AP-42 Section Number: 9.9.1

Reference Number: 35

Title: Emission Performance Testing Of A Rice Mill,

Western Environmental Services

March 1992

EMISSION PERFORMANCE TESTING OF A RICE MILL

SITE:
845 KENTUCKY AVENUE
Woodland, California

DATE: MARCH 1992

Prepared For:

PACIFIC INTERNATIONAL RICE MILLS, INC.
845 Kentucky Avenue
Woodland, California 95695

Contact: Don DeHart
(314) 577-4158

Prepared By:

THOMAS ROONEY
(310) 540-4676

WESTERN ENVIRONMENTAL SERVICES
1010 South Pacific Coast Highway
Redondo Beach, California 90277

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1.0 INTRODUCTION

At the request of Anheuser-Busch Companies, Inc. of St. Louis, Missouri, Western Environmental Services (WES) conducted particulate compliance tests at Pacific International Rice Mills, Inc. (PIRMI) at Woodland, California. The testing consisted of:

1) measuring the emission rate and size distribution from dust collectors #1, #2, #3, and #5 of the Rice Mill, and
2) evaluating the ambient, fugitive type, particulate emissions at Receiving Pit #3, the Hull Bin loadout, the Bran building loadout, and a Gruber Bin truck loadout.

WES performed this test program from March 17 through March 20, 1992 to provide test data for the Yolo-Solano Air Pollution Control District.

At the Mill's four dust collectors, WES conducted single test runs for the emission rate using EPA Method 5 and for the particle sizing using CARB Method 501. For the fugitive dust type sources, WES collected the ambient particulate samples using high volume air samplers placed at strategic locations.

PIRMI processes rice. Figure 1.1 shows the facility layout. The major operations include the receiving and storage of rough rice (mainly dry but also wet during harvest), the drying of wet field rough rice (harvest season), the milling of dried rough rice, and the shipping rice and various by-products. Receiving is by farm sized trucks. Bulk finished rice shipping is primarily by railcar with small amounts of shipping by truck. The byproducts from the mill and rice cleaning are shipped by truck. About 20% of the mill's output is packaged and shipped by truck. Small amounts of specialty rough rice are shipped by truck.

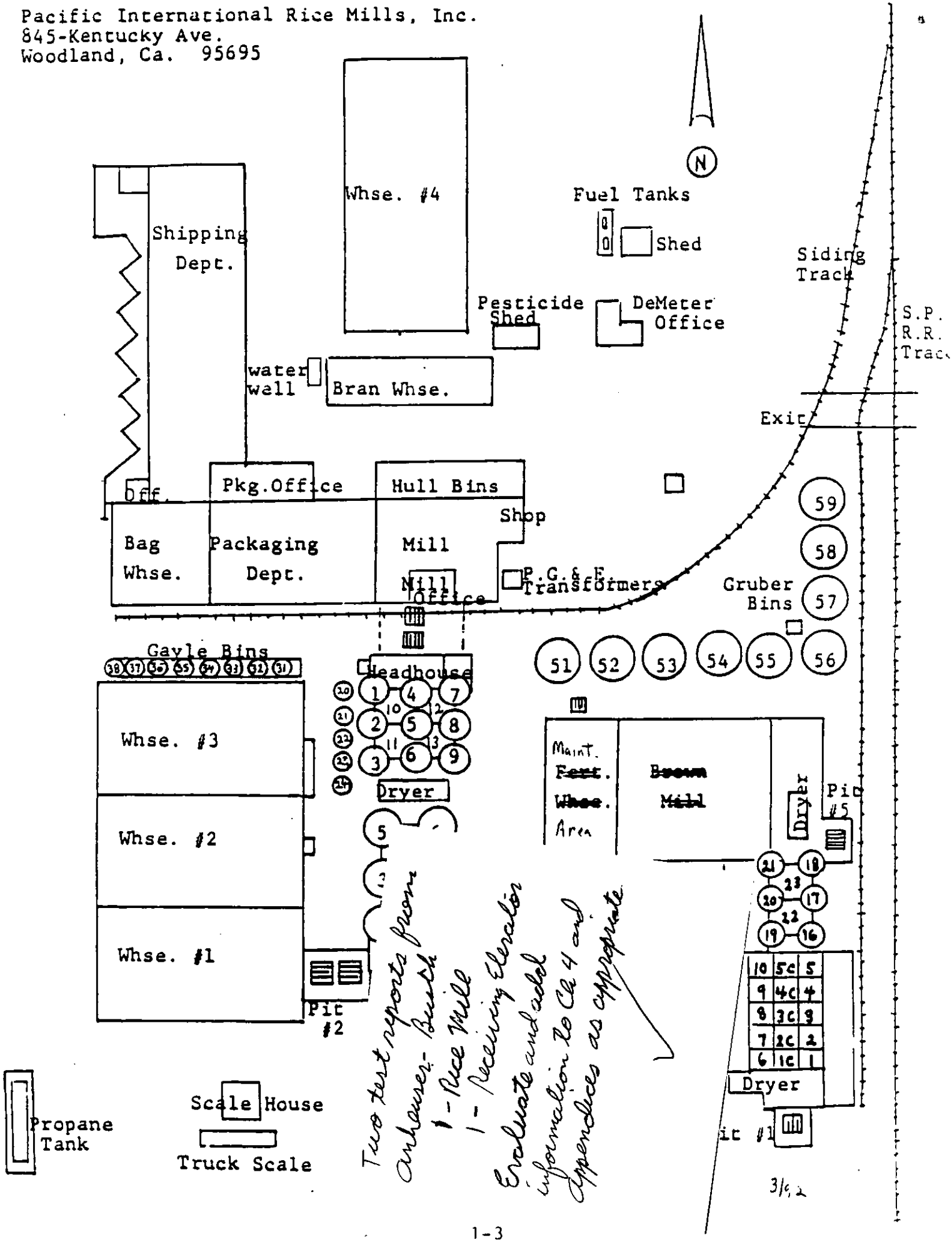
Pit #3 is one of the two primary receiving areas for incoming rough rice from outlying storage facilities. The Hull Bin loadout is the area for loading trucks with by-product unground rice hulls. The Bran Building is used to store rice bran and for inside loading of trucks for bran shipment.

The nine Gruber Bins store rough rice prior to processing. Normally, the rice in these bins is transferred to the Mill via enclosed conveyors and elevator legs. Rarely, due to logistical problems, the rice is loaded into hopper style trucks for the initial transfer via a Receiving Pit to the Mill.

The Mill's dust system #1 collects dust from the paddy (rough) rice cleaners. Dust system #2 provides the general dust collection for the mill house. Dust system #3 controls the Shelled Rice aspirator emissions. Dust system #5 collects the bran from the mills and the pearlers. A baghouse controls the emissions from each of the four dust systems. In addition, system #5 has a cyclone separator upstream of the baghouse.

This report presents the results of the test program in the following sections: Summary of Results, Site Description, Sampling and Analytical Procedures, Quality Assurance, and Appendices. The appendices contain the Field and Laboratory data sheets, Sample Calculations, and Process Data.

Pacific International Rice Mills, Inc.
845-Kentucky Ave.
Woodland, Ca. 95695



Two test reports from Anheuser-Busch
1 - Rice Mill
1 - Receiving Elevator
Evaluate and add information to Ch 4 and Appendices as appropriate

3/9/2

2.0 SUMMARY OF RESULTS

2.1 Discussion of Results

Tables 2.1 through 2.16 present the emission testing results. Tables 2.1 and 2.2 show the test data from dust collector Unit #1 while Tables 2.3 and 2.4 present the test data from Unit #2. Tables 2.5 and 2.6 depict the test data from Unit #3. Tables 2.7 and 2.8 give the test data from Unit #5. Tables 2.9 through 2.12 show the particle sizing test data for dust collector units #1, #2, #3, and #5, respectively. Tables 2.13 through 2.16 present the test data respectively for a) Receiving Pit #3, b) the Hull Bin Loading Area, c) the Bran Building Area, and d) the Gruber Bin #54 Loadout.

The test results are summarized below.

Location Dust Collector	Process Rate, #/hr	Particulate Emissions Concentration Grs/SDCF	Rate #/Hr
Unit #1	61,200	0.0015	0.159
Unit #2	34,200	0.0200	5.109
Unit #3	63,500	0.0046	0.231
Unit #5	38,000	0.0023	0.556

Location	Ambient Particulate Results mg/m^3 Sampler		
	#9	#8	#1
Receiving Pit #3	2.10	4.54	0.03
Hull Bin Loadout	20.5	0.48	2.32
Bran Building	2.33		0.72
Gruber Bin #54	37.7	141.	24.4

The test data from Dust Collection system #1 shows the particulates grain loading (Grs/SDCF) is 0.0015. The particulates smaller than 10 micron in diameter is 82.5 %.

The test data from Dust Collection System #2 indicates the particulates grain loading (Grs/SDCF) is 0.0200. 37.2 % of the particulates were smaller than 10 microns in diameter.

The test data from Dust Collection System #3 shows the particulate grain loading (Grs/SDCF) is 0.0046 with 85.3 % of the particulates being smaller than 10 micron in diameter.

The test data from Dust Collection System #5 shows a particulate grain loading (Grs/SDCF) of 0.0023. The particle sizing test data indicates that 62.2% of the particulates were smaller than 10 micron in diameter.

The test data from Receiving Pit #3 shows the ambient particulate loading averaged between 0.03 and 4.54 mg/m^3. The highest concentration was located on the right rear side of the loading area. Figure 3.9 shows the location of each sampler.

The test data from the Hull Bin Loadout area indicates the ambient particulate concentration leaving the building averaged 2.32 mg/m^3. The sampler located near bin #1, at Truck Top level inside the building, showed 20.5 mg/m^3. The upstream sampler showed 0.48 mg/m^3 at the Truck Top level inside the building. Most loadout occurred from the eastern most Hull Bins in the northern and center bin rows.

The test data from the bran building truck entrance and truck exit show the ambient particulate concentration at 2.33 and 0.72 mg/m^3 respectively. During the testing, all of the truck loading was done near the entrance.

The test data from Gruber Bin #54 shows the ambient particulate concentration of 141. mg/m^3 at the chute exit (Truck Hopper Top) and a ground level average of 31.1 mg/m^3 within 30 feet of chute.

The sources of emissions are within the property line of PIRMI. The emission data represents particulate concentrations at the point source. The test data was collected from each source to determine areas of potential problems for ambient dust.

2.2 Quality Assurance

The field testing was conducted with leak checks prior to and after each test. The testing was performed with all pitot tube and gas meter checks. The quality assurance procedure is outlined in Section 5.0.

TABLE 2.1 PARTICULATE SAMPLING

SITE: PIRMI (ABI)
UNIT: #001
DATE: March 18, 1992

STACK PARAMETERS	TEST 1
Barometric Pressure "Hg	29.75
Static Pressure "H20	-11.00
CO2 %	0
O2 %	20.94
N2 %	79.06
CO ppm	0
Stack Diameter "	21
Stack Temperature F	70
Stack Pressure "Hg	28.94

TEST CONDITIONS	TEST 1
Sample Volume Ft3	69.021
Meter F	88
Nozzle Dia "	0.17
Time Min	96
Points	24
Pitot Tube Factor cp	0.87
Orfice Press "H2O	1.97
Condensate mls	0
Velocity Pressure "H2O	2.114
Meter Calibration	1.022

TEST CALCULATIONS	TEST 1
Water Vapor SDCF	0.000
Gas Sampled SDCF	67.881
Moisture %	0.00
Molecular Weight Dry	28.84
Molecular Weight Wet	28.84
Gas Velocity Ft/Sec	86.18
Flow Rate ACFM	12437
Flow Rate DSCFM	11984
Isokinetics %	90.1

TABLE 2.2 PARTICULATE ANALYSIS

SITE: PIRMI (ABI)
UNIT: #001
DATE: March 18, 1992

ANALYTICAL DATA	TEST 1
FRONT HALF	
Probe mg	7.4
Filter mg	0.2
Blanks mg	3.5
Subtotal mg	4.1
BACK HALF	
Impingers Inorg mg	2.4
Impingers Org mg	1.8
Blank mg	1.5
Subtotal mg	2.7
Total Weight Gain mg	6.8

EMISSION DATA	TEST 1
FRONT HALF	
Grs/SDCF	0.0009
Lbs/Hr	0.096
BACK HALF	
Grs/SDCF	0.0006
Lbs/Hr	0.063

TOTAL EMISSIONS	TEST 1
Grs/SDCF	0.0015
Lbs/Hrs	0.159

TABLE 2.3 PARTICULATE SAMPLING

SITE: PIRMI (ABI)
UNIT: #002
DATE: March 19, 1992

STACK PARAMETERS	TEST 1
Barometric Pressure "Hg	29.75
Static Pressure "H20	-11.00
CO2 %	0
O2 %	20.94
N2 %	79.06
CO ppm	0
Stack Diameter "	32
Stack Temperature F	47
Stack Pressure "Hg	28.94

TEST CONDITIONS	TEST 1
Sample Volume Ft3	67.180
Meter F	62
Nozzle Dia "	0.15
Time Min	120
Points	24
Pitot Tube Factor cp	0.89
Orfice Press "H2O	1.21
Condensate mls	7
Velocity Pressure "H2O	2.229
Meter Calibration	1.022

TEST CALCULATIONS	TEST 1
Water Vapor SDCF	0.329
Gas Sampled SDCF	69.231
Moisture %	0.47
Molecular Weight Dry	28.84
Molecular Weight Wet	28.79
Gas Velocity Ft/Sec	88.62
Flow Rate ACFM	29696
Flow Rate DSCFM	29772
Isokinetics %	88.2

TABLE 2.4 PARTICULATE ANALYSIS

SITE: PIRMI (ABI)
UNIT: #002
DATE: March 19, 1992

ANALYTICAL DATA	TEST 1
FRONT HALF	
Probe mg	67.8
Filter mg	18.4
Blanks mg	3.5
Subtotal mg	82.7
BACK HALF	
Impingers Inorg mg	5.7
Impingers Org mg	3.0
Blank mg	1.5
Subtotal mg	7.2
Total Weight Gain mg	89.9

EMISSION DATA	TEST 1
FRONT HALF	
Grs/SDCF	0.0184
Lbs/Hr	4.700
BACK HALF	
Grs/SDCF	0.0016
Lbs/Hr	0.409

TOTAL EMISSIONS	TEST 1
Grs/SDCF	0.0200
Lbs/Hrs	5.109

TABLE 2.5 PARTICULATE SAMPLING

SITE: PIRMI (ABI)
UNIT: #003
DATE: March 19, 1992

STACK PARAMETERS	TEST 1
Barometric Pressure "Hg	29.75
Static Pressure "H20	-10.00
CO2 %	0
O2 %	20.94
N2 %	79.06
CO ppm	0
Stack Diameter "	19
Stack Temperature F	69
Stack Pressure "Hg	29.01

TEST CONDITIONS	TEST 1
Sample Volume Ft3	75.236
Meter F	78
Nozzle Dia "	0.2
Time Min	120
Points	24
Pitot Tube Factor cp	0.89
Orfice Press "H2O	1.48
Condensate mls	0
Velocity Pressure "H2O	0.735
Meter Calibration	1.022

TEST CALCULATIONS	TEST 1
Water Vapor SDCF	0.000
Gas Sampled SDCF	75.278
Moisture %	0.00
Molecular Weight Dry	28.84
Molecular Weight Wet	28.84
Gas Velocity Ft/Sec	51.87
Flow Rate ACFM	6127
Flow Rate DSCFM	5931
Isokinetics %	95.5

TABLE 2.6 PARTICULATE ANALYSIS

SITE: PIRMI (ABI)
UNIT: #003
DATE: March 19, 1992

ANALYTICAL DATA	TEST 1
FRONT HALF	
Probe mg	12.5
Filter mg	0.2
Blanks mg	3.5
Subtotal mg	9.2
BACK HALF	
Impingers Inorg mg	9.5
Impingers Org mg	5.0
Blank mg	1.5
Subtotal mg	13.0
Total Weight Gain mg	22.2

EMISSION DATA	TEST 1
FRONT HALF	
Grs/SDCF	0.0019
Lbs/Hr	0.096
BACK HALF	
Grs/SDCF	0.0027
Lbs/Hr	0.135

TOTAL EMISSIONS	TEST 1
Grs/SDCF	0.0046
Lbs/Hrs	0.231

TABLE 2.7 PARTICULATE SAMPLING

SITE: PIRMI (ABI)
UNIT: #005
DATE: March 18, 1992

STACK PARAMETERS	TEST 1
Barometric Pressure "Hg	29.75
Static Pressure "H20	-10.00
CO2 %	0
O2 %	20.94
N2 %	79.06
CO ppm	0
Stack Diameter "	32
Stack Temperature F	67
Stack Pressure "Hg	29.01

TEST CONDITIONS	TEST 1
Sample Volume Ft3	82.169
Meter F	63
Nozzle Dia "	0.17
Time Min	120
Points	24
Pitot Tube Factor cp	0.89
Orfice Press "H2O	1.79
Condensate mls	15
Velocity Pressure "H2O	2.062
Meter Calibration	1.022

TEST CALCULATIONS	TEST 1
Water Vapor SDCF	0.706
Gas Sampled SDCF	84.637
Moisture %	0.83
Molecular Weight Dry	28.84
Molecular Weight Wet	28.75
Gas Velocity Ft/Sec	86.84
Flow Rate ACFM	29102
Flow Rate DSCFM	28041
Isokinetics %	89.2

TABLE 2.8 PARTICULATE ANALYSIS

SITE: PIRMI (ABI)
UNIT: #005
DATE: March 18, 1992

ANALYTICAL DATA	TEST 1
FRONT HALF	
Probe mg	9.6
Filter mg	1.1
Blanks mg	3.5
Subtotal mg	7.2
BACK HALF	
Impingers Inorg mg	4.7
Impingers Org mg	2.3
Blank mg	1.5
Subtotal mg	5.5
Total Weight Gain mg	12.7

