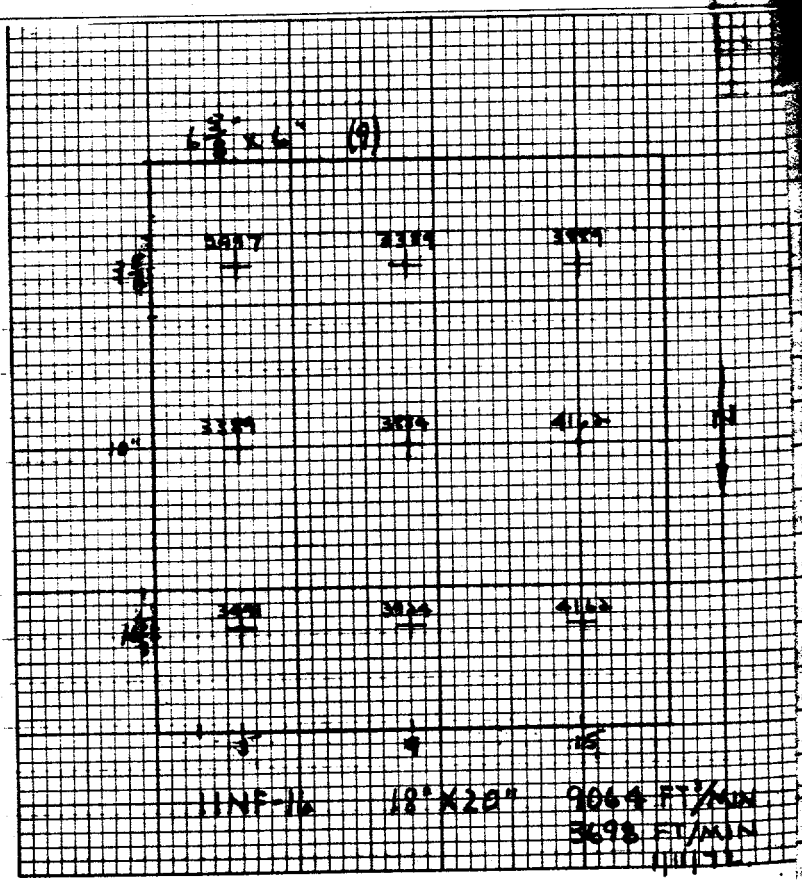


34 ft. ½" O.D. tubing from stack to sampling point
Nominal stack flow 1000 CFM
" sampling flow .60 CFM

10-28-71
D.J.

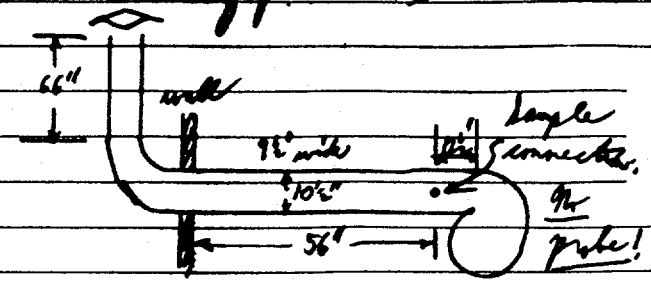
1/11/72 traverse 9064 CFM.

)0



6 3/8" x 6" (9)
3997
3389
3389
3389
3374
4162
10"
3498
3924
4162
N
3
4
15
11NF-16
18" X 20"
9064 FT³/MIN
3698 FT/MIN

11NF-18 Room 1010 Sintering furnace exhaust



11NF-18

Approximately 20 ft. ⅜" ID rubber hose from sample point to sample connection.

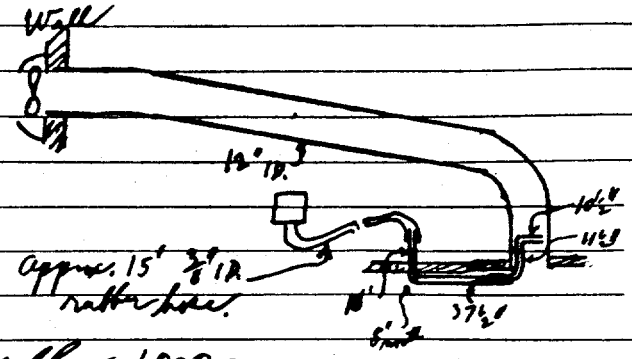
Nominal stack flow 1000 CFM
" sampling flow .60 CFM

Note: On Oct. 27 it was found that #18 and #20 sampling points were reversed. Prior to this time the sample connection above was connected to sample point #11NF-20, Room 1010 Furnace Room Exhaust, and the probe in that duct was connected to #18. Changed 10-27-71; now labeled correctly. 10-28-71 DJ.

12/28/71 No probe, traversed .887 CFM, Y-12 Eng No. 1000 CFM. Need to have a probe designed and installed. JE.

9-24-73 Traversed 1200 CFM

11NF-20 Room 1010 Furnace Room Exhaust



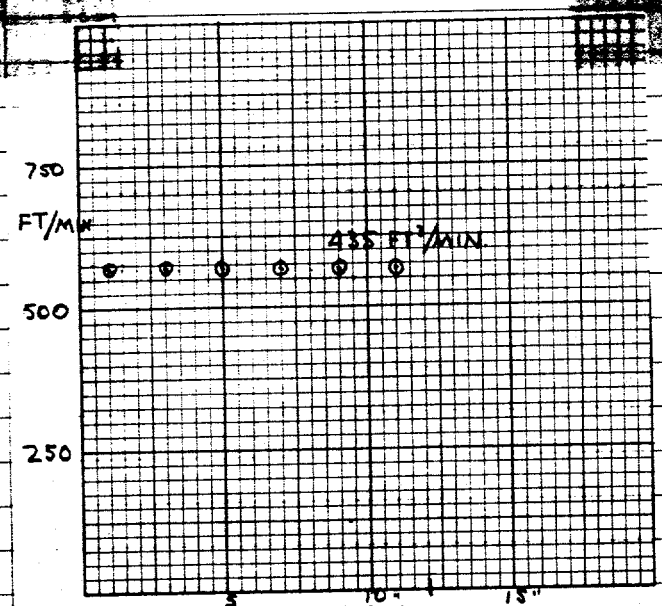
Nominal duct flow 1,000 CFM.
" sampling flow 0.60 CFM.

On Oct. 27, 1971 I was told that #18 and #20 sampling points were reversed (see p. 107, 11NF-18).
11-9-71 DG

1/11/72 traverse 435 CFM. DG

9-24-73 Traversed at 500 CFM

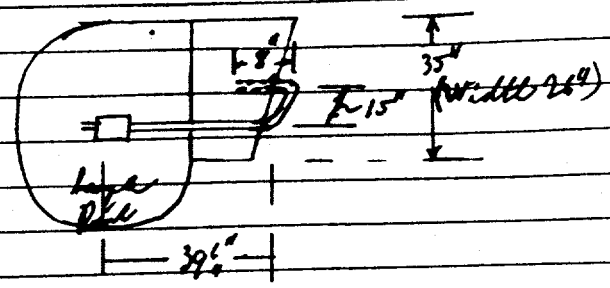
11NF-20



11NF-20 12" DIA.

C1-4 Blower No.

11NF-21 Dry Chemistry Reactor Hood Exhaust



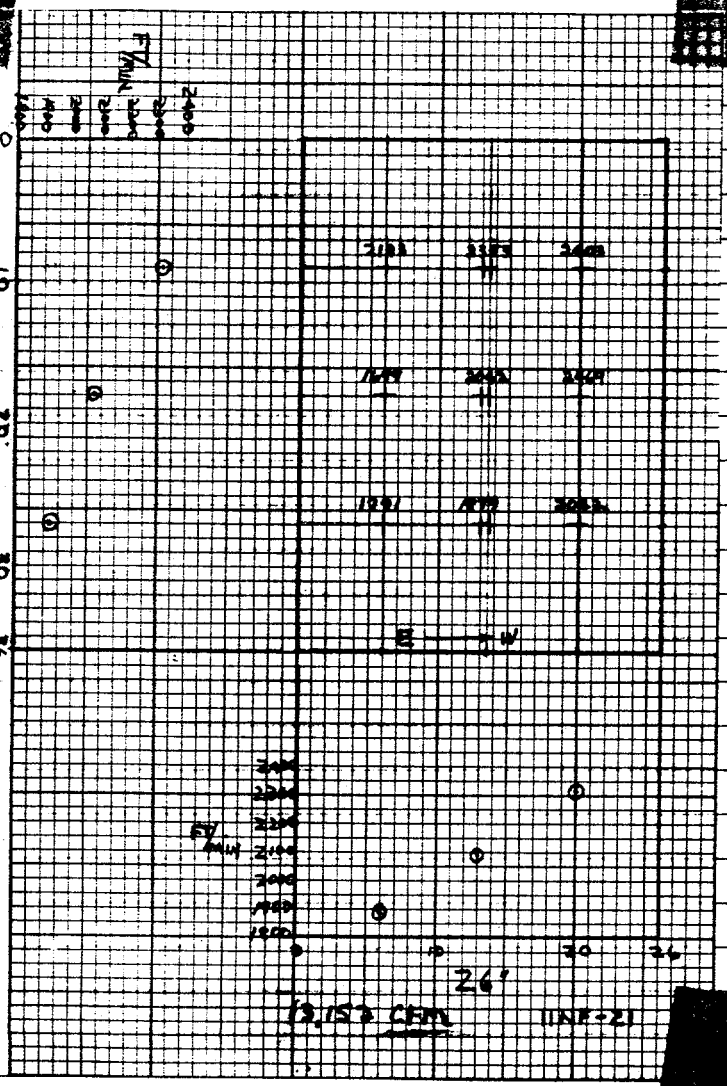
½" O.D. tubing, open end, no holes in side. Total length tip to sample point 62"

Nominal stack flow 1000 CFM.
" sampling " 0.36 CFM.

Probe found tilted up 45-50°; made horizontal. Was tilted again within a few minutes. 10-27-71
Swagelok tightened somewhat 11-3-71. D.J.

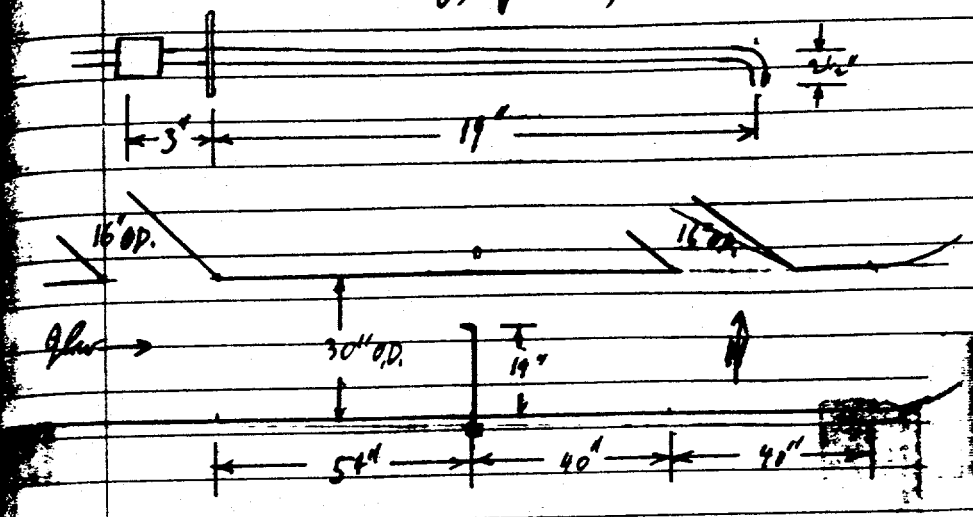
11NF-21

12/27/71 Probe tilted ~45° flow at 3.1 CFM, reduced to 0.36 CFM. Traverse on mouth of duct at discharge - Not a good location. Could be traversed at inlet to filters.
traverse 13,152 CFM. Y-12 Eng No 1000 CFM JE


36"
26"

11NF-22 C-1 PVC Stack

C1 Wings west end of large exhaust duct in center of roof. Horizontal round duct 30" O.D. Probe ½" O.D. tubing, open end, no other holes.