EMISSION DATA	TEST 1
FRONT HALF	
Grs/SDCF	0.0013
Lbs/Hr	0.315
BACK HALF	
Grs/SDCF	0.0010
Lbs/Hr	0.241

TOTAL EMISSIONS	TEST 1
Grs/SDCF	0.0023
Lbs/Hrs	0.556

TABLE 2.9 PARTICLE SIZING TEST DATA

SITE: PIRMI (ABI)
UNIT: UNIT #1
DATE: March 18, 1992

Sampled Volume, FT^3 34.184 Sample Rate, cfm 0.569
Time, Min 60

Stage #	Micron Size ug	Weight mg	Percentage %	Percentage Below %
Probe		2	17.5	82.5
0	10	0	0.0	82.5
1	8.4	0	0.0	82.5
2	5.7	0	0.0	82.5
3	3.9	0	0.0	82.5
4	2.5	0	0.0	82.5
5	1.2	0	0.0	82.5
6	0.7	0	0.0	82.5
7	0.47	0	0.0	82.5
Final		9.4	82.5	0.0
		11.4		

TABLE 2.10 PARTICLE SIZING TEST DATA

SITE: PIRMI (ABI)
UNIT: UNIT #2
DATE: March 19, 1992

Sampled Volume, FT^3 39.408 Sample Rate, cfm 0.563
Time, Min 70

Stage #	Micron Size ug	Weight mg	Percentage %	Percentage Below %
Probe		32.5	61.3	38.7
0	10.1	0.8	1.5	37.2
1	8.4	1.7	3.2	34.0
2	5.7	2.3	4.3	29.6
3	3.9	2.8	5.3	24.3
4	2.5	2.8	5.3	19.1
5	1.2	2.0	3.8	15.3
6	0.7	0.0	0.0	15.3
7	0.47	0.0	0.0	15.3
Final		8.1	15.3	0.0
		53		

TABLE 2.11 PARTICLE SIZING TEST DATA

SITE: PIRMI (ABI)
UNIT: UNIT #3
DATE: March 19, 1992

Sampled Volume, FT^3 38.000 Sample Rate, cfm 0.633
Time, Min 60

Stage #	Micron Size ug	Weight mg	Percentage %	Percentage Below %
Probe		3.7	14.7	85.3
0	10	0.0	0.0	85.3
1	8.4	0.0	0.0	85.3
2	5.7	0.0	0.0	85.3
3	3.9	0.0	0.0	85.3
4	2.5	0.0	0.0	85.3
5	1.2	0.0	0.0	85.3
6	0.7	0.0	0.0	85.3
7	0.47	0.0	0.0	85.3
Final		21.4	85.3	0.0
		25.1		

TABLE 2.12 PARTICLE SIZING TEST DATA

SITE: PIRMI (ABI)
UNIT: UNIT #5
DATE: March 18, 1992

Sampled Volume, FT^3	42.903	Sample Rate, cfm	0.5363
Time, Min	80		

Stage #	Micron Size ug	Weight mg	Percentage %	Percentage Below %
Probe		3.7	37.8	62.2
0	10.1	0.0	0.0	62.2
1	8.4	0.0	0.0	62.2
2	5.7	0.0	0.0	62.2
3	3.9	0.0	0.0	62.2
4	2.5	0.0	0.0	62.2
5	1.2	0.0	0.0	62.2
6	0.7	0.0	0.0	62.2
7	0.47	0.0	0.0	62.2
Final		6.1	62.2	0.0
		9.8		

TABLE 2.13 AMBIENT SAMPLING

SITE: PIRMI (ABI)
UNIT: RECEIVING PIT #3
DATE: March 17, 1992

Load #	Time min	Sampler Rate FT^3/min	Total FT^3
1	12	60	720
2	19	60	1860
3	15	60	2760
4	13	60	3540
5	16	60	4500
6	13	60	5280
7	9	60	5820
8	6	60	6180
9	9	60	6720
10	9	60	7260
11	9	60	7800
12	13	60	8580
13	16	60	9540
14	17	60	10560
15	14	60	11400

Filter #	Tare grams	Foil grams	T+F+S grams	Sample grams	Concentration mg/m^3
2042	3.3889	3.5221	7.5900	0.6790	2.103
2043	3.4083	3.5060	8.3797	1.4654	4.538
2045	3.4065	3.5420	6.9583	0.0098	0.030

TABLE 2.14 AMBIENT SAMPLING

SITE: PIRMI (ABI)
UNIT: HULL BIN LOAD-OUT
DATE: March 18, 1992

Load #	Time min	Sampler Rate FT^3/min	Total FT^3
1	10	60	600
2	9	60	1140
3	1	60	1200
4	10	60	1800
5	10	60	2400

Filter #	Tare grams	Foil grams	T+F+S grams	Sample grams	Concentration mg/m^3
2032	3.3991	3.5248	8.3174	1.3935	20.496
2033	3.4022	3.5225	6.9573	0.0326	0.479
2046	3.4044	3.5215	7.0835	0.1576	2.318

TABLE 2.15 AMBIENT SAMPLING

SITE: PIRMI (ABI)
UNIT: BRAN BUILDING
DATE: March 19, 1992

Load #	Time min	Sampler Rate FT^3/min	Total FT^3
1	13	60	780
2	18	60	1860
3	15	60	2760

Filter #	Tare grams	Foil grams	T+F+S grams	Sample grams	Concentration mg/m^3
2039	3.4069	3.5205	6.9837	0.0563	0.720
2041	3.4102	3.5116	7.1037	0.1819	2.326

TABLE 2.16 AMBIENT SAMPLING

SITE: PIRMI (ABI)
UNIT: GRUBER BIN 54
DATE: March 20, 1992

Load #	Time min	Sampler Rate FT^3/min	Total FT^3
1	9	60	540
2	8	60	1020
3	8	60	1500
4	8	55	1940
5	8	50	2340
6	8	45	2700
7	7	45	3015
8	8	45	3375
9	8	45	3735
10	8	40	4055

Filter #	Tare grams	Foil grams	T+F+S grams	Sample grams	Concentration mg/m^3
2047	3.406	3.512	23.1347	16.2167	141.171
2037	3.4109	3.5379	9.7552	2.8064	24.431
2038	2.5784	3.5068	10.4134	4.3282	37.678

3.0 SITE DESCRIPTION

3.1 Dust Collection System #1

Samples were collected from a 21 inch diameter vertical duct located above the roof. The sampling ports are located at ninety degrees of each other on the same horizontal plane. Figure 3.1 shows the site schematic while Figure 3.2 presents the traverse point location.

3.2 Dust Collection System #2

Samples were collected from a 32 inch diameter horizontal duct located above the roof. The sampling ports are located at ninety degrees of each other on the same vertical plane. Figure 3.3 shows the site schematic while Figure 3.4 presents the traverse point location.

3.3 Dust Collection System #3

Samples were collected from a 19 inch diameter vertical duct located above the roof. The sampling ports are located at ninety degrees of each other on the same horizontal plane. Figure 3.5 shows the site schematic while Figure 3.6 presents the traverse point location.

3.4 Dust Collection System #5

Samples were collected from a 32 inch diameter vertical duct located above the roof. The sampling ports are located at ninety degrees of each other on the same horizontal plane. Figure 3.7 shows the site schematic while Figure 3.8 presents the traverse point location.

3.5 Receiving Pit #3

Samples were taken at the entrance and exit of the receiving pit. Samples were collected four feet above the ground using high volume air samplers. Figure 3.9 shows the sampling locations.

3.6 Hull Bin Loading Area

Samples were collected at three locations around the hull bin area using high volume air samplers. Two samples were collected approximately 12 to 15 feet above the ground, about level with the open top of the truck trailer, while one sample was collected four feet above the ground level at the truck exit. Figure 3.10 depicts the sampling locations.

3.7 Bran Loading Area

Samples were collected at the truck entrance and exit doors of the bran storage building using high volume air samplers. The samples were collected approximately four feet above the ground level. Figure 3.11 shows the sampling locations.

3.8 Gruber Bin #54 Load Chute

Samples were collected at three locations at Gruber Bin #54 using high volume air samplers. Two samples were collected approximately four feet above the ground level. The third sampler was located about 10 ft above the ground which was approximately 2 ft above the top of the tandem hoper bottom truck trailers. Figure 3.12 shows the sampling locations.

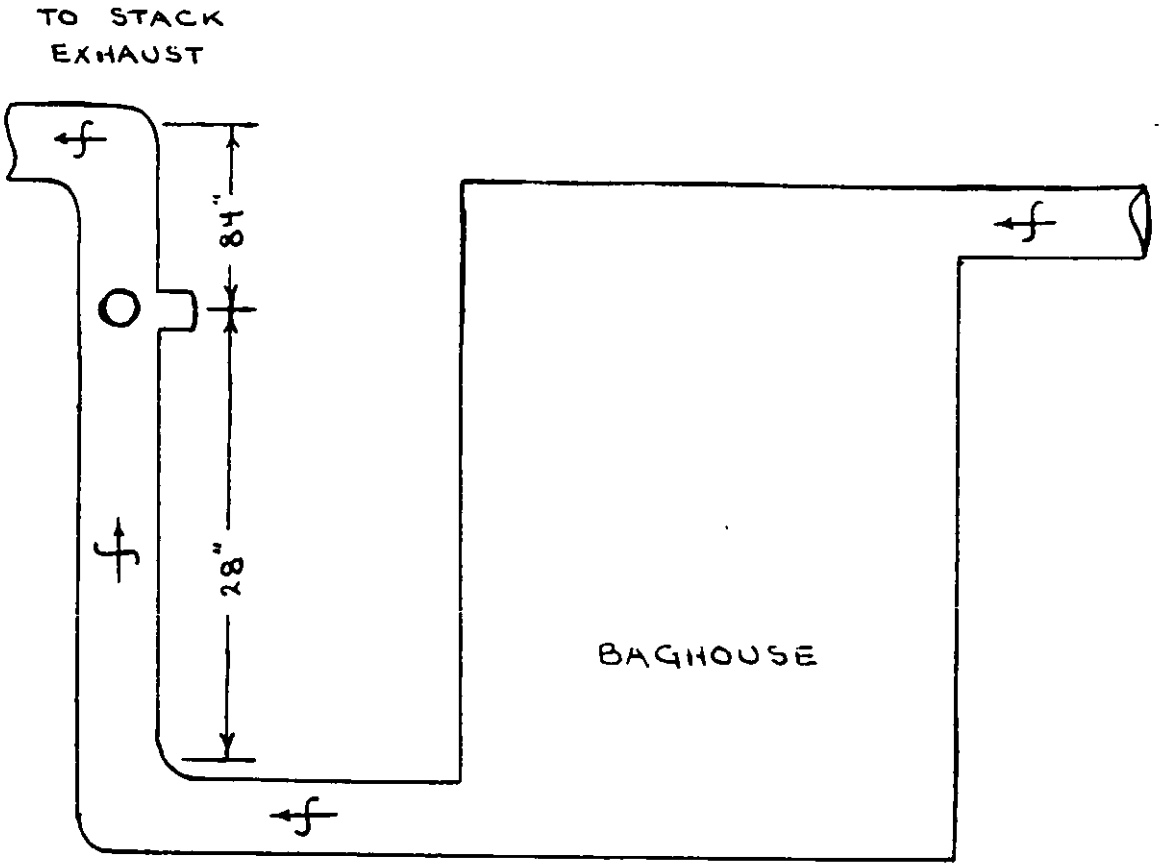
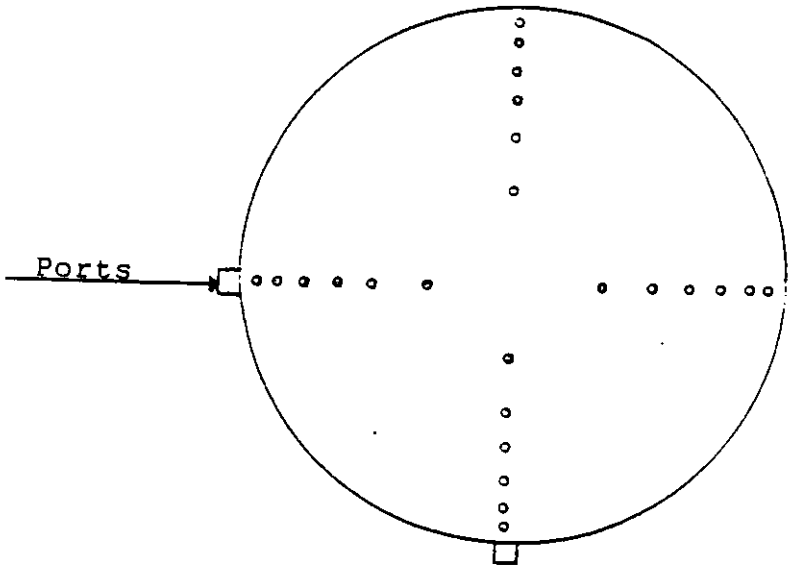


FIGURE 3.1 DUST COLLECTION SYSTEM #1



TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.2

Stack Diameter = 21"

TRAVERSE POINT	POINT LOCATION
1	0.50
2	1.41
3	2.48
4	3.72
5	5.25
6	7.48
7	13.52
8	15.75
9	17.28
10	18.52
11	19.59
12	20.50

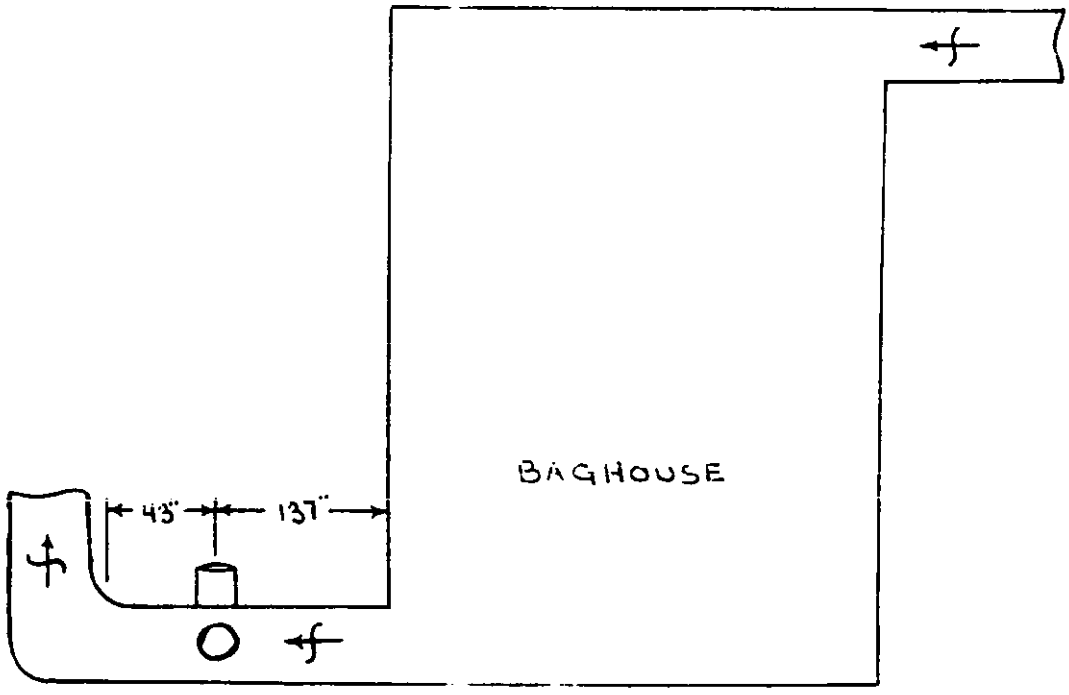
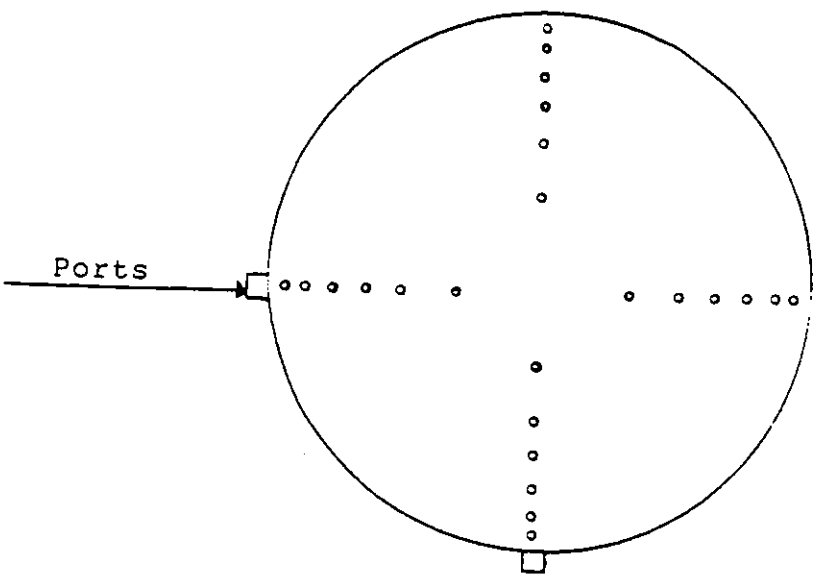


FIGURE 3.3 DUST COLLECTION SYSTEM #2



TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.4

Stack Diameter = 32"

TRAVERSE POINT	POINT LOCATION
1	1.00
2	2.14
3	3.78
4	5.66
5	8.00
6	11.39
7	20.61
8	24.00
9	26.34
10	28.22
11	29.86
12	31.00