Nominal duct flow 15,000 CFM
" sample " 0.81 CFM. 11-3-71 DG

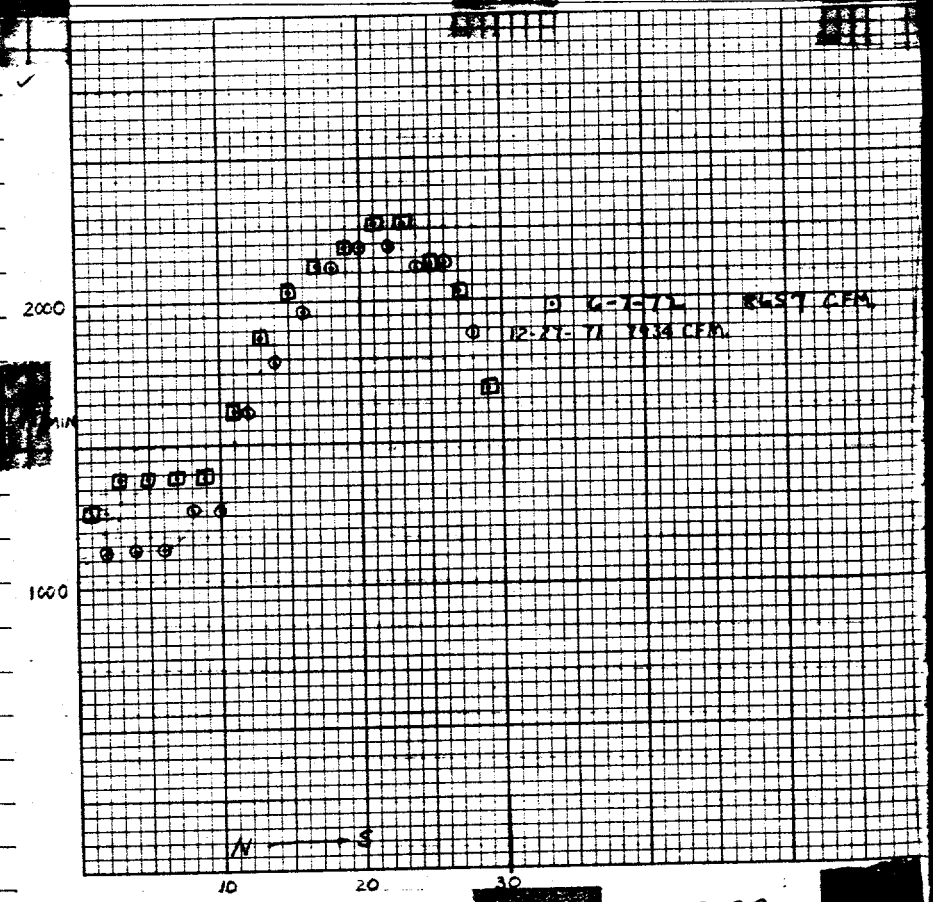
10-4-71 Probe pulled for checking diameter; not cleaned.

12/27/71 Probe-pulled - sample flow found at 1.5 CFM. reset at 0.81 CFM. traversed 7,934 CFM. Y-12 Eng No 11000* CFM. JE

6/7/72 Traverse 8830 - 8657 corrected ft³/min

6-13-72 Stack TSM sheets show 7000 CFM is designed flow on 11NF-04 - refute 2 previous entries. JE

11NF-22



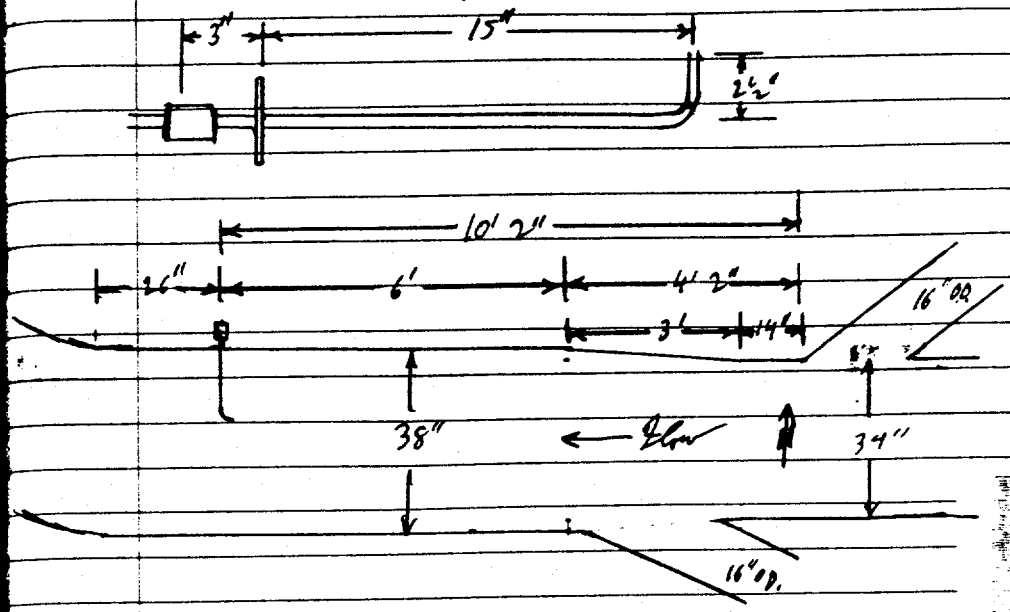
30" DIA. IN INCH

11NF-22

C1-2

11NF-23 C-2 PVC Stack

C1 Wing, east branch of large exhaust duct in center of roof. Horizontal round duct 38" OD. Probe ½" OD, open at end, no other holes.



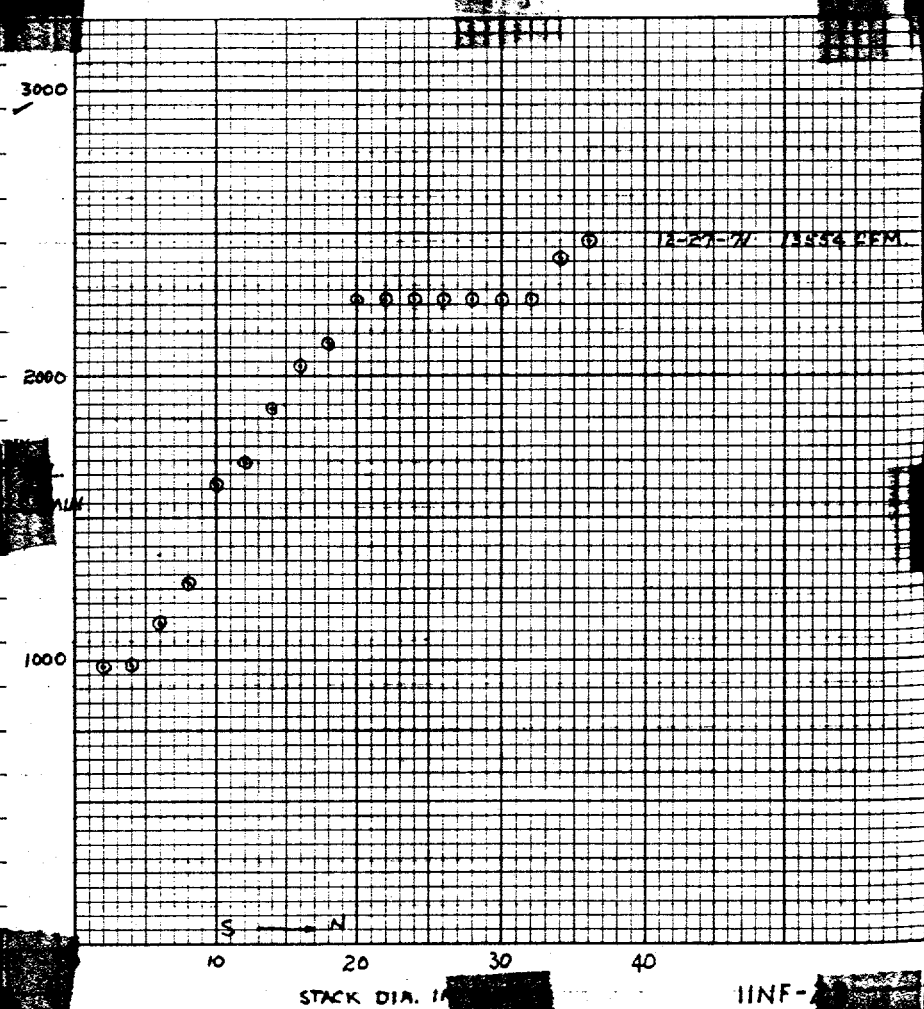
Nominal duct flow 15,000 CFM
" sampling " 0.81 CFM 11-4-71 DG

0-26-71 Probe pulled for checking dimensions; not cleaned.

12/27/72 Sample flow found at 0.5 CFM - cleaned - [illegible] [illegible], traversed. 13,554 CFM

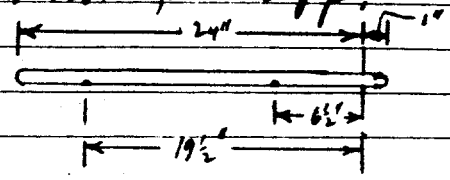
Y-12 Eng No. 15000 CFM. JR.

11NF-23


3000
2000
1000
12-27-71 13554 CFM.
S
N
10
20
30
40
STACK DIA. I
IINF-

11NF-25 B1 Process Exhausts (Dissolver and Calciner)

10-26-71 Probe pulled for checking dimensions - not cleaned.
Stack 26", no cap.
Probe 46" from top of stack, about 15' from bend flow. ½" pipe (not tubing) with 2 holes about ¼" diameter.
Total distance, probe to sample point is 40' with 10 elbows; all ½" pipe.



Nominal stack flow 10,000 CFM
" coupling " .52 CFM 11-3-71 DG

12/27/71 traverse - probe not pulled -, sample flow 0.20 CFM, reset to 0.52 CFM.
traverse 8,013 CFM, y-12 Eng No. 10,000 CFM

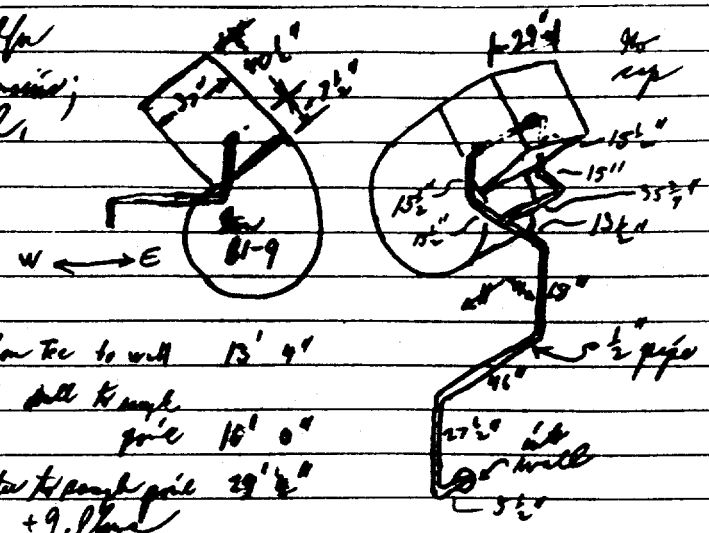
11NF-25

2000
VEL
N
1000
E → W
10
20
2-27-71
2013 CFM
IINF

B1-9 Blower No.

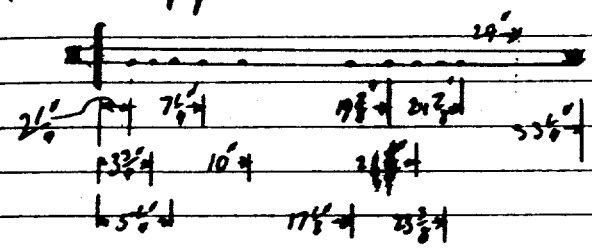
11NF-27 B1, 3rd & 4th floor room exhaust

Probe pulled for checking dimensions; not cleaned.



Total length from Tee to wall 13' 4"
" " " wall to sample point 16' 0"
Total length, tee to sample point 29' ½"
+9 elbows

Probe: ¾" pipe with 10 holes about 1/16" diameter



Reducing elbow at each end.

All distances measured from flange.

Nominal stack flow 15,000 CFM 12-26-71 DG.
" sampling " 0.52 CFM

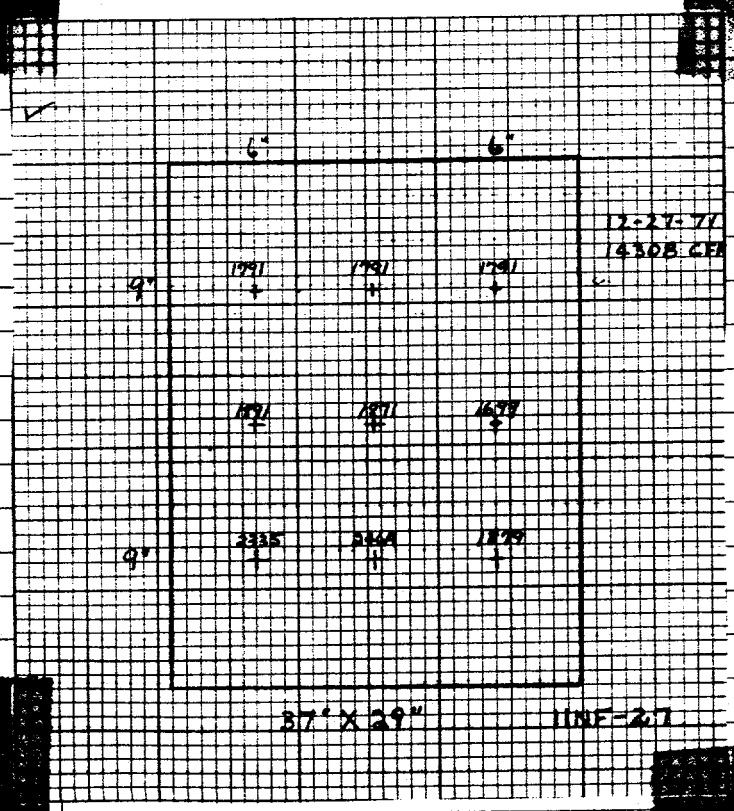
No cap on stack.

12/27/71 Checked sample flow, found at 0.15 CFM, left at 0.15 CFM; unable to get correct flow of 0.52 CFM. No traverse taken at mouth of duct. JE

12/28/71 14 308 CFM JE.

CANCELL 8-16-73 per H.R. Butler C. King

11NF-27


6"
6"
12-27-71
14308 CFR
9"
1791
1791
1791
1791
1871
1699
9"
2335
2464
1879
37" X 29"
11NF-27

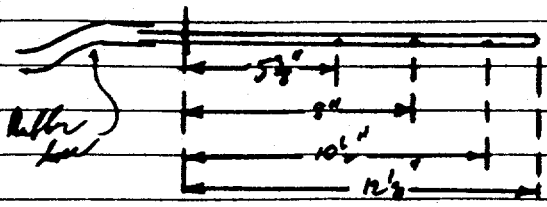
B1-10 Blower Ho

11NF-28 B1 Denitrator room and hood exhaust

16-71 Probe pulled for checking dimensions; not cleaned.

Stack 13" x 17" x 36' tall; no cap.

Probe 3/4" O.D. with holes about 1/8" I.D.; 14" from top of stack.



Distance from probe to sample point 44 1/2' including about 5' of rubber tubing, and one Tee and 10 elbows; remainder is 1/2" pipe.

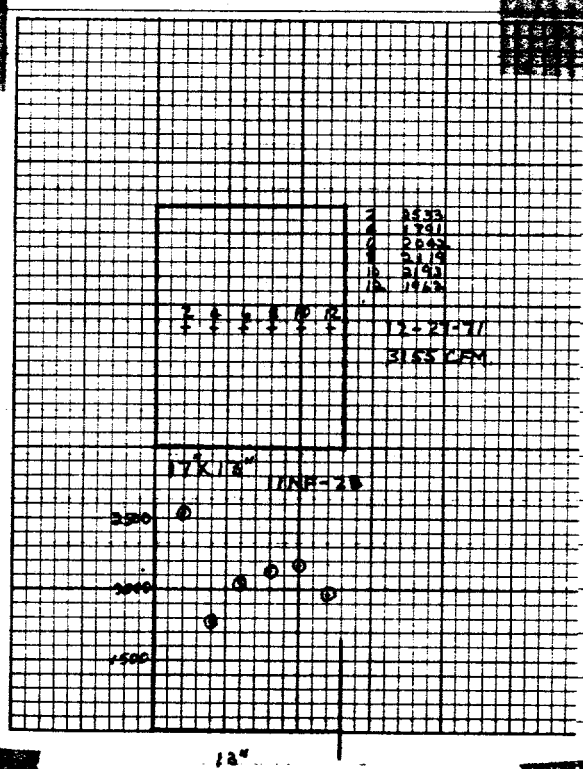
Nominal stack flow 4,000 or 5,400 CFM.

" sampling " .52 CFM 11-3-71 D.J.

12/27/71. traverse taken, sample flow at 0.80 CFM, reset to 0.52 CFM.

Traverse 3,218 CFM, y-12 Eng Ho. 4000 CFM [illegible]

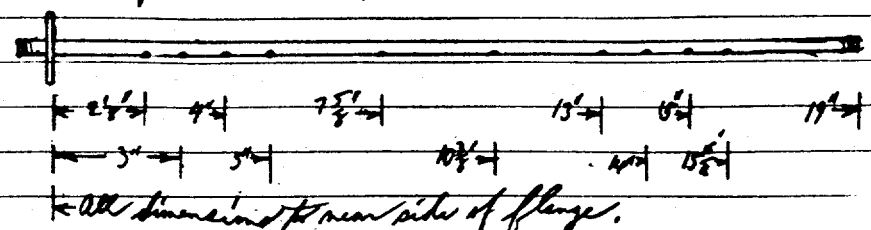
11NF-28


2 2533
4 1791
6 2042
8 2119
10 2193
12 1962
2 4 6 8 10 12
12-27-71
3155 CFM
17"X18"
11NF-2B
2500
2000
1500
12"

B1-6 Blower No.

11NF-29 B1 2nd floor calciner and dissolver 171

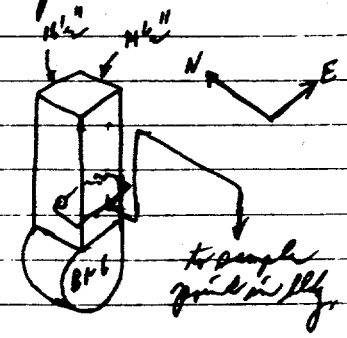
12-26-71 Probe pulled for checking dimensions; not cleaned.
Stack 14½" x 16½", vertical; no cap.
Probe 9½" above junction with fan, 38½" below top of duct. ¾" pipe with 10 holes about 1/16" diameter.



← All dimensions to near side of flange.

Reducing elbow at each end of probe connect to ½" pipe.

Distance from Tee to sample point 43' 5", with 11 elbows.

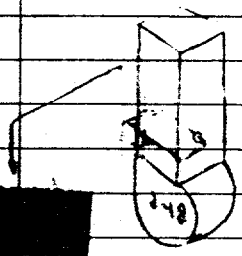


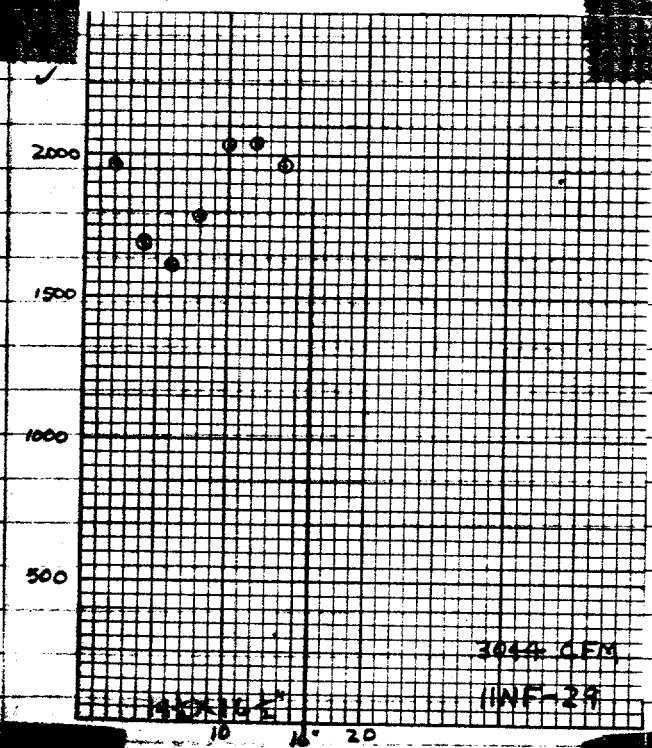
Nominal stack flow 4000 CFM.
" sampling " 0.52 CFM.

11-3-71 D.G.

12/27/71 traverse - ~3' from center of blower, probe not pulled, sample flow at 0.80 CFM, reset to 0.52 CFM. traverse 3044 CFM, y-12 Eng No. 4000 CFM. G.

11NF-29




2000
1500
1000
500
10
16"
20
3044 CFM
11NF-29
16" LONG AXIS

B1-12

11NF-30 B-1 3rd floor exhaust

Stack 38" ID No cap

Probe is ½" pipe, about 65" down from top of stack, 24' above fan. Probe not readily accessible, so was not removed for checking. Probe to sample point distance is 34' 5" including about 12" of Tygon tubing ca. ½" ID, and 6 elbows, remainder is ½" pipe.

Nominal stack flow 10,000 CFM.
" sample " 0.52 CFM. 11-4-71 DG

12/27/71 traverse not collected, due to probe point on dust. sample flow found at 0.9 CFM, reset to 0.52 CFM. JC.

1/11/72 traverse 9289 CFM. JC

8-16-73 CANCELL per H.R. Butler [illegible]

11NF-30

B1-13 Blowerko.

11NF-31 B1 2nd floor exhaust.

Stack 33 1/2", ; no cap.
Probe is 1/2" pipe about 65" down from top of stack, 24' above fan. Probe not readily accessible, so was not removed for checking. Probe to sample point distance is 39' 10" including about 12" of Tygon tubing and 7 elbows; remainder is 1/2" pipe.

Nominal stack flow 10,000 CFM.
" sample " 0.52 ".

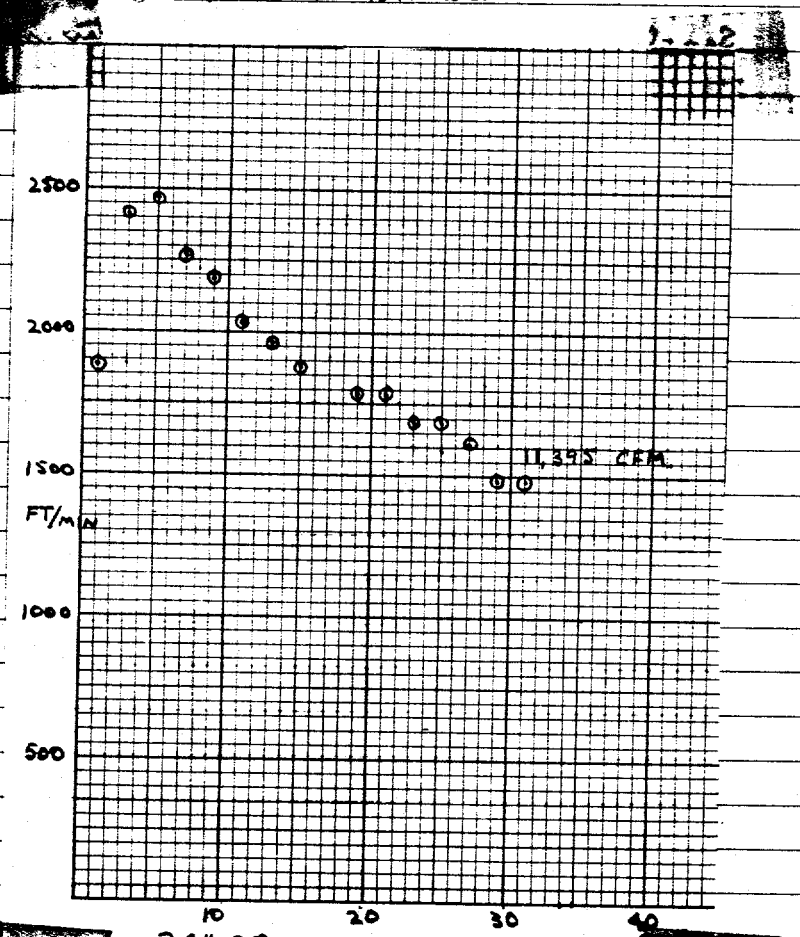
12/27/71 traverse not collected due to probe locations. Sample flow not checked, GPH rotometer needs to be changed to SCFM type. JL.