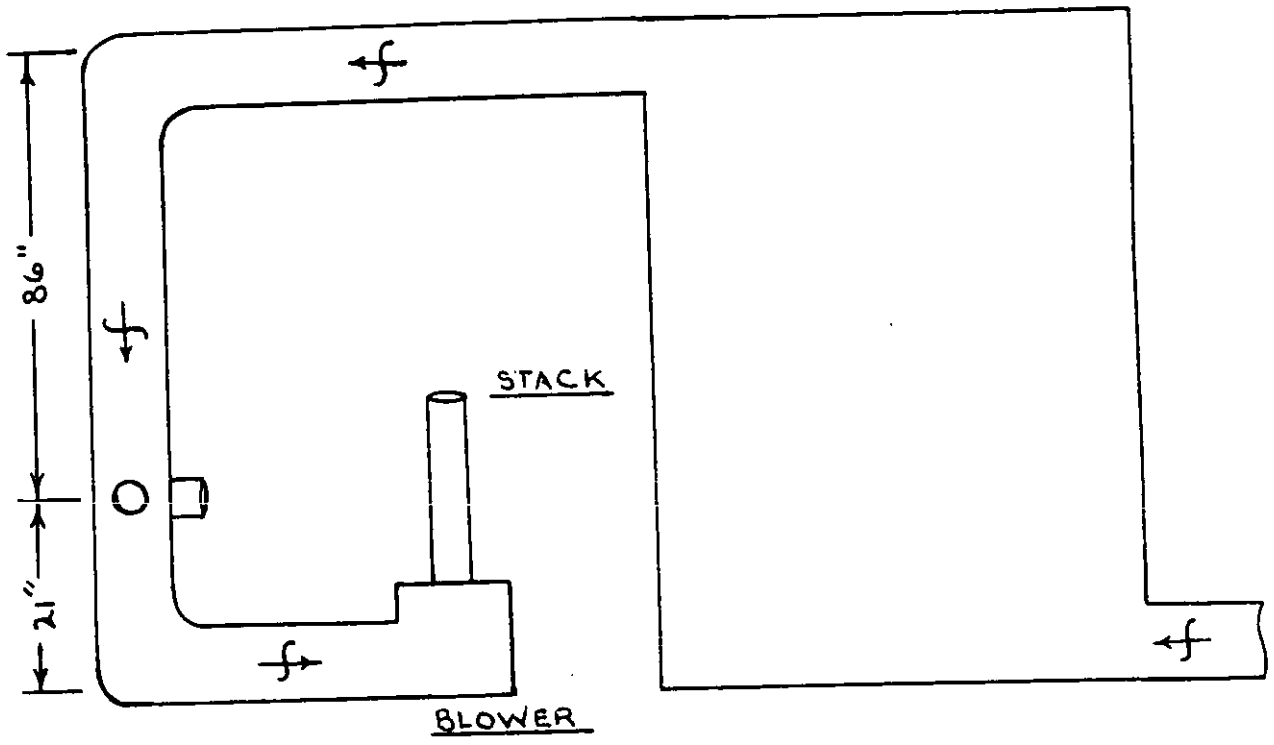
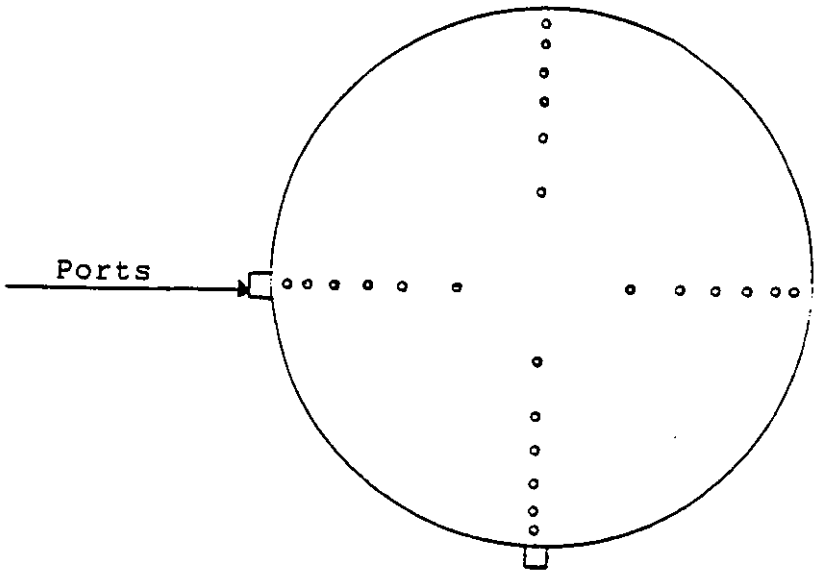


FIGURE 3.5 DUST COLLECTION SYSTEM #3



TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.6

Stack Diameter = 19"

TRAVERSE POINT	POINT LOCATION
1	0.50
2	1.27
3	2.24
4	3.36
5	4.75
6	6.76
7	12.24
8	14.25
9	15.64
10	16.76
11	17.73
12	18.50

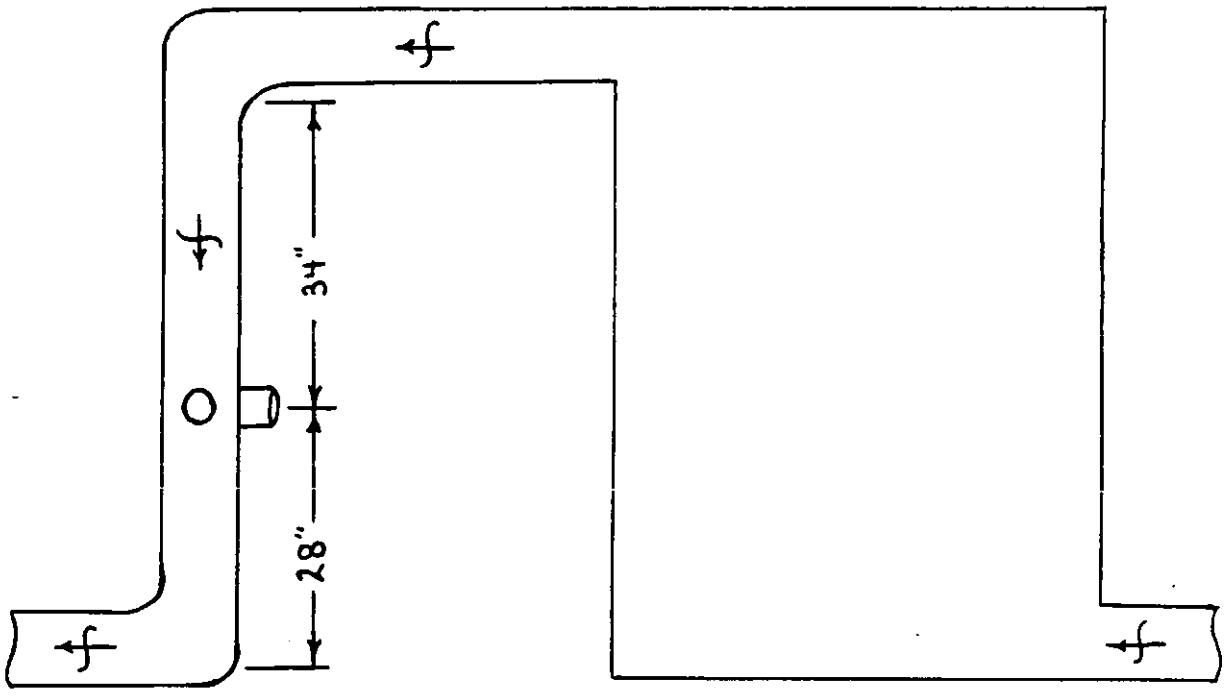
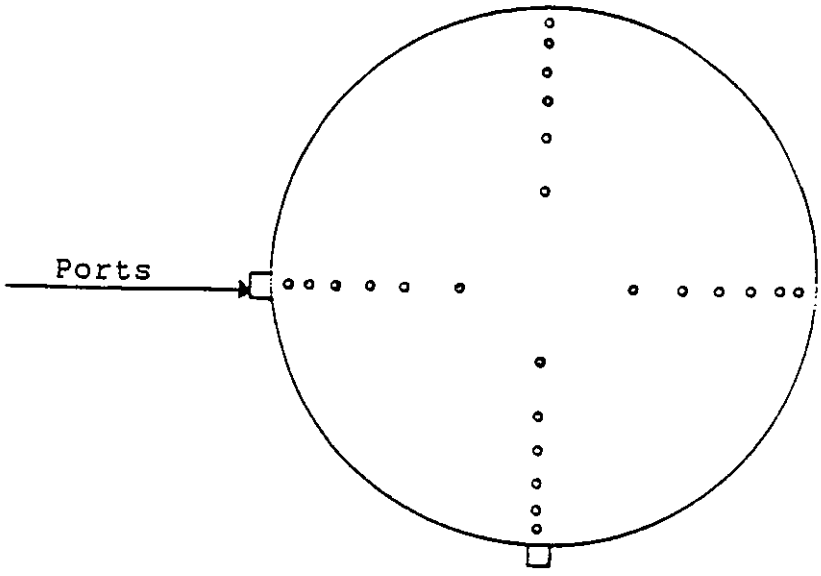


FIGURE 3.7 DUST COLLECTION SYSTEM #5



TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.8

Stack Diameter = 32"

TRAVERSE POINT	POINT LOCATION
1	1.00
2	2.14
3	3.78
4	5.66
5	8.00
6	11.39
7	20.61
8	24.00
9	26.34
10	28.22
11	29.86
12	31.00

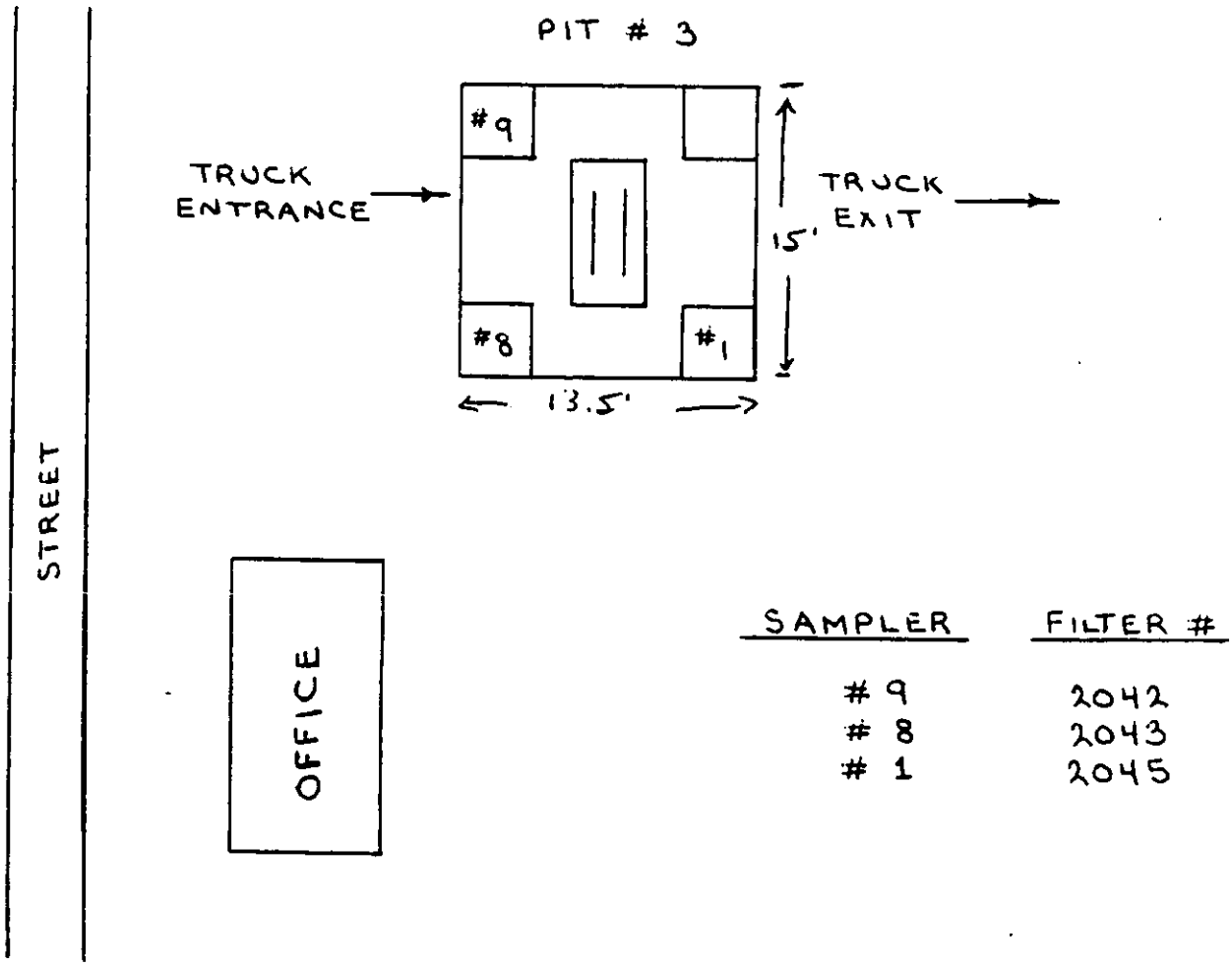
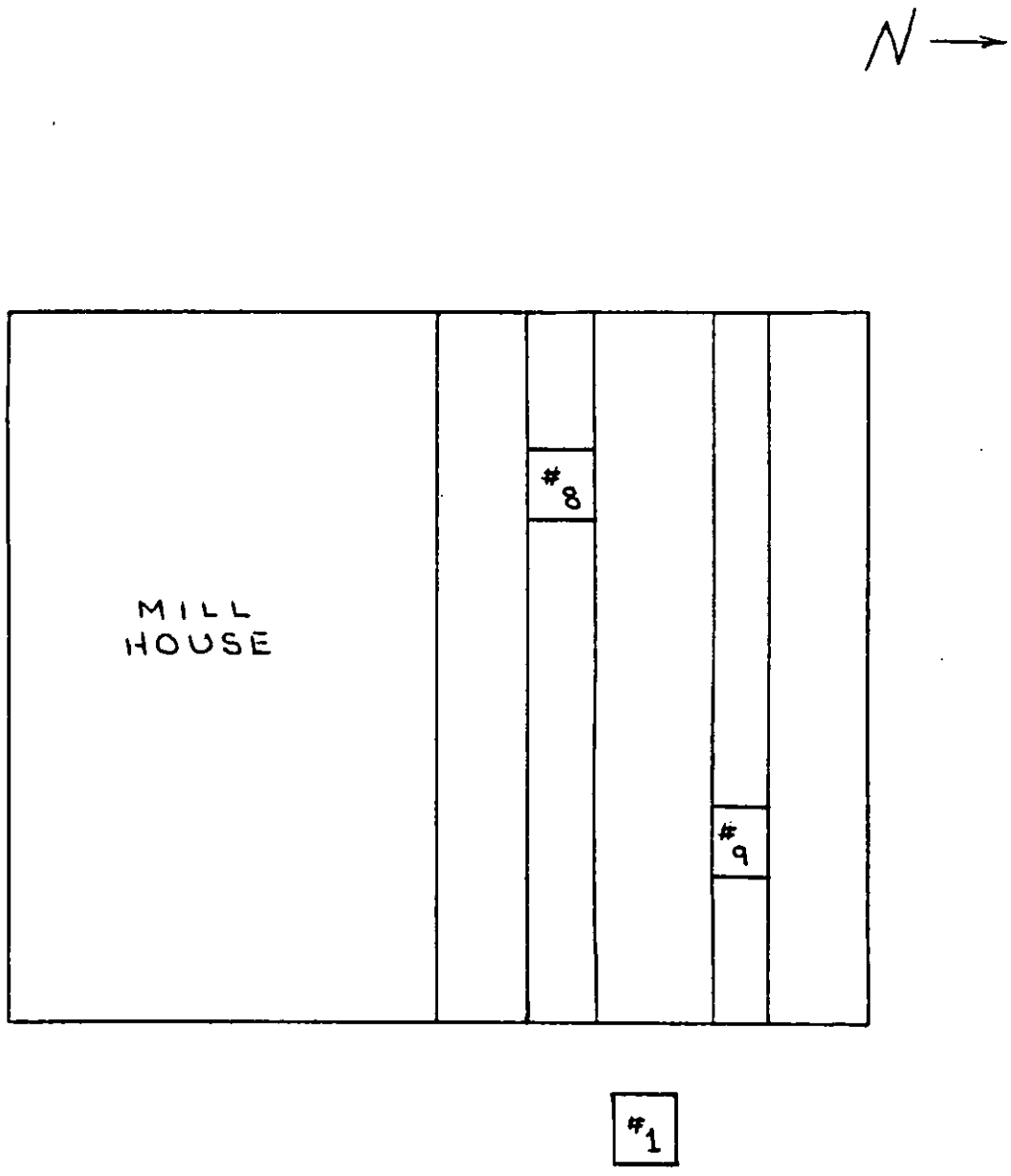