1/11/72 traverse 11,395 CFM. JL

8-16-73 Cancelled per H.R. Butler
A. King

11NF-31

Stack has in line blower



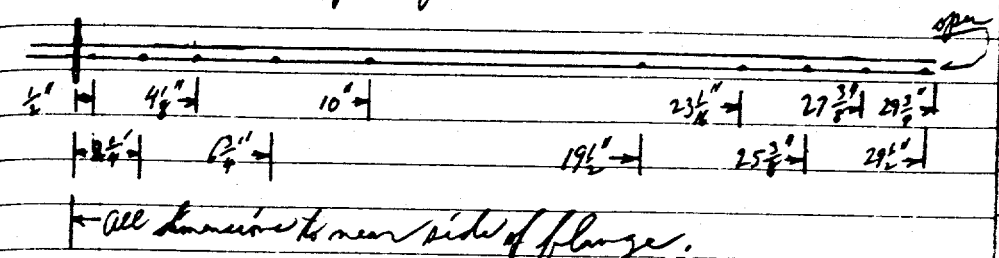
34" OD

11NF-31

AS-115
B1-19

11NF-32 B1 Conversion Area Exhaust

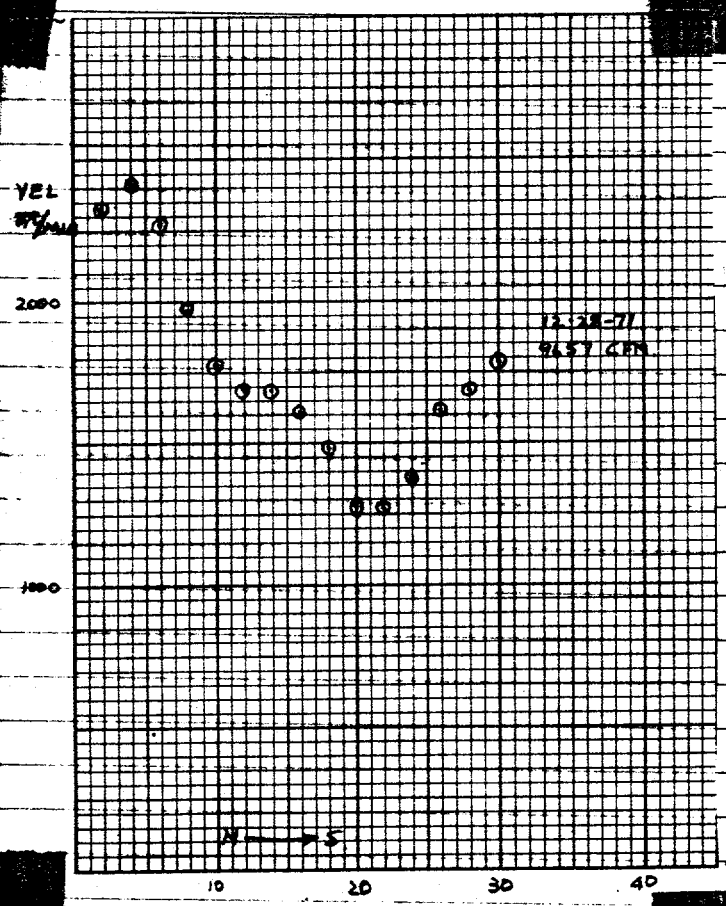
10-26-71 Probe pulled for checking dimensions, not cleaned.
Stack 32"; no rep
Probe ½" pipe with 10 holes about ⅛" diameter; end open
Probe about 26 ft. from top of stack, 40-50 inches above in-line fan. 56" of ½" pipe, 6" rubber hose about ¾" I.D., and one elbow between probe and sample points.



Nominal stack flow 10,000 CFM.
" sampling " 0.52 ". 11-5-71 D.G.

12/27/71 traverse, probe not cleaned, checked sample flow. 0.90 CFM, reset to 0.52 CFM
Traverse 9,657 CFM, Y-12 Eng No. 10,000 CFM. JC.

8-16-73 Discontinued sample per H.R. Butler
B. King



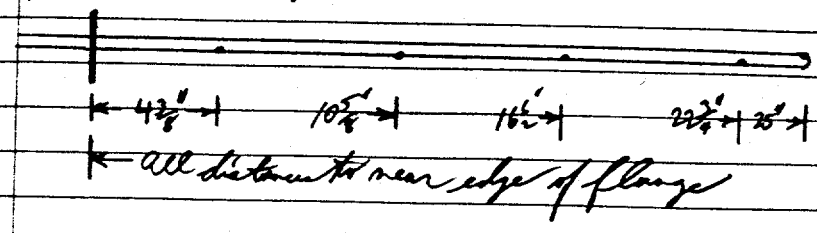
32" DIA. 11NF-32

B1-1 Blower No.

11NF-33 B-1 Dissolver Area Exhaust, 1st Floor

11NF-33

-26-71 Probe pulled for checking dimensions, not cleaned,
Stack 33" vertical round, no cap.
Probe ½" pipe, .. 66" from top of stack,
23' above in-line fan.
About 25' of ½" pipe with 3 elbows from probe
to sample point.

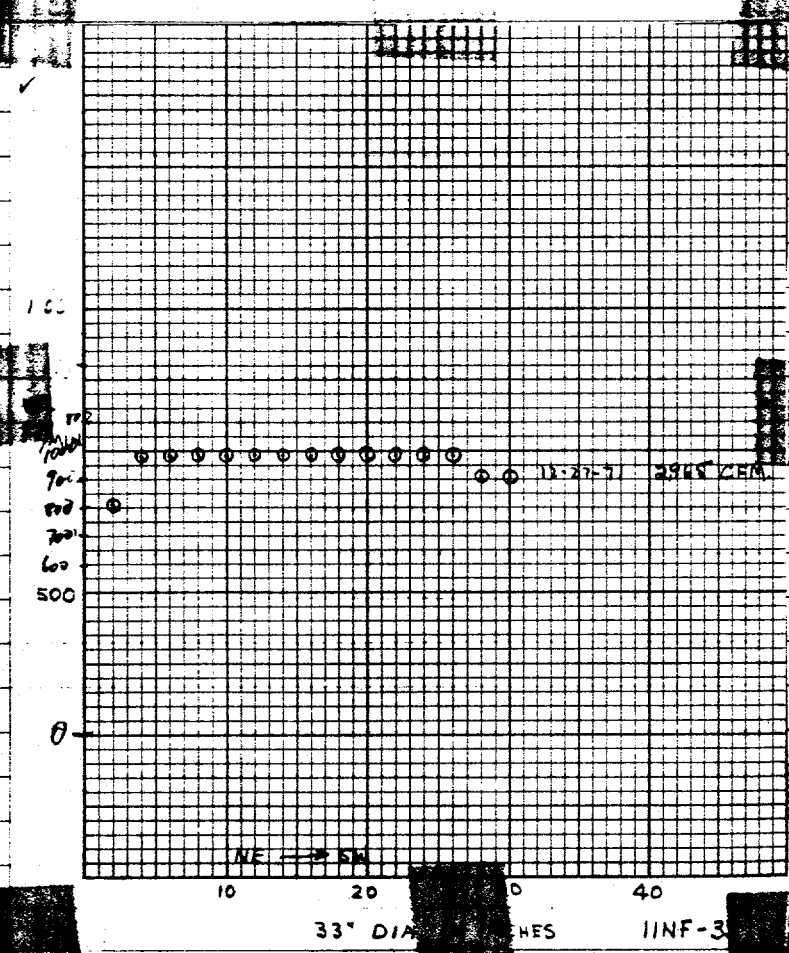


Nominal stack flow 10,000 CFM.
" sampling " 0.52 CFM. 11-4-71 DG

2/27/71 Traverse - probe removed, clean - sample flow
high - dirt in roto - reset at 0.52 CFM.
Traverse 2965 CFM, Y-12 Eng. No. 10,000 CFM JE.

-16-73 Discontinued this stack sample as per H.A.
Butler

A. King

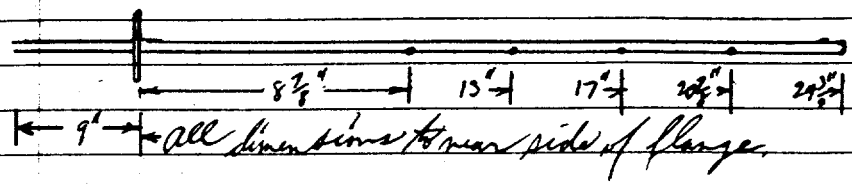


12-27-71 2965 CFM
500
0
NE → SW
10
20
40
33" DIA
HES
11NF-3

B1-14 Blower No.

11NF-34 B1 Conversion Area Exhaust
(Denitrator Room)

10-26-71 Probe pulled for checking dimensions; not cleaned.
Stack 30", capped.
Probe ½" pipe, 4 hole about ⅛" diameter; probe 6'8" from top of stack, about 22' above fan. About 33 ft. of ½" pipe with 7 elbows from probe to sample point. There is a walk-way from the roof of the B-1 penthouse to the probe; a sample point at the probe would be readily accessible.



Nominal stack flow 10,000 CFM
" sampling " 0.52 CFM 11-5-71 [illegible]

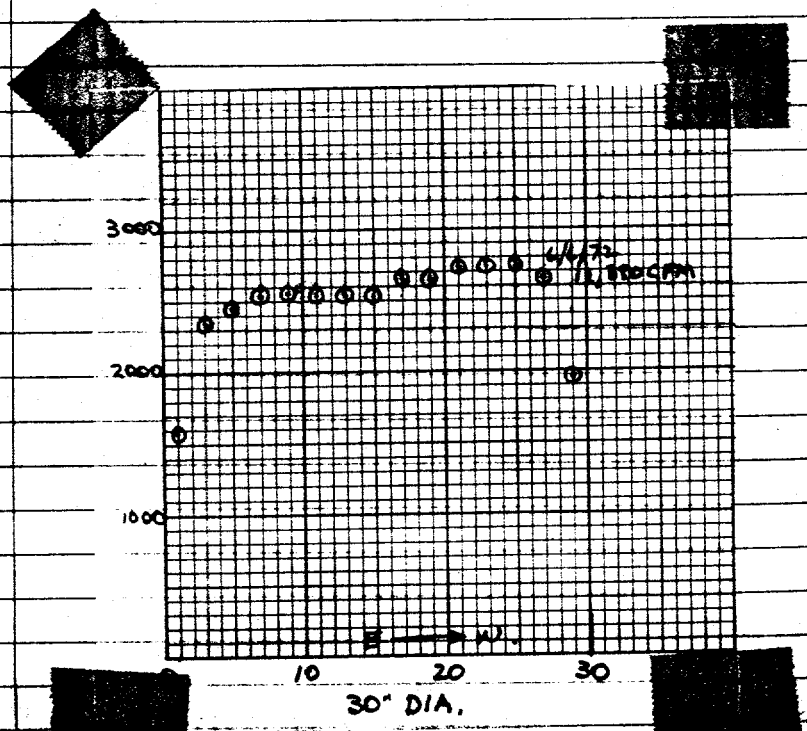
12/27/71 No traverse run. HNO_3 fumes bad. checked sample flow. No flow noted, reset to 0.52 CFM

5/24/72 Location of sample head moved to probe at stack. JK.

5-26-72 Location of sample head moved to B-1 enclosed roof. Due to acid fumes and location danger. JK

6-6-72 Traverse on stack 12,380 CFM. probe found to be 90° out of phase - 90° to flow of stack. re-positioned correctly. [illegible]

11NF-34

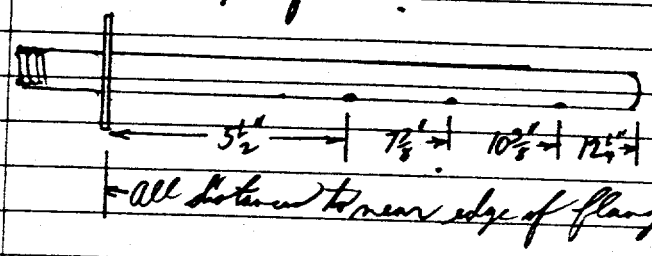


30" DIA.

B1-5 Blower No.

11NF-35 B-1 Tank Preparation Dry Filter Exhaust 221

10-26-71 Probe pulled for checking diameter not clean.
Stack 16", capped.
Probe ½" pipe with 3 holes about ⅛" diameter,
39" from top of stack, 7'9" above fan.
42½ ft of ½" pipe with 8 elbows from probe
to sample points.

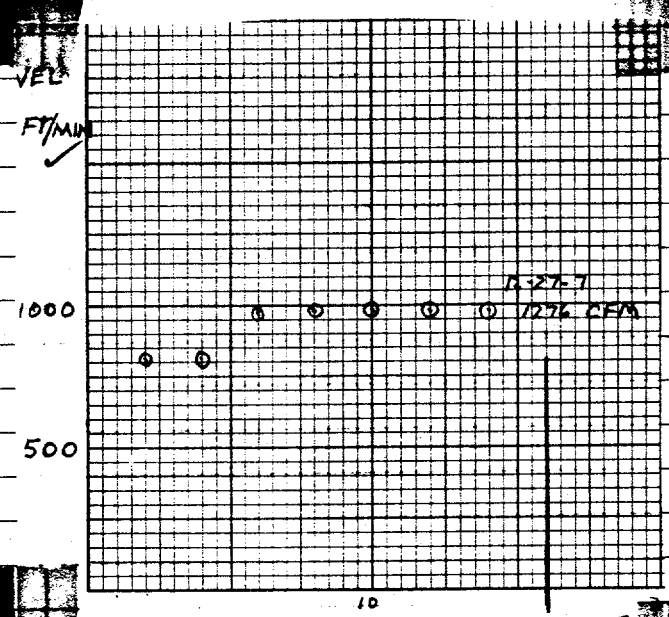


Nominal stack flow 4000 CFM.
" sampling " 0.52 CFM. 11-5-71 DG

12/27/71 traverse - Probe not pulled, checked sample flow.
0.15 CFM. reset to 0.52 CFM.
traverse 1,276 CFM. y-12 Eng No. 4000 CFM. JC.

2-5-72 Sample not changed this date. Sample
head being relocated nearer sampling
point on B-1 Penthouse roof

11NF-35



16" DIA

11NF-35

C-5 Blower Ko EF-528 Eng Ko.

15DF-36 C-Wing Rover Exhaust NOW 11NF-60 229

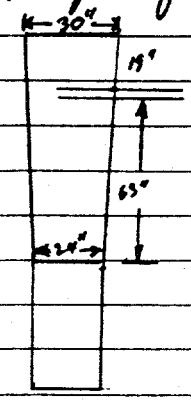
Stack 43½"x57"; not capped.
Probe ½" pipe, about 45" below top of stack, and about 92" above fan. About 10 ft of ½" pipe from probe to sample point, with 1 elbow. Probe was not accessible for pulling; pipe filter (Gallant) remembered it was a straight pipe with holes.
#2 45° bends

Nominal stack flow 40,000 CFM.
" sampling " 0.70 CFM. 11-7-71 DJ

15DF-36

E-4
EF-501
13 dF-37 E-Wing Machine Shop Exhaust

Stack top 30" x 41"; holes rusted through stack - needs replacing. 24" x 32" at bottom of stack. No cap. Probe ½" pipe, open at end, apparently no holes in side. 19" below top of stack, 63" above fan. About 14 ft. of ½" pipe, with 2 elbows, between probe and sample point. Probe about 20" into stack (est.)



Nominal stack flow
40,000 CFM (14,700 3)
Nominal sampling flow
0.60 CFM.

11-8-71 D.J.

13JF-37

11-26-74 Stack dimensions at probe 29.5" x 38.8"
Area of Duct = 7.95 ft²
Traverse yields avg of 1414 fpm for a stack rate of 11,239 CFM

N→S Inches	Measured FPM
2	1133
4	1266
6	1387
8	1387
10	1498
12	1387
14	1387
16	1133
18	1387
20	1498
22	1387
24	1602
26	1962
28	1791

Avg 1443
− 29 2% correction
1414

2% = spee gee correction for oil in incline gauge

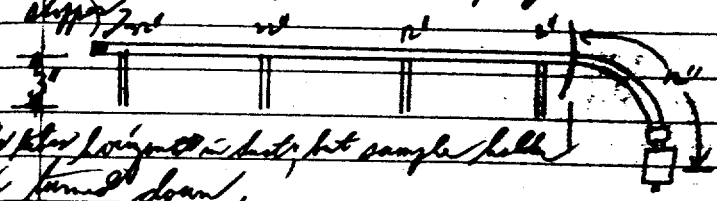
D1 - 4 Blower No.

11NF-38 Reduction Exhaust - Plenum Chamber

11-5-71; Probe pulled for checking dimensions; not cleaned.

Duct - 34" horizontal. Fan D1-4; no cap on stack.

Probe - ½" O.D. tubing horizontally across duct. 4 side tubes ¼" O.D., about 3/16" I.D.; end of ½" tube closed with rubber stopper or similar plug. Side tube ends not tapered.



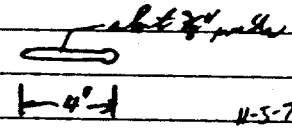
Side tubes horizontal in duct; but sample holder is turned down.

Probe is 62" downstream from a slight jog in duct, 40" upstream from another. It is 105" downstream from the nearest side duct, 75" upstream from the exhaust fan D1-4.

Nominal stack flow 14,000 CFM.

" sampling flow 0.60 CFM.

Opening in duct for probe

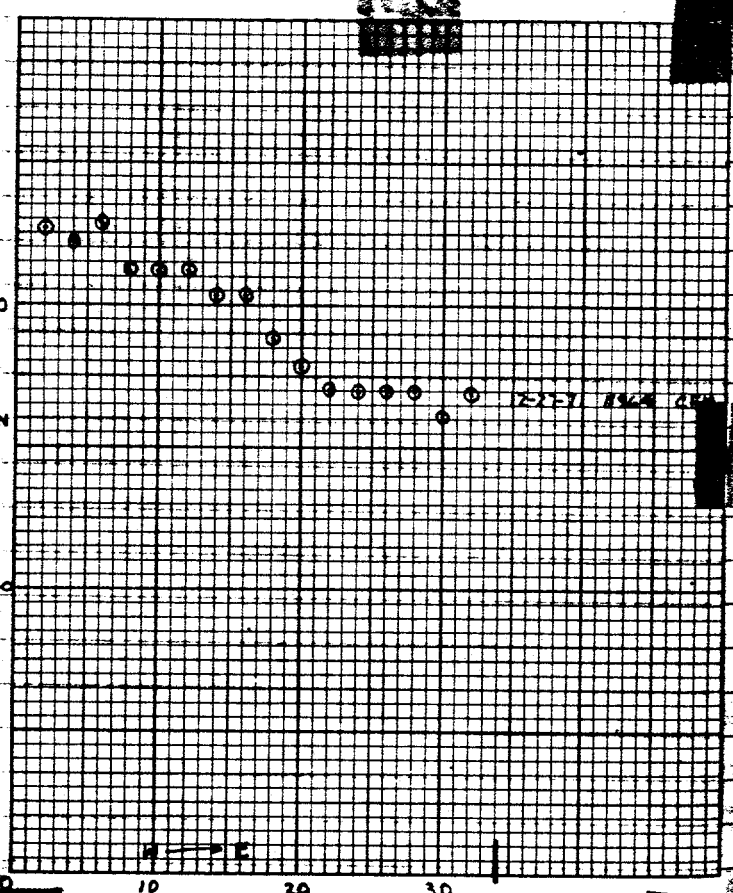


11-5-71 D.G.

12/28/71 Probe pulled, dirty, needs cleaned. GPH Rate traversed - 11,964 CFM. Y-12 Eng No. = 14000 CFM. [illegible]

[illegible]-24 MAINTENANCE filter reports that at times the probe on this system has been blocked by paper and plastic from the exhaust stack

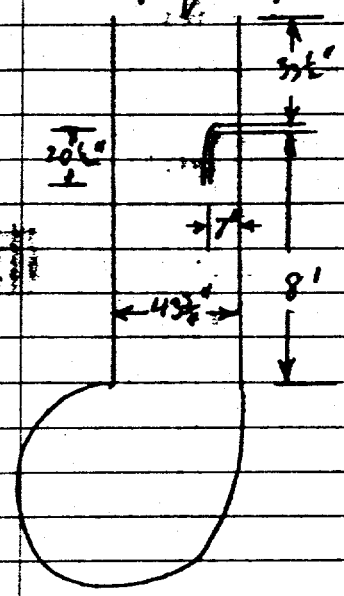
11NF-38



3 [redacted] 11NF-38 [redacted]

D1-1 Blower No.
EF-509
11NF-50 Room 1022 Ewing Lab Stack

[illegible] Probe pulled for checking dimensions; not cleaned.
Stack 31½" x 43¾", capped.
Probe ½" O.D. tubing x .035 wall, 33½" from top of stack, 8 ft above fan. 14 ft from stack to sample point. This stack discharges HF; the distance is needed for safety of the operators changing samples. Use monogoggles near stack.