FIGURE 3.9 RECEIVING PIT #3



SAMPLER	FILTER #
#9	2032
#8	2033
#1	2046

FIGURE 3.10 HULL BIN LOADOUT

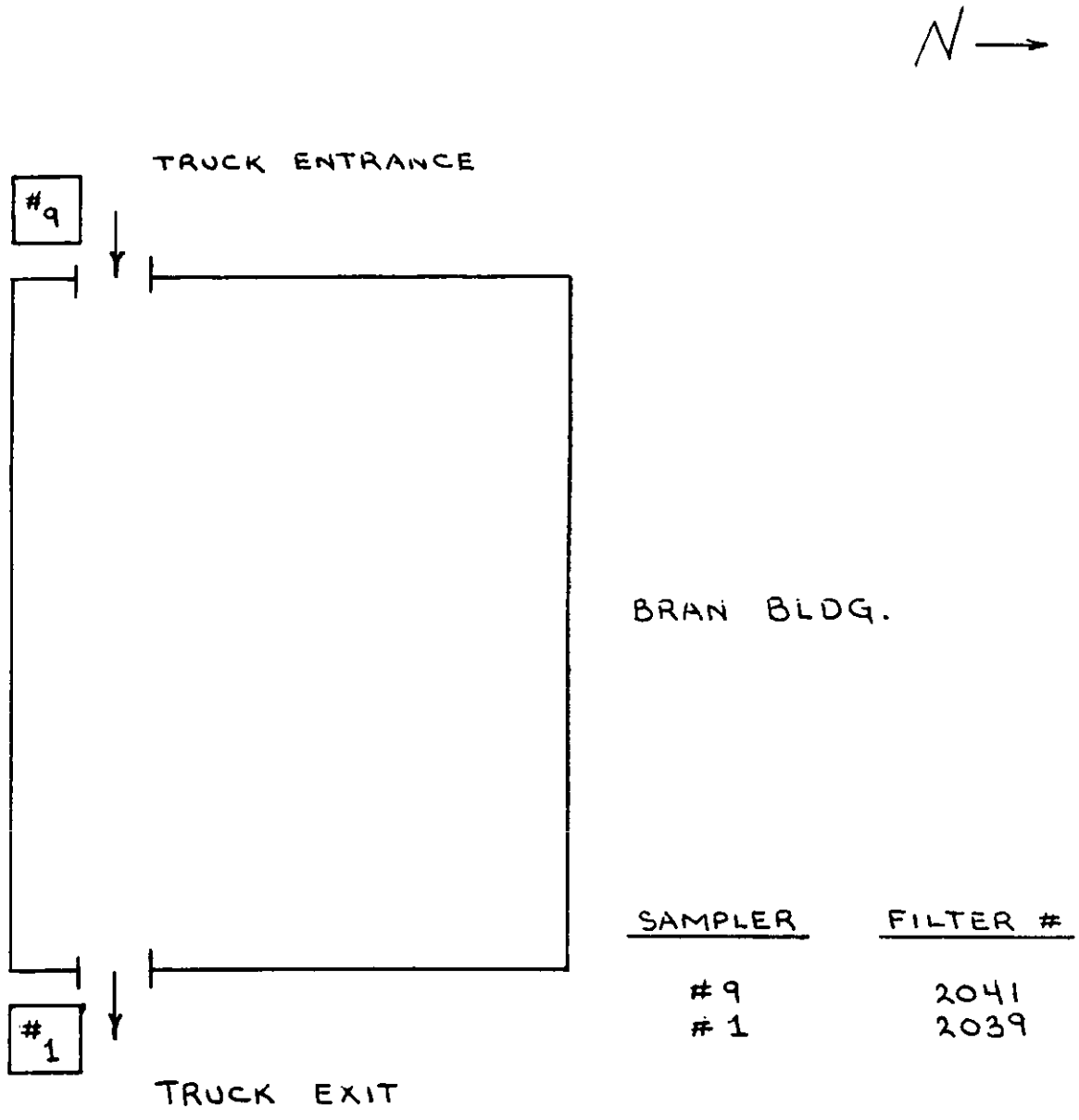
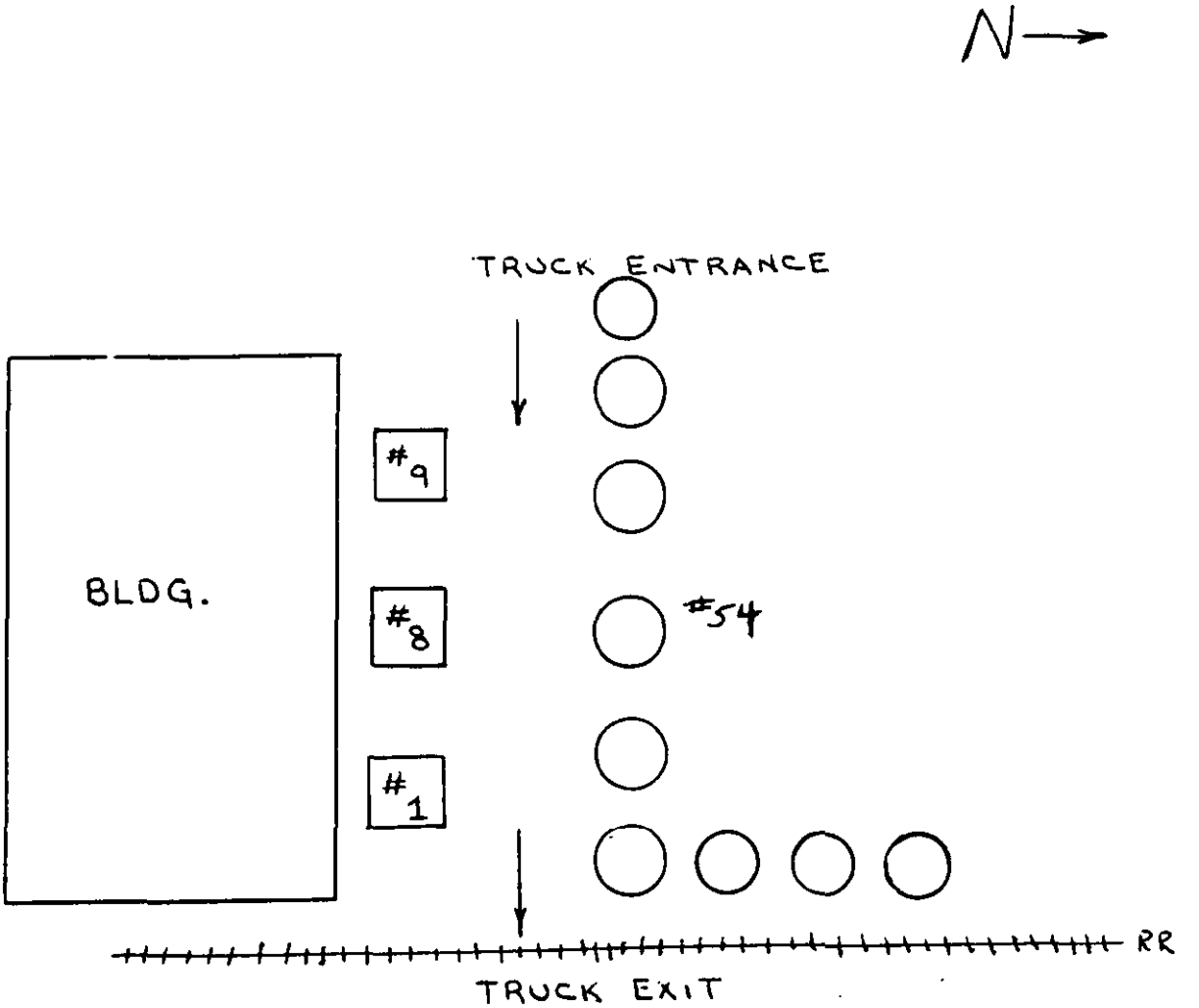


FIGURE 3.11 BRAN BUILDING



SAMPLER	FILTER #
#9	2038
#8	2047
#1	2037

FIGURE 3.12 GRUBER BIN #54

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 Traverse Point Location

Traverse point locations were determined by utilizing EPA Method 1, "Sample and Velocity Traverses for Stationary Sources."

4.2 Particulate Sampling and Analysis

Particulates were collected by EPA Method Five. Single two - hour tests were conducted at each dust collection system.

The sampling train consisted of a glass nozzle, glass probe, heated flex line, heated three inch filter, three glass impingers, silica gel impinger, pump, and a calibrated dry gas meter. The first and second impingers each contained 100 milliliters of distilled water. The third impinger was empty. The fourth contained silica gel to protect the pump. Figure 4.1 depicts the sampling train.

After assembling the sampling train, it was checked for leaks and the sampling was not started until a leak rate of less than 0.02 cfm at 15 inches of mercury was achieved.

During the testing, the sampling was performed isokinetically on each traverse. The velocity measurements were made at individual traverse points using a Type "S" pitot tube connected to an inclined manometer with divisions measuring 0.02 inches of water. The stack temperature was measured by using a Type K thermocouple wire attached to a calibrated digital readout.

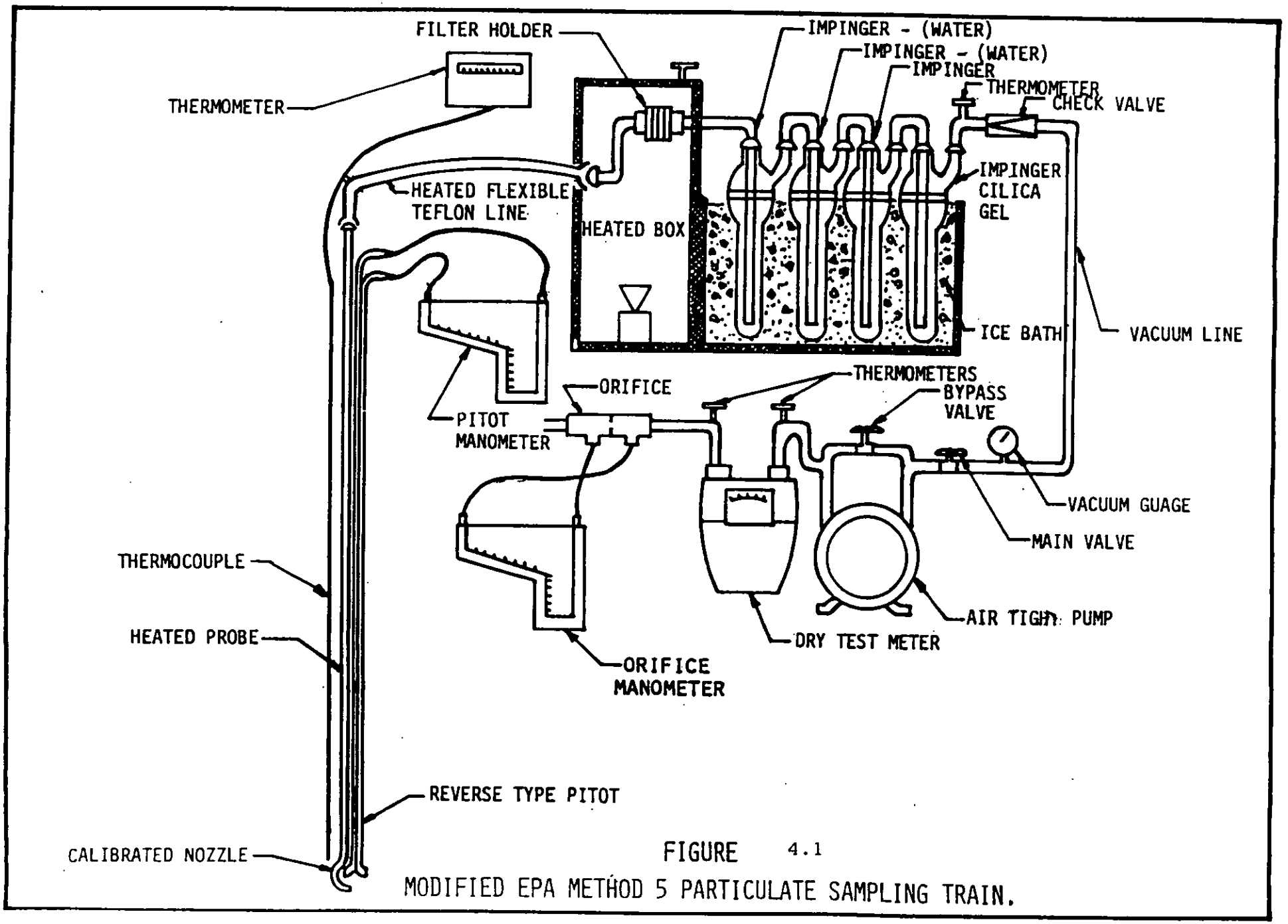


FIGURE 4.1

MODIFIED EPA METHOD 5 PARTICULATE SAMPLING TRAIN.

Upon completion of each test, the sampling train was checked for leaks before disassembling the sampling system. The nozzle and the probe were removed from the train. The probe was rinsed and brushed with a nylon brush on a stainless steel handle. The probe and nozzle were rinsed with acetone. The rinses were placed into a 950 milliliter amber glass bottle. The bottle was labeled and retained for analysis.

The impinger solutions were re-measured and recovered with distilled water. The solutions were placed into 950 milliliter amber glass bottles. The bottles were labeled and retained for analysis. In addition, the impingers were rinsed with acetone, and the solutions were placed into the probe rinse bottle labeled for acetone.

The glass fiber filter was removed from the filter holder and was placed into a petri dish. The front half of the filter holder was rinsed with acetone. The back-half of the filter holder was rinsed with distilled water. The distilled water rinses were placed with the impinger solutions and the acetone rinses were placed with acetone probe rinse.

The analysis was performed by evaporating the acetone probe rinses to dryness in tared beakers. The water solutions were combined and extracted with 50 milliliters of methylene chloride. The inorganic and organic fractions were evaporated in tared beakers. The beakers and filter were placed into a desiccator and were weighed to constant weights.

The data reduction was performed by using EPA Method 5.1 calculations.

4.3 Particle Sizing Sampling and Analysis

Samples were collected using an Anderson eight stage impactor. A single sample was collected at each location. Figure 4.2 illustrates the sampling train.

Before testing, velocity measurements were collected to establish the proper nozzle size. After assembling the sampling train, it was checked for leaks. Sampling did not begin until a leak rate of less than 0.02 cfm at 15 inches of mercury had been achieved.

The sampling was performed isokinetically at a single point located in the center of the stack. The sampling system consisted of a impactor. The stack velocity and temperature were measured during the particulate sizing tests to insure a steady operation.

Upon completion of the testing, the sampling train was checked for leaks at the maximum vacuum encountered during the testing. The impactor was removed from the sampling system.

The nozzle was rinsed with acetone. The rinse was placed into a sample container. The glass fiber filters were removed and placed into petri dishes. The impinger solutions were recovered and placed into a sample container.

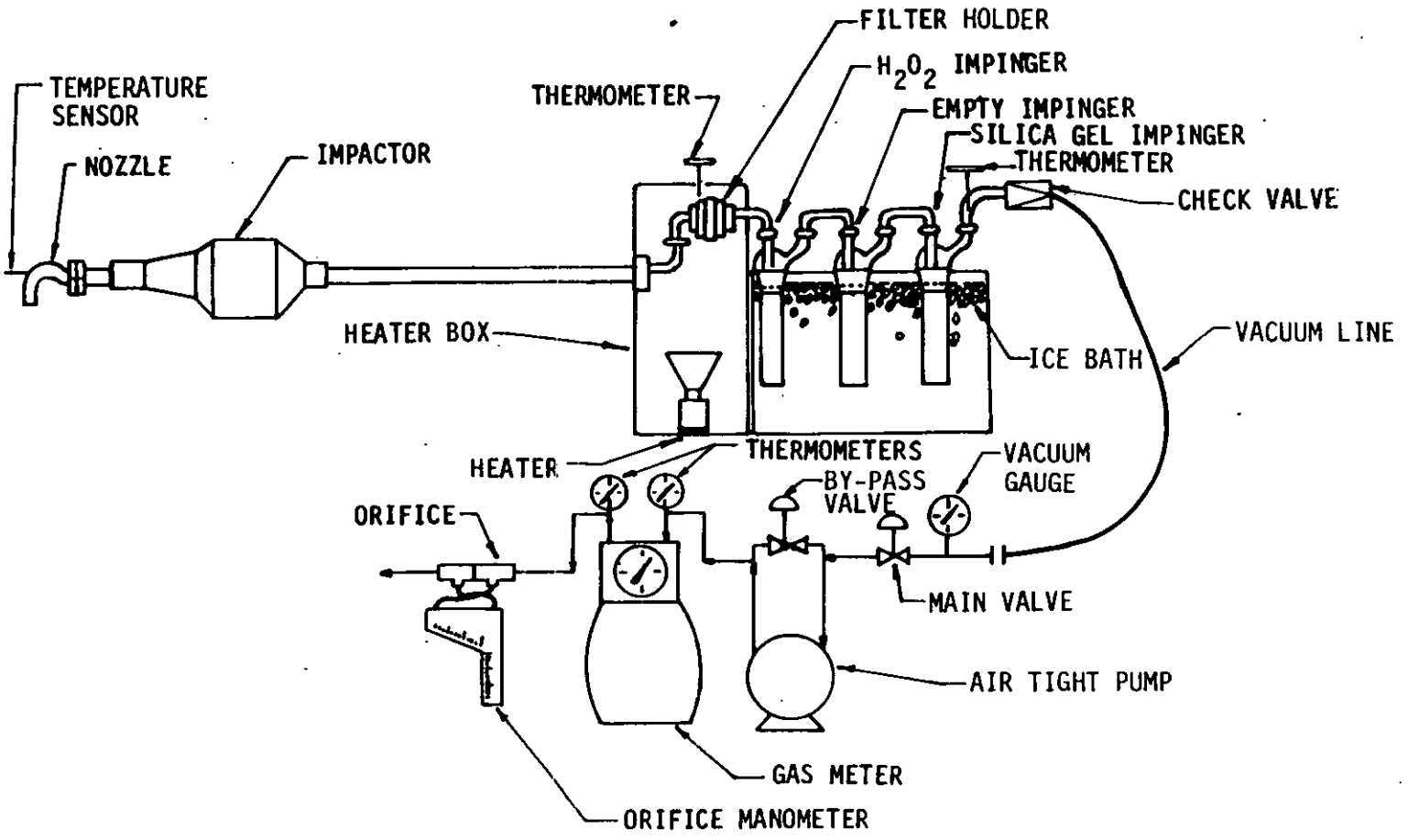


FIGURE 4.2

PARTICLE SIZING SAMPLING SYSTEM

The analyses were performed by evaporating the nozzle rinse to dryness in tared beakers and were reweighed to a constant weight. The filters were reweighed to a constant weight.

The calculations followed EPA Method Five guidelines. The results were reported as total percentage of particulates at each cutoff size.

4.4 Ambient Sampling and Analysis

Samples were collected by using a high volume air sampler located in a aluminum bird house. Each sampler was calibrated prior to the test by using a calibrator with a critical orifice.

At each location, either two or three samplers were placed around the process operation. The samplers were only operated during each batch process. Various batches were sampled to provide a representative average of the operation.

Large tared filters were placed in the samplers prior to the start of each test. During the test periods, the reference pressure was measured during each test.

After each test period, the filter was removed and placed into a polyethylene bag. The filters were desiccated and weighed to a constant weight.

5.0 QUALITY ASSURANCE

5.1 Field Equipment Quality Assurance

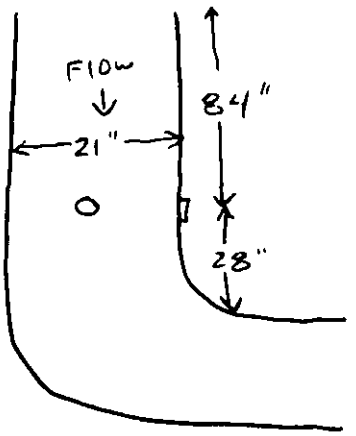
The calibration of the pitot tube, dry gas meter, digital thermometers, and manometers were performed by utilizing standard EPA Methodology, "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods (EPA-600/4-77-0278).