Nominal stack flow 14,000 CFM
Nominal sampling flow 0.70 CFM

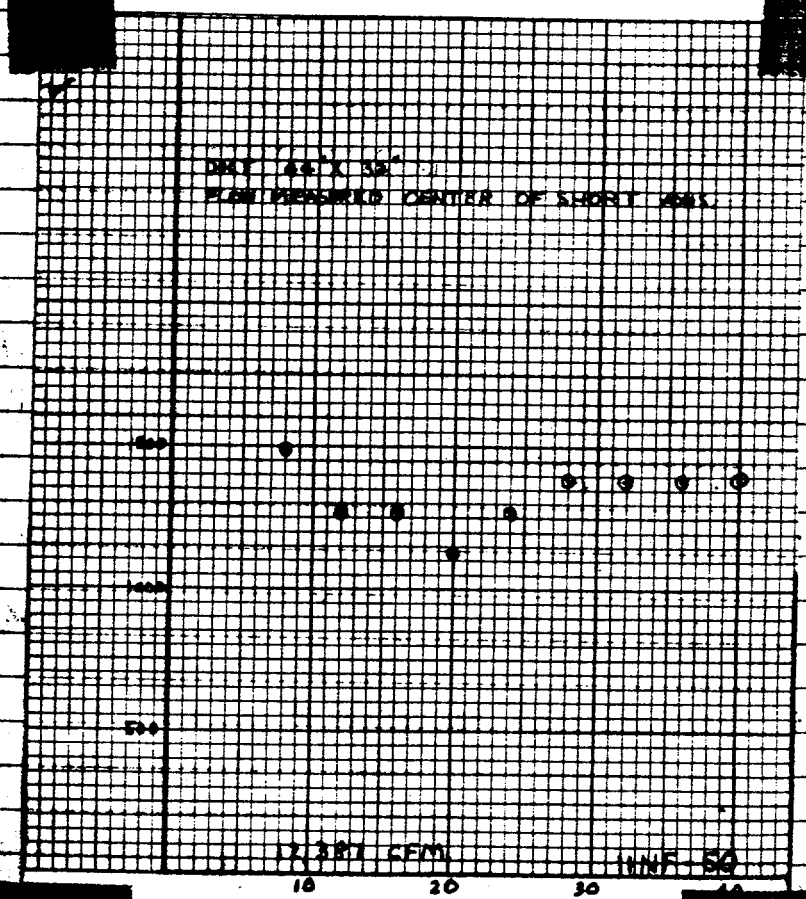
11-7-71 [illegible]

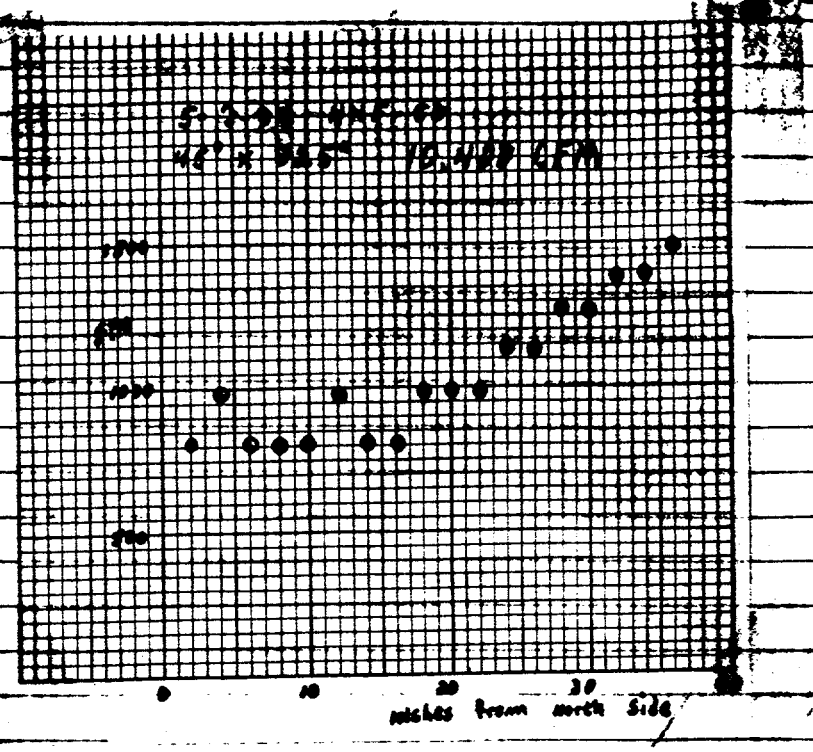
12/27/71 Probe pulled for traverse, dirty, needs cleaned, not cleaned at this time - Flow found at 0.5 CFM - increased to 0.70 CFM.
Traverse 12,635 CFM, Y-12 No 14000 CFM. JE.

9/9/72 Last 1022 hood exhaust - now in process of changing blower - all 1022 hood work untold while chging blower. JE.

5-7-74 Traversed new fan exhaust 10,400 CFM

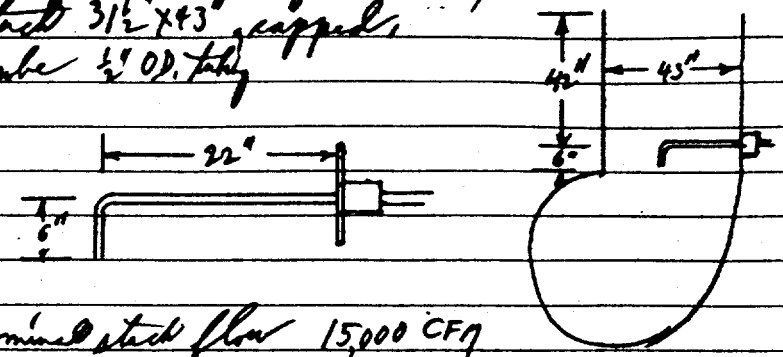
11NF-50


DIST 44" X 30"
PLAN MEASURED CENTER OF SHORT AXIS
500
10
20
30
44" LONG AXIS


0
10
20
30
inches from north side

E-1 Blower No.
11NF-51 Room 1021 (South) E-wing Lab Stack 261

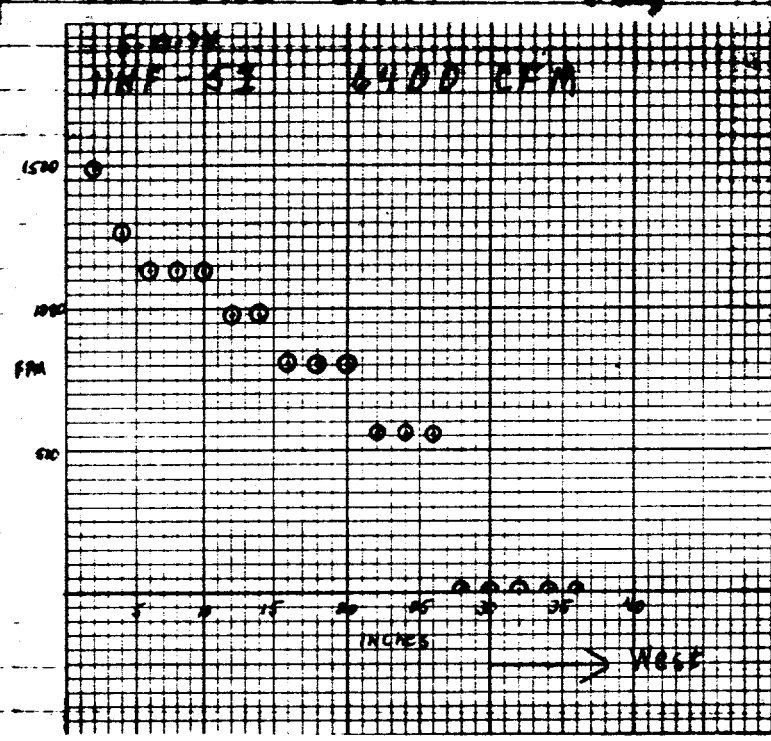
[illegible]-71 Probe pulled for checking dimensions, just cleaned.
Stack 31½ X 43", capped.
Probe ½" O.D. tubing



Nominal stack flow 15,000 CFM
" sampling " 0.80 CFM.
11-7-71 D.G.

12/27/71 Probe pulled - unable to collect traverse data ?? (Blower Vanes)
flow at lower end of incline gage -
Sample flow found at 0.5 CFM, left @ 0.5
unable to get proper flow, probe dirty, Not cleaned.
Traverse < 5000 CFM. Y-12 Eng No. 15000 CFM. JE.

5-17-74 TRAVERSE 6400 CFM



11NF-51

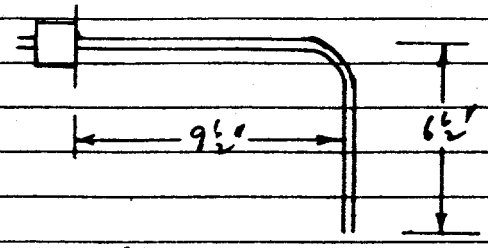
E-2 Blower No.

11NF-52 Room 1021 (West) - Ewing Lab Stack 269

Probe pulled for checking dimensions, not cleaned

Stack 16" round, 25' tall, capped.

Probe 3/4" I.D., 7/8" O.D. tubing, 8" above fan, 17" below top of stack. (not pipe)



Nominal stack flow 5,000 CFM

" sampling flow 0.60 CFM

(note: #53 has same stack probe, stack flow, but is listed as having 0.40 CFM sampling flow).

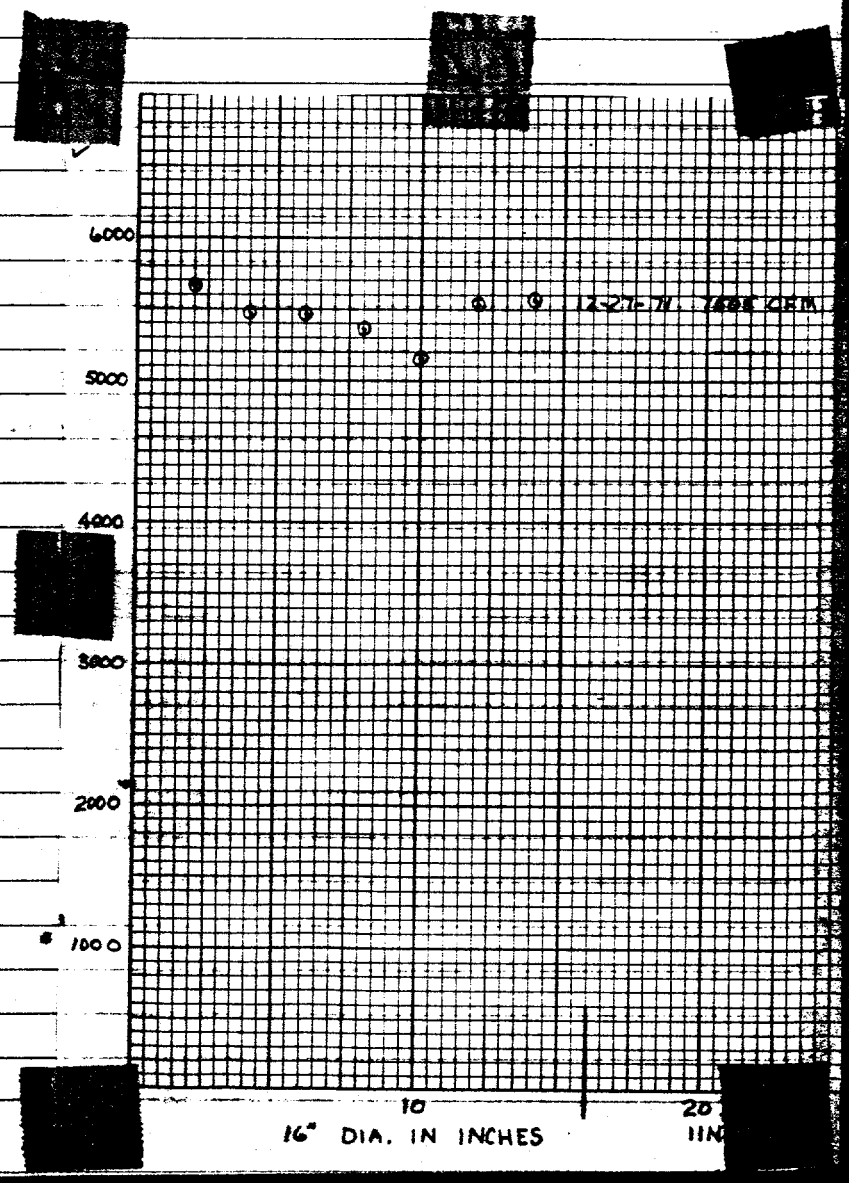
11-8-71 D.G.

11-12-71 Probe missing. D.G.

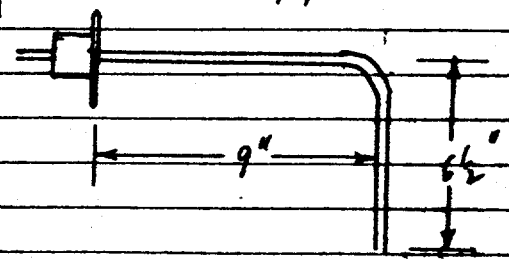
12/27/71 Pulled probe for traverse - probe dirty not cleaned. - flow ~ .25 FCM. unable to increase sample flow left at 0.25 CFM

Traverse 7,505 CFM, Y-12 Eng No 5000 CFM. JE.