WESTERN ENVIRONMENTAL SERVICES

APPENDIX A

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Perm. (ABI)
DATE 3-18-92
SAMPLING LOCATION Unit # 1
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 21"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 0"
STACK I.D., (DISTANCE A - DISTANCE B) 21"
NEAREST UPSTREAM DISTURBANCE 28" or 1.33 dd
NEAREST DOWNSTREAM DISTURBANCE 84" or 4.00 dd
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	21"	0.44	0"	0.50"
2	.067	↓	1.41	↓	1.41"
3	.118	↓	↓	↓	2.48"
4	.177	↓	↓	↓	3.72"
5	.250	↓	↓	↓	5.25"
6	.356	↓	↓	↓	7.48"
7	.644	↓	↓	↓	13.52"
8	.750	↓	↓	↓	15.75"
9	.823	↓	↓	↓	17.28"
10	.882	↓	↓	↓	18.52"
11	.933	↓	↓	↓	19.59"
12	.979	↓	20.56	↓	20.50"

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FIELD DATA

PLANT Pirmi
DATE 3-18-92
SAMPLING LOCATION Unit 001
SAMPLE TYPE Particulate
RUN NUMBER #1
OPERATOR Ty Hostriter
AMBIENT TEMPERATURE 74
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -11"
FILTER NUMBER (s) 3.205

Vlc = -5

PROBE LENGTH AND TYPE 3' - # 21
NOZZLE I.D. .170
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250
HEATER BOX SETTING 250
REFERENCE Δp # 6 (0-5")

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak <.013 cfm at 15" READ AND RECORD ALL DATA EVERY 4 MINUTES Postleak <.010 cfm at 8"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 / 215	205.650	(2.20)			(70)					
1	4 / 219	207.800	1.40	1.25	1.25	60	74	74	4	245	66
2	8 / 223	210.090	1.40	1.24	1.24	62	75	73	4	241	62
3	12 / 227	212.290	1.30	1.15	1.15	66	77	75	3	241	61
4	16 / 231	214.460	1.30	1.14	1.14	73	80	77	3	241	61
5	20 / 235	216.635	1.30	1.14	1.14	76	83	78	3	241	62
6	24 / 239	218.800	1.30	1.14	1.14	77	85	79	3	242	62
7	28 / 243	221.350	1.80	1.58	1.58	77	87	81	4	242	63
8	32 / 247	224.810	3.10	2.74	2.74	74	88	82	5	241	63
9	36 / 251	228.415	3.40	3.03	3.03	71	90	82	5	241	65
10	40 / 255	232.055	3.40	3.06	3.06	68	95	84	5	241	65
11	44 / 259	235.660	3.30	2.97	2.97	70	96	85	5	241	62
12	48 / 303	239.343	3.40	3.07	3.07	70	98	86	6	242	62
1	52 / 304/308	242.315	1.80	1.62	1.62	71	98	87	4	240	64
2	56 / 312	248.890	1.70	1.53	1.53	72	97	87	4	241	64
3	60 / 316	247.275	1.50	1.35	1.35	73	97	87	4	240	66
4	64 / 320	249.670	1.50	1.35	1.35	72	96	88	4	240	65
5	68 / 324	251.920	1.30	1.17	1.17	73	96	88	3	241	66
6	72 / 328	254.055	1.20	1.08	1.08	71	96	89	3	240	66
7	76 / 332	257.465	3.00	2.71	2.71	69	95	89	5	240	65
8	80 / 336	260.900	2.90	2.62	2.62	70	95	89	5	240	65
9	84 / 340	264.305	2.90	2.63	2.63	68	96	89	5	240	66
10	88 / 344	267.700	2.80	2.54	2.54	68	97	89	5	240	66
11	92 / 348	271.100	2.80	2.54	2.54	70	98	90	5	241	67
COMMENTS	96 / 352	274.671	2.90	2.63	2.63	70	99	90	5	241	67
		(69.021)	(2.114)		(1.97)	(70)	(88)				

West Port
North Port
A-2

EPA (Dun) 23

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 1
Test #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 109.0773	9.	Probe	184.2	1. 109.0854	9.
2. 109.0777	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 109.0846	10.
3. 109.0776	11.			3. 109.0857	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	109.0850	4. 109.0850	12.
5.	13.	FILTER OR CONTAINER TARE	109.0776	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0074	7.	15.
8.	16.			8.	16.
1. 0.3481	9.	Filter	3.205	1. 0.3483	9.
2. 0.3481	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.3482	10.
3. 0.3481	11.			3. 0.3483	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	0.3483	4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.3481	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0002	7.	15.
8.	16.			8.	16.
1. 109.3288	9.	Imp I	185.2	1. 109.3316	9.
2. 109.3292	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 109.3308	10.
3. 109.3296	11.			3. 109.3319	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	109.3316	4. 109.3312	12.
5.	13.	FILTER OR CONTAINER TARE	109.3292	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0024	7.	15.
8.	16.			8.	16.
1. 103.6815	9.	Imp O	186.2	1. 103.6834	9.
2. 103.6817	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 103.6825	10.
3. 103.6819	11.			3. 103.6836	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	103.6835	4. 103.6834	12.
5.	13.	FILTER OR CONTAINER TARE	103.6817	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0018	7.	15.
8.	16.			8.	16.

FIELD DATA

PLANT Pirmi (AB1)
DATE 3-18-92
SAMPLING LOCATION Unit 001
SAMPLE TYPE Part. Sizing
RUN NUMBER #1
OPERATOR Ty H. / John C.
AMBIENT TEMPERATURE 74°
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) 11"
FILTER NUMBER (s) A-

PROBE LENGTH AND TYPE SS
NOZZLE I.D. .15
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak ✓ < .020 cfm at 15" READ AND RECORD ALL DATA EVERY 10 MINUTES Postleak ✓ < .021 cfm at 11"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 415	275.250									
1	10 425	280.970		1.20	1.20		88	88	10		
2	20 435	287.300			1.20		89	87	10		
3	30 445	292.520			1.20		92	88	10		
4 ★	40 452/60 [illegible]	296.665			1.20		92	87	10		
5	[illegible] 511 [illegible]	301.860			1.20		86	86	10		
6	[illegible]60 524	309.434			1.20		88	85	10		
		(34.184)			(1.20)		(88)				

★ The Baghouse blower shut down from 452 til 500. We stopped the test then restarted at 5:01 pm.

COMMENTS

North Port

A-4

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 18, 1992
unit: #001
Test: Particulate

Test Port	GAS METER READING	VELOCITY HEAD	SQUARE ROOT	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
	205.650	1.40	1.183215	1.25	60	74	74
	274.571	1.40	1.183215	1.24	62	75	73
	---------	1.30	1.140175	1.15	66	77	75
	69.021	1.30	1.140175	1.14	73	80	77
	=========	1.30	1.140175	1.14	76	83	78
	(DIFFERENCE)	1.30	1.140175	1.14	77	85	79
		1.80	1.341640	1.58	77	87	81
		3.10	1.760681	2.74	74	88	82
		3.40	1.843908	3.03	71	90	83
		3.40	1.843908	3.06	68	95	84
		3.30	1.816590	2.97	70	96	85
		3.40	1.843908	3.07	70	98	86
North Port		1.30	1.241640	1.62	71	98	87
		1.70	1.303840	1.53	72	97	87
		1.50	1.224744	1.35	73	97	87
		1.50	1.224744	1.35	72	96	87
		1.30	1.140175	1.17	73	94	87
		1.20	1.095445	1.08	71	95	88
		3.00	1.732050	2.71	69	95	88
		2.90	1.702938	2.62	70	95	89
		2.90	1.702938	2.63	68	96	89
		2.80	1.673320	2.54	68	97	90
		2.80	1.673320	2.54	70	98	90
		2.90	1.702938	2.63	70	99	91
			---------	AVERAGE SQUARED			
		AVERAGES	1.458444	2.114	1.97	70	88
			=========	=======	==========	=========	========

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 18, 1992
Unit #001
Test Particle Sizing

North Port	GAS METER READING	ORIFICE PRESSURE DELTA H	DRY GAS METER TEMPERATURE	
	279.250	1.20	88	85
	309.434	1.20	89	87
	---------	1.20	92	88
	34.184	1.20	92	87
	=========	1.20	86	86
	(DIFFERENCE)	1.20	98	85
		1.20		88
		=====		=========

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi P.S. Unit #1
Test #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 103.7516	9.	Probe	198.2	1. 103.7538	9.
2. 103.7518	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 103.7534	10.
3. 103.7520	11.	FILTER OR CONTAINER PLUS SAMPLE	103.7538	3. 103.7541	11.
4.	12.	FILTER OR CONTAINER TARE	103.7518	4.	12.
5.	13.	SAMPLE	0.0020	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 98.9207	9.	Imp I	199.2	1. 98.9282	9.
2. 98.9213	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 98.9276	10.
3. 98.9212	11.	FILTER OR CONTAINER PLUS SAMPLE	98.9280	3. 98.9283	11.
4.	12.	FILTER OR CONTAINER TARE	98.9211	4.	12.
5.	13.	SAMPLE	0.0069	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 99.3858	9.	Imp O	200.2	1. 99.3887	9.
2. 99.3862	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 99.3884	10.
3. 99.3866	11.	FILTER OR CONTAINER PLUS SAMPLE	99.3887	3. 99.3889	11.
4.	12.	FILTER OR CONTAINER TARE	99.3862	4.	12.
5.	13.	SAMPLE	0.0025	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1.	9.	_____	_____	1.	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	_____	3.	11.
4.	12.	FILTER OR CONTAINER TARE	_____	4.	12.
5.	13.	SAMPLE	_____	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 1
Test # 1 P.S.

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1563	9.	Filter # A88	S1	1. 0.1556	9.
2. 0.1563	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1557	10.
3. 0.1562	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1555	3. 0.1551	11.
4.	12.	FILTER OR CONTAINER TARE	0.1563	4.	12.
5.	13.	SAMPLE	-0.0008	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1470	9.	_____	S2	1. 0.1459	9.
2. 0.1470	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2 0.1442	10.
3. 0.1471	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1457	3 0.1455	11.
4.	12.	FILTER OR CONTAINER TARE	0.1470	4 0.1457	12.
5.	13.	SAMPLE	-0.0013	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1610	9.	_____	S3	1. 0.1609	9.
2. 01611	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1607	10.
3. 0.1610	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1608	3. 0.1607	11.
4.	12.	FILTER OR CONTAINER TARE	0.1610	4.	12.
5.	13.	SAMPLE	-0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1450	9.	_____	S4	1. 0.1449	9.
2. 0.1452	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1447	10.
3. 0.1451	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1449	3. 0.1450	11.
4.	12.	FILTER OR CONTAINER TARE	0.1451	4.	12.
5.	13.	SAMPLE	-0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit #1
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1598	9.	Filter #A88	S5	1. 0.1595	9.
2. 0.1598	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1592	10.
3. 0.1598	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1594	3. 0.1596	11.
4.	12.	FILTER OR CONTAINER TARE	0.1598	4.	12.
5.	13.	SAMPLE	-0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1465	9.		S6	1. 0.1463	9.
2. 0.1465	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1463	10.
3. 0.1466	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1463	3. 0.1462	11.
4.	12.	FILTER OR CONTAINER TARE	0.1465	4.	12.
5.	13.	SAMPLE	-0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1595	9.		S7	1. 0.1592	9.
2. 0.1593	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1591	10.
3. 0.1594	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1591	3. 0.1591	11.
4.	12.	FILTER OR CONTAINER TARE	0.1594	4.	12.
5.	13.	SAMPLE	-0.0003	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1466	9.		S8	1. 0.1463	9.
2. 0.1464	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1463	10.
3. 0.1468	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1462	3. 0.1460	11.
4.	12.	FILTER OR CONTAINER TARE	0.1466	4.	12.
5.	13.	SAMPLE	-0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Pirmi Unit #1
P.S. #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.2048	9.	SAMPLE NUMBER: Filter #A88	FILTER OR CONTAINER #: 59	1. 0.2045	9.
2. 0.2048	10.	FILTER OR CONTAINER PLUS SAMPLE: 0.2045		2. 0.2046	10.
3. 0.2049	11.	FILTER OR CONTAINER TARE: 0.2048		3. 0.2045	11.
4.	12.	SAMPLE: -0.0003		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

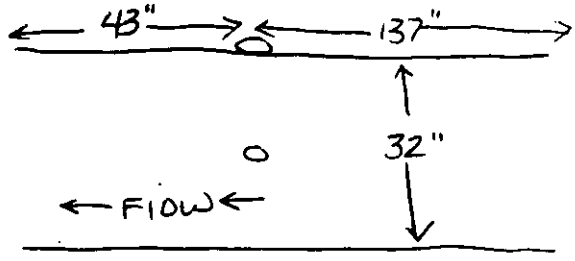
TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE:		2.	10.
3.	11.	FILTER OR CONTAINER TARE:		3.	11.
4.	12.	SAMPLE:		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE:		2.	10.
3.	11.	FILTER OR CONTAINER TARE:		3.	11.
4.	12.	SAMPLE:		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE:		2.	10.
3.	11.	FILTER OR CONTAINER TARE:		3.	11.
4.	12.	SAMPLE:		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Pirmi
DATE 3-18-92
SAMPLING LOCATION UNIT 002
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 32"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 0"
STACK I.D., (DISTANCE A - DISTANCE B) 32"
NEAREST UPSTREAM DISTURBANCE 43" or 1.34 dd
NEAREST DOWNSTREAM DISTURBANCE 137" or 4.28 dd
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	32"	0.67	0"	1.00"
2	.067		2.14		2.14"
3	.118				3.78"
4	.177				5.66"
5	.250				8.00"
6	.356				11.39"
7	.644				20.61"
8	.750				24.00"
9	.823				26.34"
10	.882				28.22"
11	.933				29.86"
12	.979		31.33		31.00"

EPA (Dur) 232
4/72

FIELD DATA

PLANT Pirmi
DATE 3-19-92
SAMPLING LOCATION Unit 002
SAMPLE TYPE Particulate
RUN NUMBER # 1
OPERATOR Jy Hastriter
AMBIENT TEMPERATURE 49
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -11
FILTER NUMBER (s) 3.210

VLC = 7

PROBE LENGTH AND TYPE 5' ⌀ 75/SS
NOZZLE I.D. SS .160
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250
HEATER BOX SETTING 250
REFERENCE Δp # 6 (0-5")

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak = .020 cfm at 15" READ AND RECORD ALL DATA EVERY 5 MINUTES Postleak = .007 cfm at 7"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 805	309.901	(2.24)			(47)					
1	5 810	312.606	2.00	1.06	1.06	46	49	49	4	245	53
2	10 815	315.555	2.60	1.40	1.40	40	51	49	5	243	48
3	15 820	318.470	2.50	1.35	1.35	40	54	51	5	241	47
4	20 825	321.445	2.60	1.41	1.41	41	58	52	5	243	47
5	25 830	324.400	2.50	1.35	1.35	42	60	54	5	244	48
6	30 835	327.145	2.10	1.14	1.14	42	62	54	4	244	49
7	35 840	329.375	1.40	0.76	0.76	43	64	55	4	244	49
8	40 845	332.255	2.40	1.29	1.29	50	64	56	5	244	50
9	45 850	335.180	2.50	1.34	1.34	52	65	57	5	245	50
10	50 855	338.135	2.50	1.35	1.35	48	66	58	5	244	51
11	55 900	341.030	2.40	1.27	1.27	59	66	58	5	246	51
12	60 905	343.921	2.40	1.27	1.27	57	66	58	5	246	51
1	65 907/912	346.925	2.70	1.46	1.46	48	66	59	5	245	50
2	70 917	349.955	2.60	1.41	1.41	46	67	60	5	247	50
3	75 922	352.930	2.50	1.36	1.36	45	67	60	5	243	49
4	80 927	355.845	2.40	1.31	1.31	45	68	61	5	244	49
5	85 932	358.655	2.20	1.20	1.20	46	69	62	5	244	50
6	90 937	361.390	2.10	1.14	1.14	49	70	62	4	244	51
7	95 942	364.110	2.10	1.14	1.14	50	71	63	4	246	51
8	100 947	366.710	1.90	1.03	1.03	49	71	64	4	245	51
9	105 952	369.315	1.90	1.03	1.03	49	71	64	4	245	52
10	110 957	371.805	1.70	0.92	0.92	50	71	64	4	244	51
11	115 1002	374.430	1.90	1.03	1.03	50	71	64	4	244	52
COMMENTS: 12	120 1007	377.081	1.90	1.03	1.03	50	71	64	4	244	53
		(67.180)	(2.229)		(1.21)	(47)		(62)			

Vert. Traverse

A-12

Horiz. Traverse

EPA (Dur) 235
4 72

(120)

(.020)

(.030)

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 2
Test #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

Probe

SAMPLE NUMBER

FILTER OR CONTAINER # 187.2

FILTER OR CONTAINER PLUS SAMPLE 109.7981

FILTER OR CONTAINER TARE 109.7303

SAMPLE 0.0678

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 109.7300	9.		1. 109.7982	9.
2. 109.7302	10.		2. 109.7972	10.
3. 109.7308	11.		3. 109.7983	11.
4.	12.		4. 109.7977	12.
5.	13.		5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

Filter

SAMPLE NUMBER

FILTER OR CONTAINER # 3.210

FILTER OR CONTAINER PLUS SAMPLE 0.3685

FILTER OR CONTAINER TARE 0.3501

SAMPLE 0.0184

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 0.3501	9.		1. 0.3686	9.
2. 0.3500	10.		2. 0.3684	10.
3. 0.3501	11.		3. 0.3685	11.
4.	12.		4.	12.
5.	13.		5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

Imp I

SAMPLE NUMBER

FILTER OR CONTAINER # 188.2

FILTER OR CONTAINER PLUS SAMPLE 108.8511

FILTER OR CONTAINER TARE 108.8454

SAMPLE 0.0057

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 108.8449	9.		1. 108.8512	9.
2. 108.8455	10.		2. 108.8502	10.
3. 108.8459	11.		3. 108.8513	11.
4.	12.		4. 108.8509	12.
5.	13.		5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

Imp O

SAMPLE NUMBER

FILTER OR CONTAINER # 189.2

FILTER OR CONTAINER PLUS SAMPLE 109.0200

FILTER OR CONTAINER TARE 109.0170

SAMPLE 0.0030

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 109.0166	9.		1. 109.0199	9.
2. 109.0168	10.		2. 109.0191	10.
3. 109.0175	11.		3. 109.0203	11.
4.	12.		4. 109.0198	12.
5.	13.		5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