11NF-52


6000
5000
4000
3000
2000
1000
12-27-71
10
20
16" DIA. IN INCHES

E-3 Blower No.
EF-505
11NF-53 Room 1090 (Exit) [illegible]
E-wing lab stack
Stack 16" round, 25" tall, capped.
Probe 3/4" ID, 7/8" OD. tubing, 7" above fan, 18" below top of stack. (not pipe)



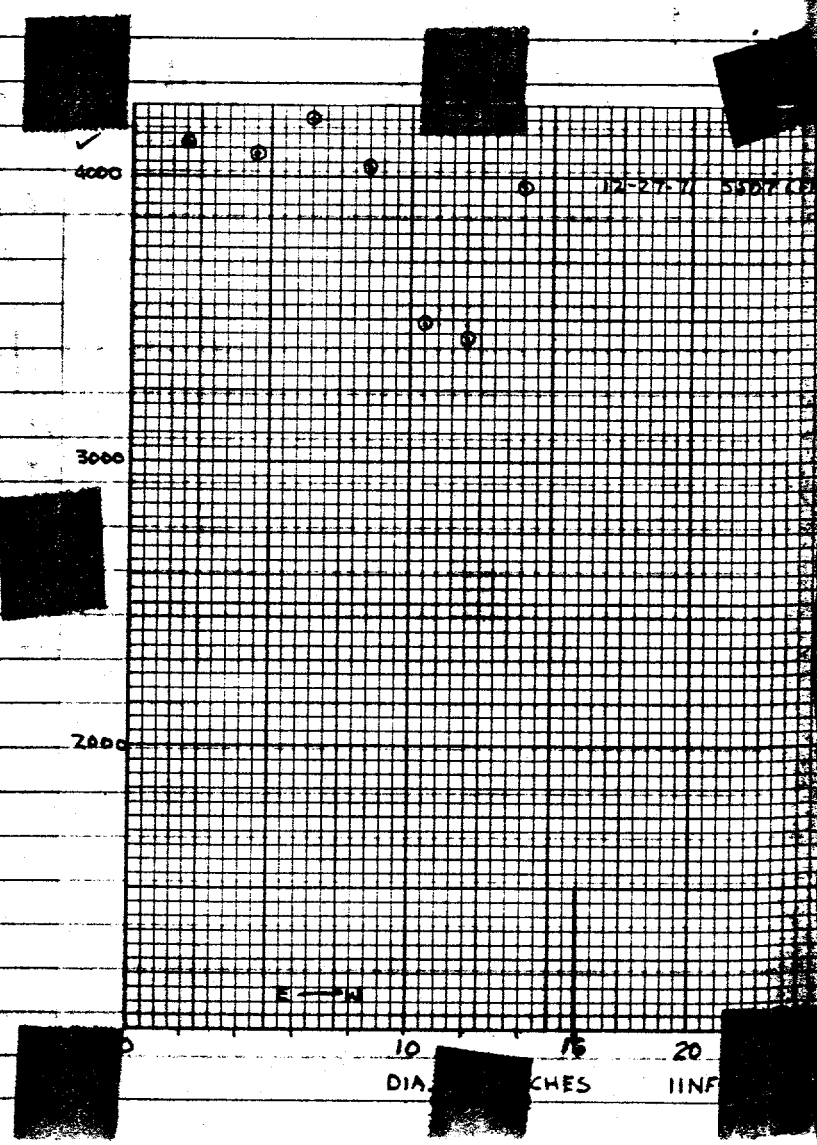
Nominal stack flow 5,000 CFM
" sampling flow 0.40 CFM
(Note: 52 has same stack, probe, stack flow but sampling flow is listed as 0.60 CFM; why?)
(Note: 11-8-71 this probe found dangling in the hole loose.)

11-8-71 DG

10-26-71 Probe pulled for checking dimensions; not cleaned.
11-12-71 Probe is missing completely. DG

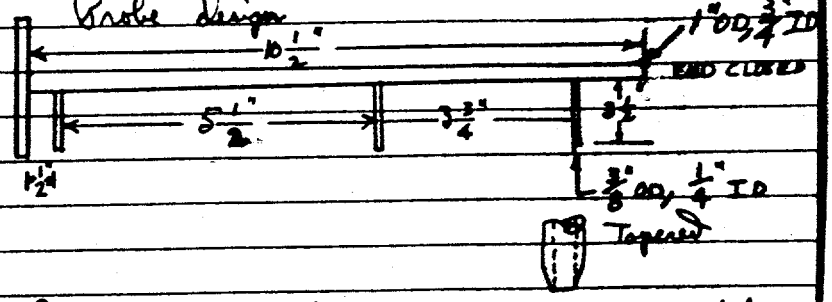
12/27/71 Rotometer needs cleaned - No flow - probe clean. ran traverse. 5616 CFM, Y-12 No 5000 CFM. JE

11NF-53


4000
3000
2000
12-27-71
E → W
0
10
20
DIA
CHES
IINF

11NF-54 chip burner, Room 1010, 1100" DIA
Sample flow 0.60 CFM with a duct flow of 2000 CFM. (traverse on Y-12 Eng Numbers)?? Sample change frequency daily.

Probe design

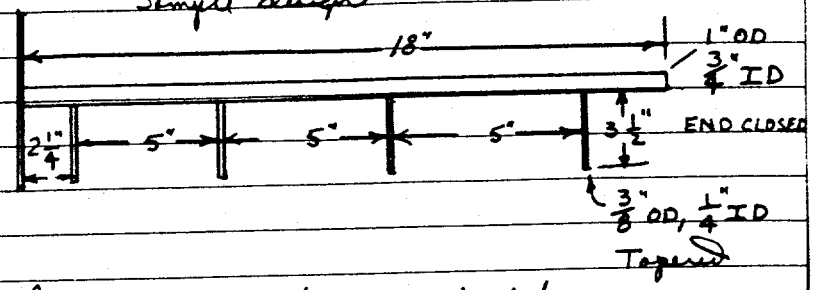


10/22/71 Pulled probe - collected measurements - re-inserted.
11/3/71 Found all samples reading > 35 l/m (how high)??
recalibrated to 17 l/m 0.17 CFM.

11NF-54

11NF-55 · Room 1010 Chip burner & U_3O_8 Sizing and Sampling S.W. 14"X20", duct flow 3000 CFM (Traverse or Y-12 Engineering number ??). Sample flow = 0.60 CFM with a change frequency of daily

Sample design

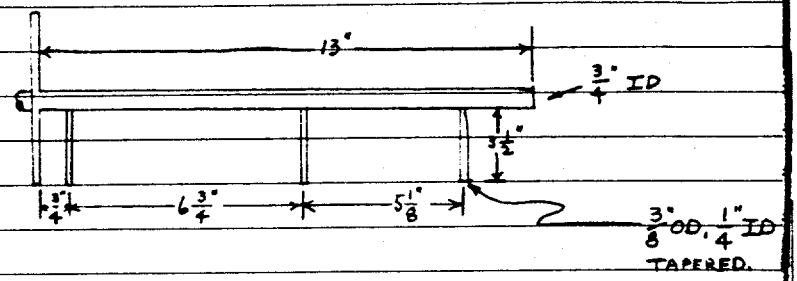


10/27/71 Pulled probe - measurements - re-inserted

11/3/71 Found sample flow greater than 25 l/m ?? Valve completely open - recalibrated to 17 l/m 0.6 CFM

9-21-73 11NF-55 showed 17 gram loss on quick count this date. Possibly leaking around Filter frames per H.G. Taylor. [illegible]

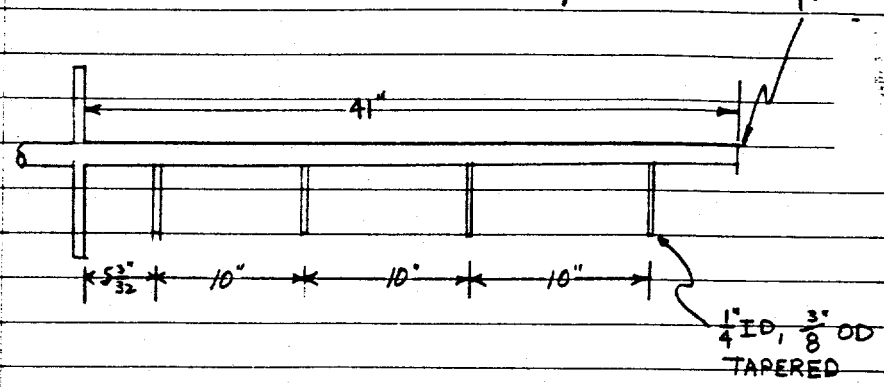
11NF-56 Room 1010 Four Fire U_3O_8 drying and chip burner SE. duct flow of 3000 CFM (Traverse or y-12 Eng Number ??) Sample flow of 0.60 CFM with a change frequency of daily. duct shape oval 14" X 14"



10/27/71 Pulled probe collected measurements - re-installed
11/3/71 Found sample flow > 25 l/m. recalibrated to 0.6 CFM ~17 l/m. Valve found complete open.

11NF-56

IINF-57. Room 1010 Hi fired (east)
Duct flow 2000 CFM (y-12 Eng on traverse ??)
Sample flow of 0.60 CFM 17 l/m
change frequency - daily.

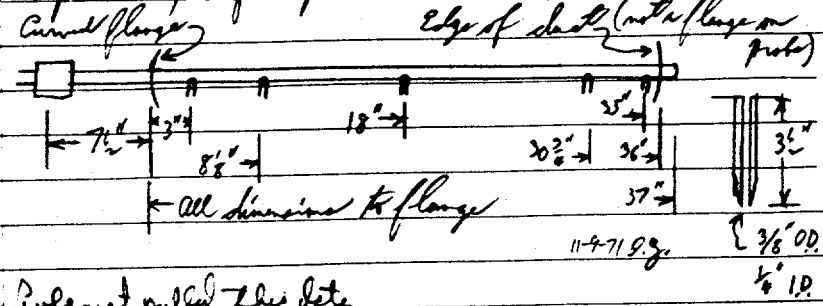


10/27/71 Pulled probe - collected measurements - re-inserted.
11/3/71 Recalibrated - flow found @ > 25 l/m - reset to 17 l/m - 0.6 CFM. Valve complete open

IINF-57

11NF-58 Room 1010 Operations (duct in D-wing basement).

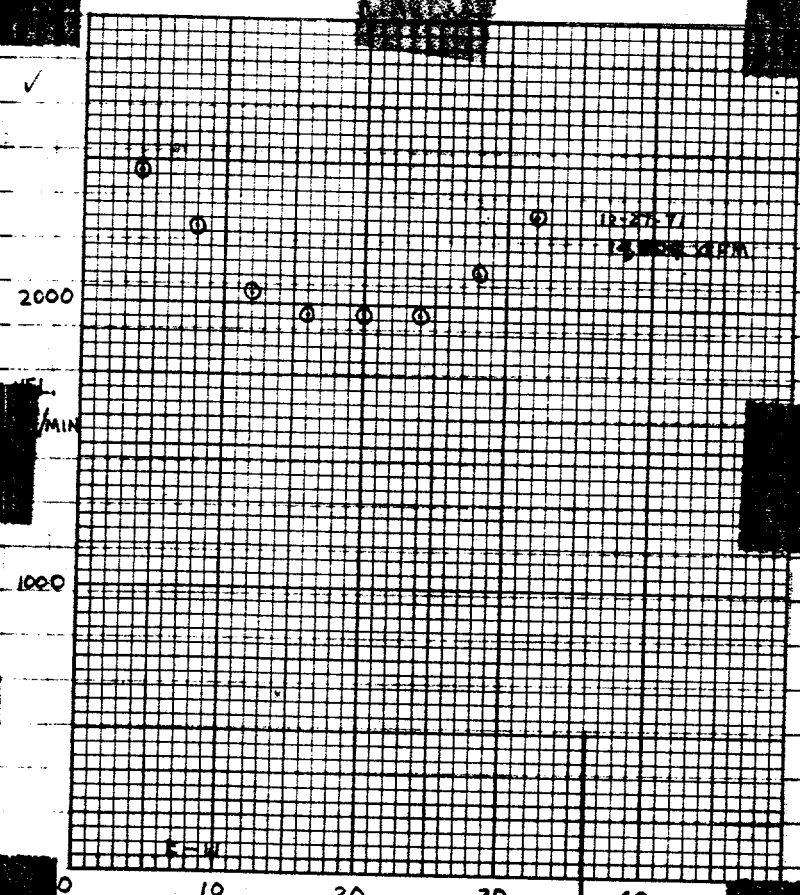
10-26-71 Probe pulled for checking dimensions; not cleaned.
Duct: 36" horizontal
Probe: 1" OD, with 5 side tubes; probe & side tubes horizontal in duct, 44" from probe to nearest bend in duct upstream; 63" from probe to nearest bend downstream.

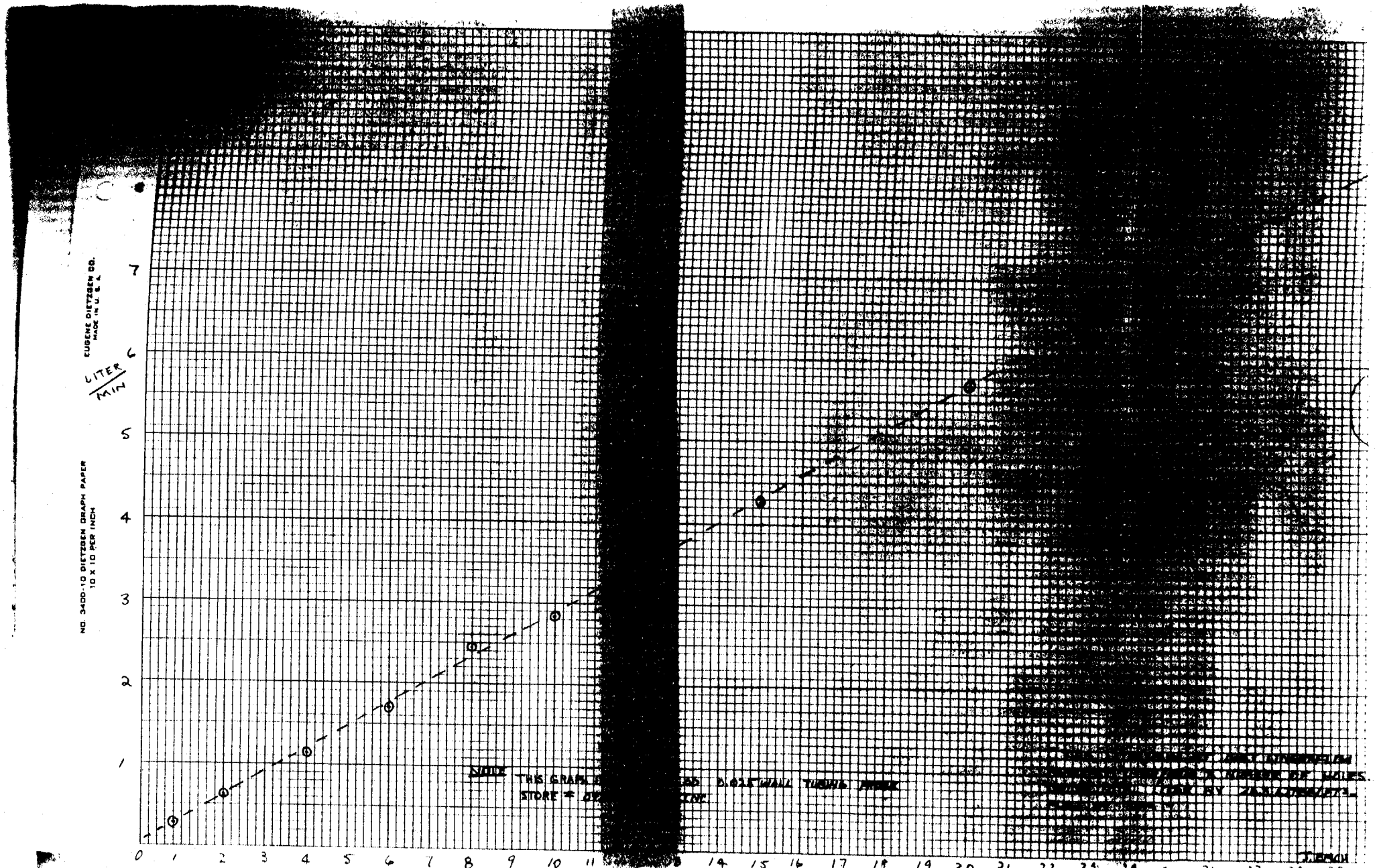


10/27/71 Probe not pulled this date
11/3/71 Recalibrated, found sample flow @ > 25 l/m. want to 0.6 CFM - 17 l/m. valve complete open.
12/28/71 Pulled probe, dirty, not cleaned. No rotameter at sample point, bad sample point. traverse 14,804 CFM.
4-12 Eng no. 12000 CFM. JE.

11NF-58 discharges into 11NF-04 D-wing stack. JE

11NF-58


2000
1000
0
10
20
30
40
36" DIA
11NF-58



EUGENE DIETZGEN CO.
MADE IN U. S. A.
NO. 3400-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
LITER/MIN
0 1 2 3 4 5 6 7 8 9 10 11 14 15 16 17 18 19
1 2 3 4 5 6 7
NOTE

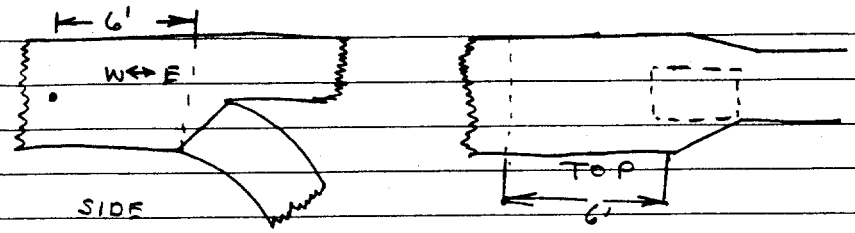
NO 2

NOTE: Only pages which contained information were copied

H-1

Pickling

Duct from H-1 pickling vat. Sampled for NO.
duct 36 X 28 located on roof over pickling room.
No grade in duct



13JF-17

13JF-17

Rm 1008, Chip drying, degreasing, Briquette press exhaust.

6-2-72 traverse, found flow to be ~1400 CFM rated at 3000 CFM.

7-2-72 Probe designed by D. Zucker, installed sample flow to be 0.80 CFM. for nominal flow 2000 CFM. to be changed 3/week.

this probe was initially installed in Aug 15, 1963 and called 282-17. Now it is being called 13JF-17. It is being re-activated in order that we can check on this exhaust and also have a record on IBM for future reference on past data/ George McMahon. [signature]

7-2-72 Data for program to B.F.R. today cards by next Friday - Aug. 11, 1972. [signature]

12-72 Discontinue changing this sample per letter dated 12-4-72 A. King
Letter from G. T. McMahon to V.B. Gritzner

11NF-01

11NF-01 C-1 chip burner.
12" duct 0.26 CFM sample flow.
change 3/week. - rated flow 1320 CFM

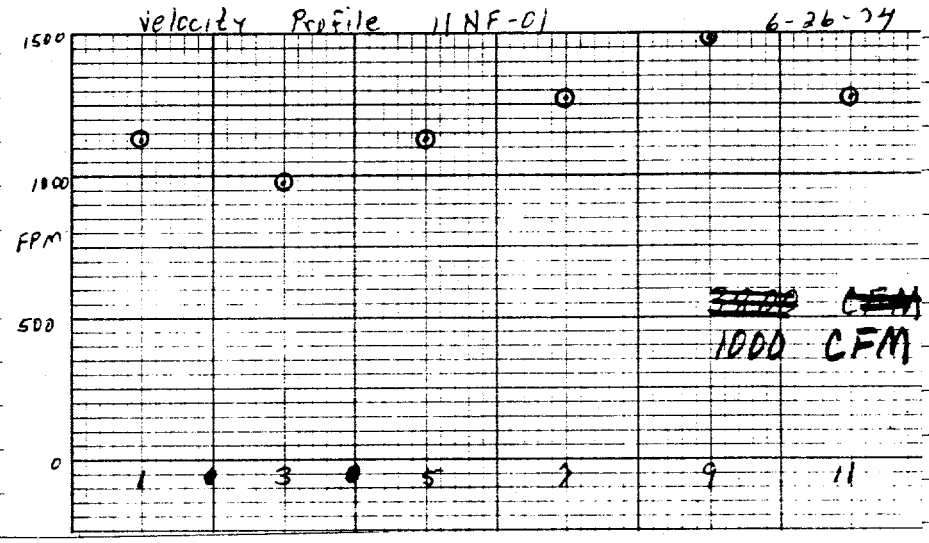
A diaphram has been installed in the sample collection head to increase the sample flow through the filterpaper to 1 CFM/in².

6-26-74 TRAVERSED THIS STACK

ID = 12"
STACK Sample
11NF-01

FPM	inches
1133	1
981	3
1133	5
1266	7
1498	9
1266	11

1213 .78 AVG FPM
Area = [redacted] ft²
0.78 = 946
1213 x [redacted] = [redacted] CFM
[redacted] CFM
1000 CFM



11NF-02

11NF-02 C-1 chip burner (process effluent), rated at 510 CFM. 5" Dia pipe - sample flow should be est. 1.22 CFM. at this time present vac system will give only 0.8 CFM. changed 5/week. Potential for loss greater on this duct than on 12" duct from chip burner enclosure.

6-26-94 Traversed this stack

5"

11NF 02 4" ID

FPM	inches
1498	2
801	1
1699	3

1333 Avg FPM

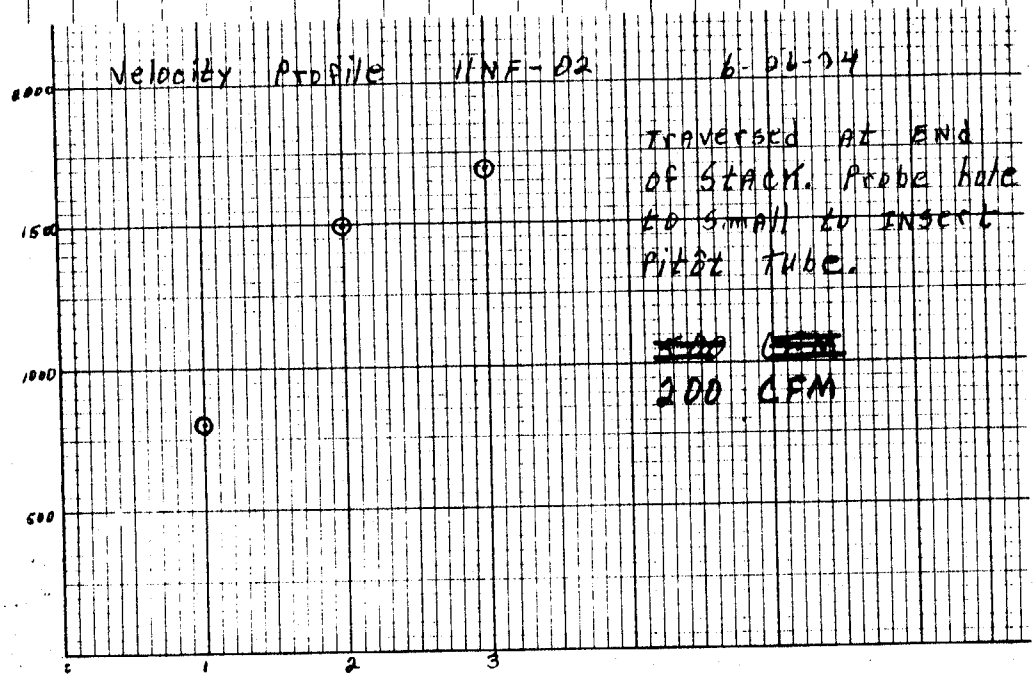
Area = .136 ft²

1333 x .136 = 181 CFM

200 CFM

Unable to place pitot tube in stack hole in stack too small traversed at end of stack.

Velocity Profile IINF-02 6-26-94



Traversed at End of Stack. Probe hole to small to insert Pitot tube.

~~500~~ ~~CFM~~
200 CFM