FIELD DATA

PLANT Pirmi (ABI)
DATE 3-19-92
SAMPLING LOCATION Unit 002
SAMPLE TYPE P. Sizing
RUN NUMBER #1
OPERATOR Ty H.
AMBIENT TEMPERATURE 64
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -11"
FILTER NUMBER (s) A-90

.032

PROBE LENGTH AND TYPE 5S/
NOZZLE I.D. .15
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

.005

Preleak < .004 cfm at 15"

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY 10 MINUTES

Postleak < .004 cfm at 12"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 1029	377.362									
1	10 1039	382.935		1.21	1.21		64	64	11		
2	20 1049	388.525			1.21		67	64	11		
3	30 1059	394.130			1.21		71	65	11		
4	40 1109	399.775			1.21		72	66	11		
5	50 1119	405.430			1.21		74	67	11		
6	60 1129	411.080			1.21		75	68	11		
	70 1139	416.770			1.21		75	68	11		
		39.408			1.21			69			

Traverse Point Sequence for Single Pitot

COMMENTS

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 19, 1992
Unit: #002
Test: Particulate

Vert. Port	GAS METER READING	VELOCITY HEAD	SQUARE ROOT	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
	309.901	2.00	1.414213	1.06	46	49	49
	377.081	2.60	1.612451	1.40	40	51	47
	---------	2.50	1.581138	1.35	40	54	51
	67.180	2.60	1.612451	1.41	41	52	51
	=========	2.50	1.581138	1.35	42	51	54
	(DIFFERENCE)	2.10	1.449137	1.14	42	53	54
		1.40	1.183215	0.76	43	64	55
		2.40	1.549193	1.29	50	64	56
		2.50	1.581138	1.34	52	65	57
		2.50	1.581138	1.35	48	66	58
		2.40	1.549193	1.27	59	65	59
		2.40	1.549193	1.27	57	66	60
Horz.		2.70	1.643167	1.46	48	59	59
Port		2.60	1.612451	1.41	46	57	58
		2.50	1.581138	1.36	45	57	57
		2.40	1.549193	1.31	45	56	56
		2.20	1.483239	1.20	46	54	55
		2.10	1.449137	1.14	49	51	53
		2.10	1.449137	1.14	50	51	52
		1.90	1.378404	1.03	49	51	52
		1.90	1.378404	1.03	49	51	52
		1.70	1.303840	0.92	50	51	52
		1.90	1.378404	1.03	50	51	52
		1.90	1.378404	1.03	50	51	52
			--------- AVERAGE SQUARED				
		AVERAGES	1.492855 2.229	1.21	47		
			========= =======	==========	=========		

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 19, 1992
Unit: #001
Test: Particle Sizing

Port. Port	GAS METER READING	ORIFICE PRESSURE DELTA H	DRY GAS METER TEMPERATURE	
	377.362	1.21	64	64
	416.770	1.21	67	64
		1.21	71	65
	39.408	1.21	72	66
	(DIFFERENCE)	1.21	74	67
		1.21	75	68
		1.21	75	68
		1.21		69

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 2
Test #1 P.S.

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 101.8802	9.	Probe	201.2	1. 101.9129	9.
2. 101.8798	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 101.9121	10.
3. 101.8804	11.			3. 101.9128	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	101.9126	4.	12.
5.	13.	FILTER OR CONTAINER TARE	101.8801	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0325	7.	15.
8.	16.			8.	16.
1. 101.1834	9.	Imp I	202.2	1. 101.1895	9.
2. 101.1836	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 101.1881	10.
3. 101.1837	11.			3. 101.1891	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	101.1886	4. 101.1886	12.
5.	13.	FILTER OR CONTAINER TARE	101.1836	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0050	7.	15.
8.	16.			8.	16.
1. 105.0777	9.	Imp O	203.2	1. 105.0813	9.
2. 105.0779	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 105.0805	10.
3. 105.0784	11.			3. 105.0814	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	105.0811	4.	12.
5.	13.	FILTER OR CONTAINER TARE	105.0780	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0031	7.	15.
8.	16.			8.	16.
1.	9.	_____	_____	1.	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	_____	4.	12.
5.	13.	FILTER OR CONTAINER TARE	_____	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	_____	7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit #2
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1565	9.	Filter #A90	S1	1. 0.1573	9.
2. 0.1563	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1573	10.
3. 0.1563	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1572	3. 0.1570	11.
4.	12.	FILTER OR CONTAINER TARE	0.1564	4.	12.
5.	13.	SAMPLE	0.0008	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1406	9.	_____	S2	1. 0.1426	9.
2. 0.1407	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1422	10.
3. 0.1406	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1423	3. 0.1421	11.
4.	12.	FILTER OR CONTAINER TARE	0.1406	4.	12.
5.	13.	SAMPLE	0.0017	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1563	9.	_____	S3	1. 0.1592	9.
2. 0.1564	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1585	10.
3. 0.1563	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1586	3. 0.1582	11.
4.	12.	FILTER OR CONTAINER TARE	0.1563	4.	12.
5.	13.	SAMPLE	0.0023	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1416	9.	_____	S4	1. 0.1447	9.
2. 0.1416	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1443	10.
3. 0.1414	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1443	3. 0.1439	11.
4.	12.	FILTER OR CONTAINER TARE	0.1415	4.	12.
5.	13.	SAMPLE	0.0028	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 2
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1574	9.	Filter A90	55	1. 0.1600	9.
2. 0.1572	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1599	10.
3. 0.1566	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1599	3. 0.1599	11.
4.	12.	FILTER OR CONTAINER TARE	0.1571	4.	12.
5.	13.	SAMPLE	0.0028	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1420	9.		56	1. 0.1439	9.
2. 0.1418	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1438	10.
3. 0.1415	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1438	3. 0.1437	11.
4.	12.	FILTER OR CONTAINER TARE	0.1418	4.	12.
5.	13.	SAMPLE	0.0020	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1560	9.		57	1. 0.1556	9.
2. 0.1558	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1558	10.
3. 0.1556	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1556	3. 0.1557	11.
4.	12.	FILTER OR CONTAINER TARE	0.1558	4.	12.
5.	13.	SAMPLE	-0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1408	9.		58	1. 0.1399	9.
2. 0.1406	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1404	10.
3. 0.1403	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1402	3. 0.1403	11.
4.	12.	FILTER OR CONTAINER TARE	0.1406	4.	12.
5.	13.	SAMPLE	-0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Pirmi Unit 2
P.S. #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.2043	9.	SAMPLE NUMBER: A-90	FILTER OR CONTAINER #: 59	1. 0.2037	9.
2. 0.2041	10.			2. 0.2038	10.
3. 0.2036	11.	FILTER OR CONTAINER PLUS SAMPLE	0.2038	3. 0.2038	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.2040	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	-0.0002	7.	15.
8.	16.			8.	16.

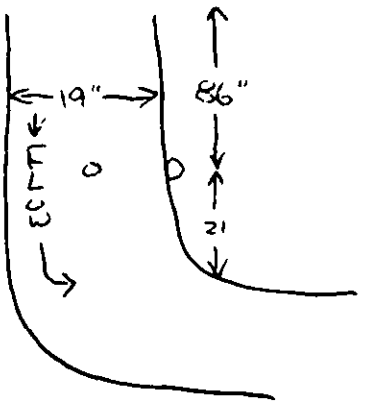
TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER:	FILTER OR CONTAINER #:	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Pirmi (ABI)
DATE 3-19-92
SAMPLING LOCATION Unit 003
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 19"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 0"
STACK I.D., (DISTANCE A - DISTANCE B) 19"
NEAREST UPSTREAM DISTURBANCE 21" or 1.10
NEAREST DOWNSTREAM DISTURBANCE 86" or 4.53
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	19"	0.40	0"	0.50"
2	.067				1.27"
3	.118				2.24"
4	.177				3.36"
5	.250				4.75"
6	.356				6.76"
7	.644				12.24"
8	.750				14.25"
9	.823				15.64"
10	.882				16.76"
11	.933				17.73"
12	.979		18.60		18.50"

A (Dur) 232

FIELD DATA

PLANT Pirmi (ABI)
DATE 3-19-92
SAMPLING LOCATION Unit 003
SAMPLE TYPE Particulate
RUN NUMBER #1
OPERATOR Ty Hostetter
AMBIENT TEMPERATURE 67
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -10"
FILTER NUMBER (s) 3.208

VLC--4

.091

PROBE LENGTH AND TYPE 5' #75/55
NOZZLE I.D. .200
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250
HEATER BOX SETTING 250
REFERENCE Δp ~~#60~~ #7 (0-2")

.025

SCHEMATIC OF TRAVERSE POINT LAYOUT

Pre leak < .013 cfm at 15"

READ AND RECORD ALL DATA EVERY 10 MINUTES

Post leak < .007 cfm at 7"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F	
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F				
	0 / 158	417.451	0.868									
1	10 / 208	420.540	0.15	0.25	0.25	69	67	67	2	236	68	
2	20 / 218	424.010	0.25	0.41	0.41	70	70	68	3	233	62	
3	25 shut off / 223	425.854	0.30	0.50	0.50	70	73	69	3	233	60	Same
~~3~~	30 227/232	427.820	0.30	0.50	0.50	70	73	69	3	234	68	
~~4~~ 4	40 ~~242~~	431.355	0.25	0.42	0.42	70	75	71	3	241	61	
~~5~~ 5	50 252	435.200	0.30	0.50	0.50	69	78	73	3	242	60	
~~6~~ 6	56 shut off 258	438.105	0.45	0.76	0.76	69	80	74	3	242	61	Same
~~6~~ 6	60 302/306	439.850	0.45	0.76	0.76	69	80	74	3	242	67	
~~7~~ 7	70 316	448.460	1.60	2.71	2.71	~~68~~ 69	80	76	5	243	62	
~~8~~ 8	80 326	457.220	1.60	2.74	2.74	68	88	78	5	243	61	
~~9~~ 9	90 336	465.715	1.55	2.66	2.66	68	91	78	5	241	61	
~~10~~ 10	100 346	474.670	1.65	2.84	2.84	68	92	80	6	242	62	
11	110 356	483.680	1.65	2.85	2.85	68	94	82	6	243	62	
12	120 406	492.687	1.65	2.85	2.85	68	96	83	6	241	64	
		75.236	0.735 AVG 2		1.48	69	78					

Post leak < .007 cfm at 7"

COMMENTS:

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 3
Test #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 105.8398	9.	Probe	192.2	1. 105.8523	9.
2. 105.8392	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 105.8516	10.
3. 105.8399	11.	FILTER OR CONTAINER PLUS SAMPLE	105.8521	3. 105.8525	11.
4.	12.	FILTER OR CONTAINER TARE	105.8396	4.	12.
5.	13.	SAMPLE	0.0125	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.3451	9.	Filter	3208	1. 0.3455	9.
2. 0.3454	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.3455	10.
3. 0.3453	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3455	3. 0.3455	11.
4.	12.	FILTER OR CONTAINER TARE	0.3453	4.	12.
5.	13.	SAMPLE	0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 97.0564	9.	Imp I	1932	1. 97.0663	9.
2. 97.0563	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 97.0655	10.
3. 97.0568	11.	FILTER OR CONTAINER PLUS SAMPLE	97.0660	3. 97.0663	11.
4.	12.	FILTER OR CONTAINER TARE	97.0565	4.	12.
5.	13.	SAMPLE	0.0095	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 101.0371	9.	Imp O	1942	1. 101.0423	9.
2. 101.0375	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 101.0416	10.
3. 101.0377	11.	FILTER OR CONTAINER PLUS SAMPLE	101.0424	3. 101.0427	11.
4.	12.	FILTER OR CONTAINER TARE	101.0374	4. 101.0423	12.
5.	13.	SAMPLE	0.0050	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 19, 1992
Unit: #003
Test: Particulate

South Port	GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
	417.451	0.15	0.38729		0.25	69	67	
	492.687	0.25	0.50000		0.41	70	70	
		0.30	0.54772		0.50	70	73	
	75.236	0.30	0.54772		0.50	70	73	
	(DIFFERENCE)	0.25	0.50000		0.42	70	75	
		0.30	0.54772		0.50	69	78	
		0.45	0.67082		0.76	69	80	
		0.45	0.67082		0.76	69	80	
		1.60	1.26491		2.71	68	80	
		1.60	1.26491		2.74	68	88	
		1.55	1.24498		2.66	68	91	
		1.65	1.28452		2.84	68	92	
		1.65	1.28452		2.85	66	94	
		1.65	1.28452		2.85	66	96	
				AVERAGE SQUARED				
		AVERAGES	0.857	0.735	1.48	69		

FIELD DATA

PLANT Firmi (ABI)
DATE 3-19-92
SAMPLING LOCATION Unit 003
SAMPLE TYPE Part Sizing
RUN NUMBER #1
OPERATOR TyH
AMBIENT TEMPERATURE 80°
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -10"
FILTER NUMBER (s) A-

PROBE LENGTH AND TYPE SS
NOZZLE I.D. .200
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak < .020 cfm at 15" READ AND RECORD ALL DATA EVERY 10 MINUTES Postleak < 016 cfm at 12"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 419	493.065									
+	10 429	499.365		1.48	1.48		84	83	11		
1	20 439	505.675			1.48		87	83	11		
2	30 449	512.015			1.48		88	82	11		
3	40 459	518.350			1.48		89	82	11		
4	50 509	524.690			1.48		89	82	11		
5	60 519	531.065			1.48		89	82	11		
6											
	60	38.000			1.48		85				

South Port

COMMENTS

FIELD DATA REDUCTION

Site: PIRMI (A2I)
Date: March 19, 1992
Unit: #003
Test: Particle Sizing

South Port	GAS METER READING	ORIFICE PRESSURE DELTA H	DRY GAS METER TEMPERATURE	
	493.065	1.48	84	83
	531.065	1.48	87	83
		1.48	88	82
	38.000	1.48	89	82
		1.48	89	82
	(DIFFERENCE)	1.48	89	82
		1.48		85

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Primi Unit 3
Test #1 P.S

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 97.3756	9.	Probe	204.2	1. 97.3796	9.
2. 97.3754	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 97.3788	10.
3. 97.3757	11.	FILTER OR CONTAINER PLUS SAMPLE	97.3793	3. 97.3794	11.
4.	12.	FILTER OR CONTAINER TARE	97.3756	4.	12.
5.	13.	SAMPLE	0.0037	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 99.1552	9.	Imp I	205.2	1. 99.1747	9.
2. 99.1559	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 99.1740	10.
3. 99.1556	11.	FILTER OR CONTAINER PLUS SAMPLE	99.1744	3. 99.1746	11.
4.	12.	FILTER OR CONTAINER TARE	99.1556	4.	12.
5.	13.	SAMPLE	0.0188	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 98.4314	9.	Imp O	206.2	1. 98.4343	9.
2. 98.4318	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 98.4338	10.
3. 98.4316	11.	FILTER OR CONTAINER PLUS SAMPLE	98.4342	3. 98.4345	11.
4.	12.	FILTER OR CONTAINER TARE	98.4316	4.	12.
5.	13.	SAMPLE	0.0026	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1.	9.	_____	_____	1.	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	_____	3.	11.
4.	12.	FILTER OR CONTAINER TARE	_____	4.	12.
5.	13.	SAMPLE	_____	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 3
P.S. # 1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1607	9.	Filter # A110	S1	1. 0.1601	9.
2. 0.1605	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1601	10.
3. 0.1602	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1600	3. 0.1598	11.
4.	12.	FILTER OR CONTAINER TARE	0.1605	4.	12.
5.	13.	SAMPLE	-0.0005	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1440	9.	_____	S2	1. 0.1436	9.
2. 0.1438	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1431	10.
3. 0.1432	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1433	3. 0.1432	11.
4.	12.	FILTER OR CONTAINER TARE	0.1437	4.	12.
5.	13.	SAMPLE	-0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1600	9.	_____	S3	1. 0.1598	9.
2. 0.1601	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1600	10.
3. 0.1602	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1599	3. 0.1598	11.
4.	12.	FILTER OR CONTAINER TARE	0.1601	4.	12.
5.	13.	SAMPLE	-0.0002	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1436	9.	_____	S4	1. 0.1435	9.
2. 0.1434	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1434	10.
3. 0.1431	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1433	3. 0.1431	11.
4.	12.	FILTER OR CONTAINER TARE	0.1434	4.	12.
5.	13.	SAMPLE	-0.0001	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 3
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

Filter #A110 — 55

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.1606	9.	1. 0.1601	9.
2. 0.1604	10.	2. 0.1600	10.
3 0.1600	11.	3. 0.1596	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

SAMPLE NUMBER — FILTER OR CONTAINER # 55
FILTER OR CONTAINER PLUS SAMPLE 0.1599
FILTER OR CONTAINER TARE 0.1603
SAMPLE -0.0004

S6

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.1429	9.	1. 0.1422	9.
2. 0.1427	10.	2 0.1422	10.
3. 0.1426	11.	3 0.1423	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

SAMPLE NUMBER — FILTER OR CONTAINER # S6
FILTER OR CONTAINER PLUS SAMPLE 0.1422
FILTER OR CONTAINER TARE 0.1427
SAMPLE -0.0005

S7

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.1582	9.	1. 0.1576	9.
2 0.1580	10.	2. 0.1574	10.
3. 0.1576	11.	3 0.1575	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

SAMPLE NUMBER — FILTER OR CONTAINER # S7
FILTER OR CONTAINER PLUS SAMPLE 0.1575
FILTER OR CONTAINER TARE 0.1579
SAMPLE -0.0004

S8

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.1425	9.	1. 0.1421	9.
2. 0.1423	10.	2. 0.1421	10.
3. 0.1420	11.	3 0.1421	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

SAMPLE NUMBER — FILTER OR CONTAINER # S8
FILTER OR CONTAINER PLUS SAMPLE 0.1421
FILTER OR CONTAINER TARE 0.1423
SAMPLE -0.0002

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Pirmi Unit 3
P.S. #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.2052	9.	Filter #A110 (SAMPLE NUMBER)	59 (FILTER OR CONTAINER #)	1. 0.2045	9.
2. 0.2050	10.			2. 0.2045	10.
3. 0.2047	11.	FILTER OR CONTAINER PLUS SAMPLE	0.2046	3. 0.2047	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.2050	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	-0.0004	7.	15.
8.	16.			8.	16.

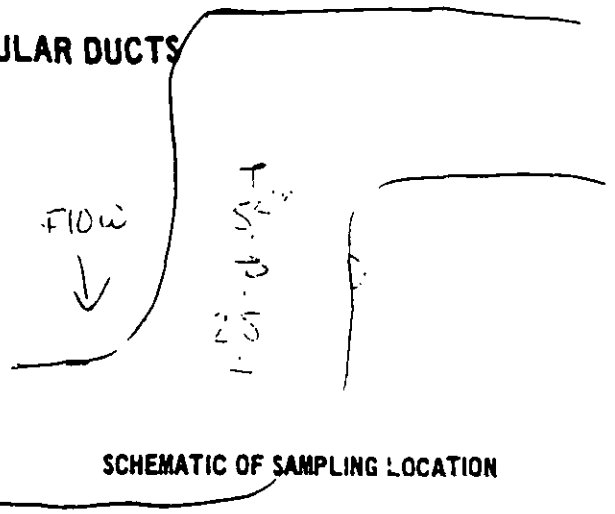
TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.			2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Perm. (ABI)
DATE 3-16-92
SAMPLING LOCATION Unit 005
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 32"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 0"
STACK I.D., (DISTANCE A - DISTANCE B) 32"
NEAREST UPSTREAM DISTURBANCE 28" or .88 dd
NEAREST DOWNSTREAM DISTURBANCE 54" 1.68 dd
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	32"	0.61	0"	1.00"
2	.067				2.14"
3	.118				3.78"
4	.177				5.66"
5	.250				8.00"
6	.356				11.39"
7	.644				20.61"
8	.750				24.00"
9	.823				26.34"
10	.882				28.22"
11	.933				29.86"
12	.979		31.33		31.00"

EI . (Dur) 232
4/72

FIELD DATA

PLANT Permi (ABI)
DATE 3-18-92
SAMPLING LOCATION 005
SAMPLE TYPE Particulate
RUN NUMBER #1
OPERATOR Ty Hostetter
AMBIENT TEMPERATURE 50
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) -10
FILTER NUMBER (s) 3207

VLC-15

PROBE LENGTH AND TYPE 5'-#75
NOZZLE I.D. .170
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250°
HEATER BOX SETTING 250°
REFERENCE Δp #6 (0-5")

SCHEMATIC OF TRAVERSE POINT LAYOUT

Prelcak < .010 cfm at 15" READ AND RECORD ALL DATA EVERY 5 MINUTES Postleak < .006 cfm at 7"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 / 8:25	078.904	(2.062 Avg)			(67 Avg)					
1	5 / 830	082.780	2.00	1.69	1.69	65	50	50	5	226	57
2	10 / 835	086.325	2.30	1.95	1.95	67	53	50	5	226	54
3	15 / 840	089.655	2.20	1.87	1.87	66	57	51	5	228	55
4	20 / 845	095.175	2.30	1.97	1.97	67	61	52	5	233	55
5	25 / 850	096.645	2.20	1.88	1.88	68	63	53	5	234	56
6	30 / 855	100.110	2.20	1.89	1.89	68	65	54	5	234	56
7	35 / 900	103.470	2.10	1.80	1.80	69	66	55	5	234	57
8	40 / 905	106.760	1.90	1.63	1.63	69	67	56	5	230	57
9	45 / 910	110.330	2.30	1.98	1.98	67	68	57	5	236	58
10	50 / 915	113.795	2.10	1.82	1.82	67	69	58	5	236	58
11	55 / 920	117.255	2.10	1.81	1.81	69	69	59	5	234	57
12	60 / 925	120.708	2.10	1.81	1.81	69	69	59	5	232	57
1	65 / 927/932	124.300	2.30	2.00	2.00	66	69	60	5	236	59
2	70 / 937	127.960	2.40	2.08	2.08	68	69	60	5	237	56
3	75 / 942	131.635	2.40	2.08	2.08	69	70	61	5	236	55
4	80 / 947	135.310	2.40	2.08	2.08	70	71	61	5	235	55
5	85 / 952	138.975	2.40	2.08	2.08	68	71	62	5	236	57
6	90 / 957	142.650	2.40	2.09	2.09	67	72	62	5	237	57
7	95 / 1002	146.035	2.00	1.75	1.75	65	73	63	5	237	58
8	100 / 1007	149.090	1.60	1.40	1.40	64	73	63	5	237	58
9	105 / 1012	152.330	1.80	1.58	1.58	64	72	64	5	237	58
10	110 / 1017	155.290	1.50	1.31	1.31	65	72	64	5	237	59
11	115 / 1022	158.150	1.40	1.23	1.23	65	72	64	4	237	60
COMMENTS:	120 / 1027	161.073	1.40	1.23	1.23	65	72	64	4	237	61

South Port

East Port

A-32

EPA (Dun) 23[illegible] (130)

(8.2.169)

(2.062 Avg 2)

(1.79)

(67)

(63)

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Prim. Units
Test 1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 100.6396	9.	Probe	195.2	1. 100.6497	9.
2. 100.6398	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 100.6490	10.
3. 100.6401	11.	FILTER OR CONTAINER PLUS SAMPLE	100.6494	3. 100.6496	11.
4.	12.	FILTER OR CONTAINER TARE	100.6398	4.	12.
5.	13.	SAMPLE	0.0096	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.3461	9.	Filter	3.207	1. 0.3473	9.
2. 0.3660	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.3472	10.
3. 0.3461	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3472	3. 0.3472	11.
4.	12.	FILTER OR CONTAINER TARE	0.3461	4.	12.
5.	13.	SAMPLE	0.0011	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 97.7898	9.	Imp I	196.2	1. 97.7949	9.
2. 97.7899	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 97.7938	10.
3. 97.7900	11.	FILTER OR CONTAINER PLUS SAMPLE	97.7946	3. 97.7944	11.
4.	12.	FILTER OR CONTAINER TARE	97.7899	4. 97.7944	12.
5.	13.	SAMPLE	0.0047	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 98.6700	9.	Imp O	197.2	1. 98.6726	9.
2. 98.6699	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 98.6719	10.
3. 98.6701	11.	FILTER OR CONTAINER PLUS SAMPLE	98.6723	3. 98.6725	11.
4.	12.	FILTER OR CONTAINER TARE	98.6700	4.	12.
5.	13.	SAMPLE	0.0023	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA

PLANT Perini (ABI)
DATE 3-18-92
SAMPLING LOCATION Unit 005
SAMPLE TYPE Part. Sizing
RUN NUMBER #1
OPERATOR Ty H. / John C.
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE 29.75
STATIC PRESSURE, (P_s) 10"
FILTER NUMBER (s) A-

PROBE LENGTH AND TYPE S.S.
NOZZLE I.D. .150
ASSUMED MOISTURE, % 2%
SAMPLE BOX NUMBER
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak @ .010 cfm at 15" READ AND RECORD ALL DATA EVERY 10 MINUTES Postleak @ .005 cfm at 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 1117	162.400									
+	10 1127	167.705		1.09	1.09		61	60	9		
Point	20 1137	173.000			1.09		64	61	9		
2	30 1147	178.325			1.09		67	62	9		
Sizing	40 1157	183.760			1.09		69	63	9		
	50 1207	189.020			1.09		72	65	9		
	60 1217	194.00			1.09		73	66	9		
	70 1227	199.700			1.09		75	68	9		
	80 1237	205.303		1.09	1.09		76	69	9		
		42.903			1.09		67				

East Pt. +

COMMENTS

FIELD DATA REDUCTION

Site: PIRMI (ABI)
Date: March 18, 1992
Unit: #005
Test: Particulate

South Port	GAS METER READING	VELOCITY HEAD	SQUARE ROOT	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
	78.404	2.00	1.414213	1.69	65	50	50
	161.073	2.30	1.516575	1.95	67	53	50
	---------	2.20	1.483239	1.87	66	57	51
	82.169	2.30	1.516575	1.97	67	61	52
	=========	2.20	1.483239	1.88	68	63	53
	(DIFFERENCE)	2.20	1.483239	1.89	68	65	54
		2.10	1.449137	1.80	69	66	55
		1.90	1.378404	1.63	69	67	56
		2.30	1.516575	1.98	67	68	57
		2.10	1.449137	1.82	67	69	58
		2.10	1.449137	1.81	69	69	59
		2.10	1.449137	1.81	69	69	59
East Port		2.30	1.516575	2.00	66	69	61
		2.40	1.549193	2.08	68	69	60
		2.40	1.549193	2.08	69	70	61
		2.40	1.549193	2.08	70	71	62
		2.40	1.549193	2.08	68	71	62
		2.40	1.549193	2.09	67	72	63
		2.00	1.414213	1.76	65	72	63
		1.60	1.264911	1.40	64	73	64
		1.80	1.341640	1.56	64	72	64
		1.50	1.224744	1.31	65	72	64
		1.40	1.183215	1.23	65	72	64
		1.40	1.183215	1.23	65	72	

		AVERAGE SQUARED			

AVERAGES	1.435961	2.062	1.79	67	
	=========	=======	==========	=========	=======

FIELD DATA REDUCTION

Site: PIRMI (ASI)
Date: March 18, 1992
Unit: #005
Test: Particle Sizing

East Port	GAS METER READING	ORIFICE PRESSURE DELTA H	DRY GAS METER TEMPERATURE	
	152.400	1.09	61	60
	105.303	1.09	64	61
		1.09	67	62
	47.903	1.09	69	63
		1.09	72	65
	(DIFFERENCE)	1.09	73	66
		1.09	75	68
		1.09	76	69
		1.09		67

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 5
P.S. Test #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 99.9916	9.	Probe	207.2	1. 99.9960	9.
2. 99.9920	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 99.9950	10.
3. 99.9920	11.	FILTER OR CONTAINER PLUS SAMPLE	99.9956	3. 99.9957	11.
4.	12.	FILTER OR CONTAINER TARE	99.9919	4.	12.
5.	13.	SAMPLE	0.0037	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 98.8619	9.	Imp I	208.2	1. 98.8663	9.
2. 98.8623	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 98.8654	10.
3. 98.8623	11.	FILTER OR CONTAINER PLUS SAMPLE	98.8657	3. 98.8653	11.
4.	12.	FILTER OR CONTAINER TARE	98.8622	4.	12.
5.	13.	SAMPLE	0.0035	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 108.3690	9.	Imp O	209.2	1. 108.3720	9.
2. 108.3691	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 108.3714	10.
3. 108.3695	11.	FILTER OR CONTAINER PLUS SAMPLE	108.3718	3. 108.3721	11.
4.	12.	FILTER OR CONTAINER TARE	108.3692	4.	12.
5.	13.	SAMPLE	0.0026	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1.	9.	_____	_____	1.	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	_____	4.	12.
5.	13.	FILTER OR CONTAINER TARE	_____	5.	13.
6.	14.	SAMPLE	_____	6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 5
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1606	9.	Filter #A91	S1	1. 0.1597	9.
2. 0.1604	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1590	10.
3. 0.1606	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1592	3. 0.1588	11.
4.	12.	FILTER OR CONTAINER TARE	0.1605	4.	12.
5.	13.	SAMPLE	-0.0013	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1415	9.		S2	1. 0.1409	9.
2. 0.1416	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1405	10.
3. 0.1414	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1405	3. 0.1401	11.
4.	12.	FILTER OR CONTAINER TARE	0.1415	4.	12.
5.	13.	SAMPLE	-0.0010	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1567	9.		S3	1. 0.1555	9.
2. 0.1565	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1550	10.
3. 0.1564	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1550	3. 0.1546	11.
4.	12.	FILTER OR CONTAINER TARE	0.1565	4.	12.
5.	13.	SAMPLE	-0.0015	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1449	9.		S4	1. 0.1429	9.
2. 0.1447	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1422	10.
3. 0.1447	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1424	3. 0.1421	11.
4.	12.	FILTER OR CONTAINER TARE	0.1448	4.	12.
5.	13.	SAMPLE	-0.0024	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

Pirmi Unit 5
P.S. #1

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.1603	9.	Filter A91	55	1. 0.1600	9.
2. 0.1601	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1598	10.
3. 0.1605	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1598	3. 0.1596	11.
4.	12.	FILTER OR CONTAINER TARE	0.1603	4.	12.
5.	13.	SAMPLE	-0.0005	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1409	9.		56	1. 0.1404	9.
2. 0.1407	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1404	10.
3. 0.1409	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1404	3. 0.1403	11.
4.	12.	FILTER OR CONTAINER TARE	0.1408	4.	12.
5.	13.	SAMPLE	-0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1569	9.		57	1. 0.1562	9.
2. 0.1567	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1564	10.
3. 0.1570	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1563	3. 0.1564	11.
4.	12.	FILTER OR CONTAINER TARE	0.1569	4.	12.
5.	13.	SAMPLE	-0.0006	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.
1. 0.1416	9.		58	1. 0.1409	9.
2. 0.1415	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.1411	10.
3. 0.1415	11.	FILTER OR CONTAINER PLUS SAMPLE	0.1410	3. 0.1410	11.
4.	12.	FILTER OR CONTAINER TARE	0.1415	4.	12.
5.	13.	SAMPLE	-0.0005	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Pirmi Unit 5
P.S. #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.2029	9.	SAMPLE NUMBER: Filter # A91	FILTER OR CONTAINER #: S9	1. 0.2026	9.
2. 0.2029	10.	FILTER OR CONTAINER PLUS SAMPLE	0.2023	2. 0.2021	10.
3. 0.2026	11.	FILTER OR CONTAINER TARE	0.2028	3. 0.2022	11.
4.	12.	SAMPLE	-0.0005	4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

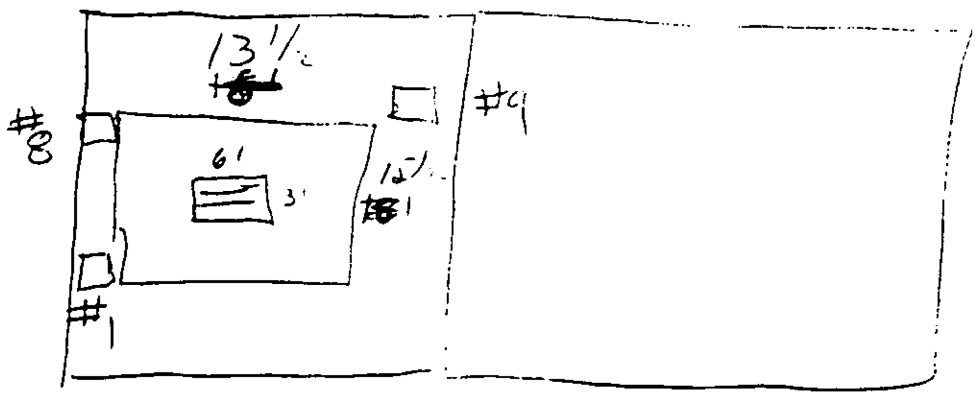
1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

(Culm) 3/17/92

Visible emissions between truck and High V. Air scrubber

Pit #3

STREET



Truck direction

6-7 min for pit to empty

	IN	MILL LOAD	PIT #3 #8	#9	#1	MAXIMUM Opacity	
1)	9~~14~~ – 926	~~919–926~~ 8 MIN	1.8 *	1.~~75~~	2.0	30	*
2)	926 – 947	19 944	1.60	1.70	2.0	0	
				~~1.20~~	~~2.0~~	Cleaner	
3)	948 – 1003	15 min	1.6	1.70	2.0	10	
4)	1006 – 1018	12 min	1.60	1.70	2.0	10	
5)	1019 – 1034	1024 10 min	1.60 (+)	1.75	2.0	25	*
6)	1046 – 1059	1053 – 1059 7	1.60 (+)	~~1.75~~	2.0	10	*
7)	1107 – 1116	1107 – 1109 9	1.60	1.75	2.0	10	
8)	11~~27~~ – 1130	4 MIN	1.60	1.75 *	2.0	30	*
9)	1141 – 1150	2 MIN 4 MIN 6	1.60	1.75 *	2.0	15	*
10)	1204 – 12~~13~~	1205 – 1209 – 4 1209 7	1.6	1.75	2.0	15	*
11)	1219 – 1227	2 6	1.6	1.75	2.0	~~25~~	
12)	1228 – 1241	13	1.6	1.75	2.0	0	
13)	1241 – 1257	15	1.65	1.~~65~~	2.0	0	

14

Mill Loom

4)	1258 – 1305	14	1.65	1.65	20		0
5)	1316 – 1329						0
		144					

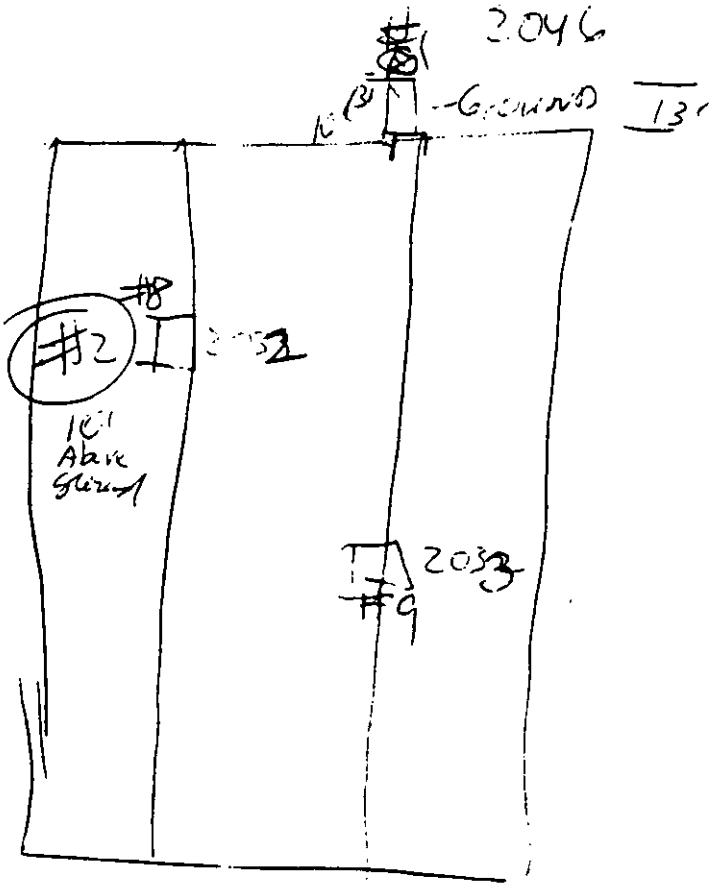
High Fugitive Fumes

1) Empty Bin
2) Chute dirty Rice
3) Fast Empty

3-18-92

Hull Bin

~~Time~~



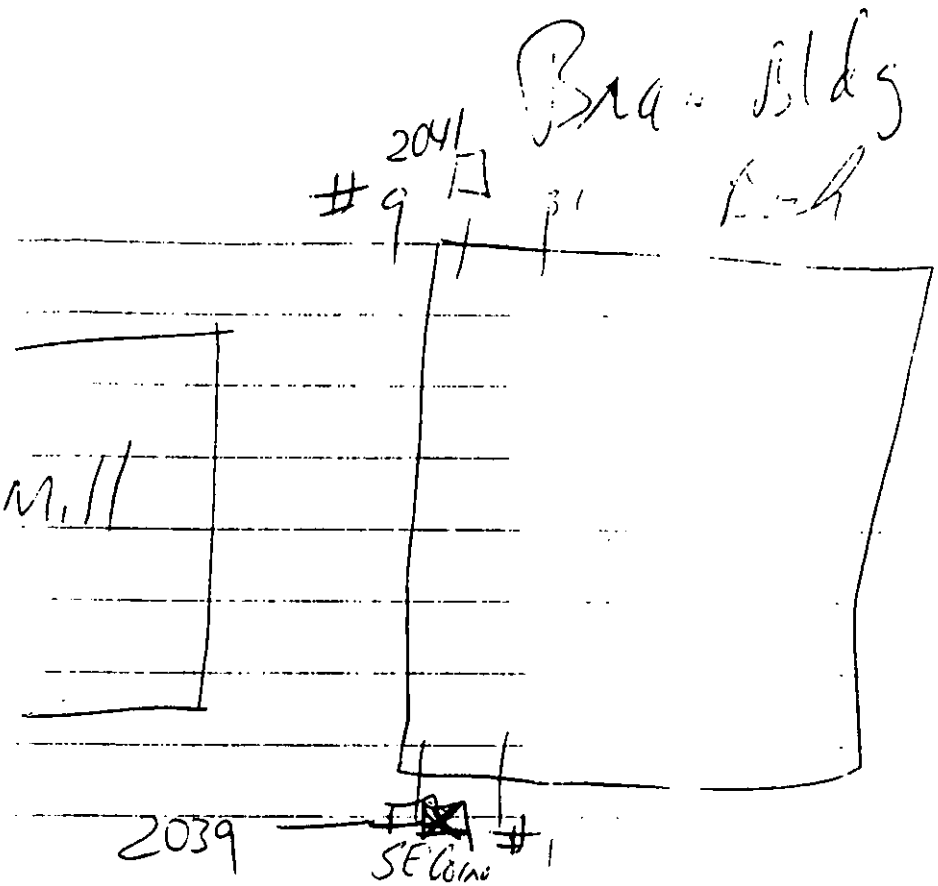
#8
#9
Raise

Time	Load Time	#1	#8	#9	Opacity
			Bin		20%
902 (12)	902-906 910-914 (4)	18	1,7		5
1051 (9) 1244	1051-1054 1057-1059 (6½)	1.8	1,34,7		20%
1317-1319 (2)	(1)		1		10
1336-1343 (9) 1344	(8) (7)		1,34,7		15
1347-1349 (10)	(2) (5) (7)		1,9,5,7		15

2

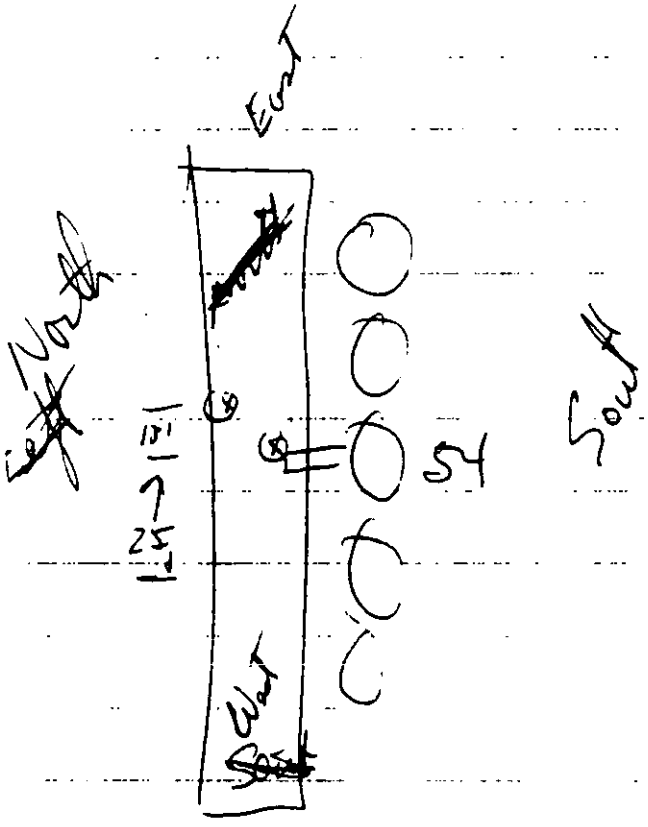
3-19-92

Bma - Bldg



	Start	Stop	Front load	
Front	738	751	738-751	C
Back	750			
Back	753		745-751	C
#2	800-811		800-811	
#3	1034		1034	C
	1047		1047	

Cubicles



DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by number sample box under Sample column.

+/- Vol Filters
ABI - Woodland

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 3.4022	9.	Aluminum Foil 3.5215	2033	1. 6.9573	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

3.4063				23.1347	
1. ~~23.1347~~	9.	Foil 3.5117	2047	1. ~~3.4063~~	9.
2.	10.	Gilson Bin Center		2.	10.
3.	11.	SAMPLE NUMBER	FILTER OR CONTAINER #	3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.	FILTER OR CONTAINER TARE		6.	14.
7.	15.			7.	15.
8.	16.	SAMPLE		8.	16.

		Foil 3.5205			
1.	9.	~~2039~~	2039	1. 6.9837	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

Prom Bldg Outlet

		Foil 3.5231			
1.	9.		2040	1. 10.2133	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by numbers in box under Sample column.

High Vol Air Filter

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	Foil	3.5068	1. 10.4134	9.
2.	10.	SAMPLE NUMBER	2038 FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE		4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	Foil	3.5374	1. 9.7552	9.
2.	10.	SAMPLE NUMBER	2037 FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE		4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	2044	Foil 3.5173	1. 7.5437	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE		4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	2041	Foil 3.5116	1. 7.1037	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.			3.	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE		4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. _____ 2. _____
3. _____ 4. _____
Indicate by number in box under Sample column.

High Vol Air

Requestor _____
JN _____
Assigned to _____
Date Assigned _____

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	2042	Fe.1 3.5221	1. 7.5900	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	2045	Fe.1 3.5420	1. 6.9583	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	2043	Fe.1 3.5060	1. 8.3797	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

1.	9.	2032	Fe.1 3.5248	1. 8.3174	9.
2.	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2.	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE		3.	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE		5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE		7.	15.
8.	16.			8.	16.

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates

1. ______ 2. ______

3. ______ 4. ______

Indicate by number in box under Sample column.

High Vol Arc

Requestor ______

JN ______

Assigned to ______

Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1.	9.	2046 SAMPLE NUMBER	Foil 3.5215 FILTER OR CONTAINER #	1. 7.0835	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1.	9.	SAMPLE NUMBER	FILTER OR CONTAINER #	1.	9.
2.	10.	FILTER OR CONTAINER PLUS SAMPLE		2.	10.
3.	11.	FILTER OR CONTAINER TARE		3.	11.
4.	12.	SAMPLE		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

WESTERN ENVIRONMENTAL SERVICES

APPENDIX B

WESTERN ENVIRONMENTAL SERVICES

GAS METER CALIBRATION

Meter #: WES #11
Pb: 29.95
Date: January 10, 1992
Calibrator: Ty Hastriter

Orifice	Standard Meter		Temp	Test Meter		Temp	Time	V	Delta H
	Start	Finish	F	Start	Finish	F	Min		
0.50	0.944	4.757	58	175.537	179.321	61	10	1.012	1.87
0.50	4.757	8.576	58	179.321	183.133	63	10	1.010	1.86
1.00	9.099	14.460	59	183.654	188.956	66	10	1.022	1.89
1.00	14.460	19.815	58	188.956	194.287	69	10	1.023	1.87
2.00	20.316	27.807	59	194.782	202.181	72	10	1.033	1.91
2.00	27.807	35.282	60	202.181	209.597	76	10	1.034	1.91
						Average		1.022	1.89

WESTERN ENVIRONMENTAL SERVICES

PITOT TUBE CALIBRATION

Date: JANUARY 17, 1992
By: B.WESSEL
Number: 21
Source: Magnehlic 0-2" 0-5"

Delta P std	Delta P leg 1	Delta P leg 2	Cp leg 1	Cp leg 2
0.25	0.30	0.30	0.91	0.91
1.00	1.25	1.25	0.89	0.89
1.90	2.90	2.95	0.81	0.80
		Averages	0.87	0.87
		Average	0.87	

WESTERN ENVIRONMENTAL SERVICES

PITOT TUBE CALIBRATION

Date: JANUARY 20, 1992
By: Ty H.
Number: 5' - #75
Source: STD (0-2")

Delta P std	Delta P leg 1	Delta P leg 2	Cp leg 1	Cp leg 2
0.14	0.18	0.16	0.88	0.94
0.74	0.95	0.89	0.88	0.91
1.20	1.70	1.50	0.84	0.89
		Averages	0.87	0.91
		Average	0.89	

WESTERN ENVIRONMENTAL SERVICES

APPENDIX C

WESTERN ENVIRONMENTAL SERVICES

NOMENCLATURE

%CO	Percent CO by volume, dry
$\%CO_2$	Percent CO_2 by volume, dry
%EA	Percent excess air in stack gas
%I	Percent Isokinetic
%M	Percent Moisture in Stack Gas, by Volume
$\%N_2$	Percent N_2 by volume, dry
$\%O_2$	Percent O_2 by volume, dry
A_s	Stack Area, ft^2
C_p	Pitot Tube Coefficient
C_{sf}	Particulate concentrations at standard conditions [1], dry, based on probe, cyclone and filter catch, GRS/SDCF
C_{st}	Particulate concentration at standard conditions [1], dry, based on total catch, GRS/SDCF
D_n	Sampling nozzle diameter, in.
E_f	Particulate emission rate, based on probe, cyclone and filter catch, lbs/hr
E_t	Particulate emission rates based on total particulate catch, lbs/hr
I_c	Percent of particulate caught in impingers
M_d	Mole Fraction Dry Stack Gas
M_f	Particulate collected in probe, cyclone and filter, mg.
M_t	Total particulate collected mg.
MW	Molecular Weight of Wet Stack Gas, gm/gm-mole
MW_c	Molecular Weight of Chemical
MW_d	Molecular Weight of Dry Stack Gas, gm/gm-mole
P	Velocity head, in. H_2O
P_b	Barometric Pressure, in. Hg.
PE_f	Particulate emission rate on a process basis, probe, cyclone and filter catch
PE_t	Particulate emission rate on a process basis, Total catch
P_m	Average Orifice Pressure Drop, in. Hg.

WESTERN ENVIRONMENTAL SERVICES

NOMENCLATURE
(CONT)

PPM	Parts per million
P_s	Stack Gas Pressure, in. Hg., absolute
P_u	Unit process rate
Q_a	Stack Gas Flow Rate at Stack Conditions, ft^3/min
Q_s	Stack Gas Flow Rate at Standard Conditions (1), dry ft^3/min
T_m	Average Dry Gas Meter Temperature, ^0F.
T_s	Stack Gas Temperature, ^0F
T_s	Average Stack Gas Temperature, ^0F
T_{std}	Standard Temperature, ^0F
T_t	Net time of test min.
V_m	Volume of Dry Gas Sampled at Meter Conditions, ft^3
$V_{m\,std}$	Volume of Dry Gas Sampled at Standard Conditions (1), ft^3
V_s	Average Stack Gas Velocity, Stack Conditions, ft/sec
V_w	Total H_2O Collected in Impingers and Silica Gel, ml
$V_{w\,std}$	Volume of Water Vapor Collected at Standard Conditions (1), ft^3

WESTERN ENVIRONMENTAL SERVICES

CALCULATIONS

1. Volume of water vapor at standard conditions [1]

$$V_{w_{std}} = .00267 * \frac{460 + T_{std}}{29.92} * Vlc$$

2. Volume of dry gas sampled at standard conditions [1]

$$V_{m_{std}} = 17.64 * \frac{V_m (P_b + P_m)}{(T_m + 460)}$$

3. Percent moisture in stack gas by volume.

$$\%M = \frac{100 * V_{w_{std}}}{V_{w_{std}} + V_{m_{std}}}$$

4. Mole fraction dry stack gas.

$$M_s = \frac{100 - \%M}{100}$$

5. Molecular weight of dry stack gas (gm/gm - Mole)

MW_d = [(% CO_2 * .44) + (% O_2 * .32) + (% N_2 * .28) + (% CO * .28) + (% Additional Gas * MW of Additional Gas)]

6. Molecular weight of wet stack gas (gm/gm - Mole)

$MW + (18 * Bwo) + [(1-Bwo) * MW_d]$

7. Stack gas velocity at stack conditions [2], (ft/sec)

$$V_s = 85.49 * CP * \sqrt{\Delta P} * \frac{\sqrt{(T_s + 460)}}{Ms * P_s}$$

8. Stack gas volumetric flow rate at stack conditions.

$Q_s = V_s * A_s * 60$

CALCULATIONS

9. Stack gas volumetric folw rate at standard conditions

$$Q_s = Q_a * \frac{528}{460 + T_s} * \frac{P_s}{29.92} * (1.00 - Bwo)$$

10. Percent isokinetic

$$\%I = \left[\frac{(T_s + 460) * V_{m\,std}}{P_s * V_s * AN * T_t} * (1 - Bwo) \right] * .0945$$

11. Particulate Concentrations at standard conditions [1], dry, based on probe, cyclone and filter catch.

$$C_{sf} = \frac{M_f * 15.43}{V_{m\,std} * 1000}$$

12. Particulate concentration at standard conditions [1], dry, based on total catch.

$$C_{st} = \frac{M_t * 15.43}{V_{m\,std} * 1000}$$

13. Particulate emission rate, based on probe, cyclone, and filter catch.

$$E_f = \frac{M_f * 60 * Q_s}{454,000 * V_{m\,std}}$$

14. Particulate emission rate, based on total catch.

$$E_t = \frac{M_t * 60 * Q_s}{454,000 * V_{m\,std}}$$

CALCULATIONS

15. Particulate emission rate on a process basis, probe, cyclone, and filter catch.

$$PE_i = \frac{E_i}{P}$$

16. Particulate emission rate on a process basis, total catch.

$$PE_t = \frac{E_t}{P_u}$$

17. Particulate emission rate, part per million.

$$ppm = \frac{M_t}{V_{m_{std}}} * \frac{863.3}{MW_c}$$

(1) Standard conditions: 68^0, 29.92 "Hg

(2) $\sqrt{\Delta P_s * (T_s + 460)}$ is determined by averaging the square [illegible] of the product of the velocity head [illegible] and the absolute stack temperature [illegible] 460) for each indibidual point

WESTERN ENVIRONMENTAL SERVICES

APPENDIX D

ANHEUSER-BUSCH COMPANIES

April 24, 1992

Mr. Thomas L. Rooney
Western Environmental Services
1010 South Pacific Coast Highway
Redondo Beach, California 90277

Re: **PIRMI Emission Testing**

Dear Mr. Rooney:

Enclosed is a copy of my field notes for the testing done at the Pacific International Rice Mill, Inc. (PIRMI) facility in Woodland, CA during the week of March 16, 1992. These notes include the pertinent process data during each test run. These tests covered four bag filters on the Rice Mill and four other fugitive emission sources. Please include this data in your pending report which covers the results of the PIRMI testing.

As for the Rice Mill bag filter tests, there were process shutdowns during the testing of bag filter No. 2 and 5. Neither shutdown was apparent until the Method 5 test run was nearing completion or the mill was ready to start again. Based on the data collected, my best estimates of the average Process Rate Weight (incoming paddy rice) during each Method 5 test are:

Bag Filter No.	Average Process Rate, Lb/Hr	Comments
5	38,000	Dirty filter on blower
1	61,200	
2	34,200	Gear box replaced
3	63,500	

The four fugitive sources were Receiving Pit No. 3, Hull Loadout, Bran Warehouse (Loadout), and a Gruber Bin (No. 54) Loadout. My field notes show sampling and unloading/loadout times, and the weights of materials received or shipped (removed). I am uncertain as to what format is meaningful for the process data. We can discuss that after you have reviewed the enclosed information.

Please call me at my St. Louis office when you can discuss the fugitive emission process data or if you have other questions.

Sincerely,

ANHEUSER-BUSCH COMPANIES, INC.

Donald M. DeHart

Donald M. DeHart
Sr. Environmental Engineer
Environmental Affairs Department
Tel: 314/577-4158
Fax: 314/577-1032

DMD:cd

Enclosure

March 17, 1992

Recovery Pit No. 3. Fugitive emissions

Purina, Woodland CA

9:00 A Called Bill Sheltz @ Air Agy

To notify of start. Bill Not in today.

Harry will not be in until Wed PM

My Time 9:00
WES Time 9:01

9:14 Start 1st truck (Pull in)
Net - 56,520 lb

Using 3 Hi Vol Sampler

9:19 Truck starts unloading.
Tandem - 2 Tote Bodo

9:26 Empty — very dusty

9:27 move out

9:27 2nd truck — more Looks cleaner (not as dusty)

Started unloading immediately

Slower into pit as pit partially full

from last truck Net 54,640 lb

9:46 Empty - move out

9:46 relatively clean
Truck #3 57,340 lb

10:01 Empty pull out
Samplers off.

10:04 4th Truck Start samplers

10:05 Start unloading

10:?? First tandem empty 56520 lb

10:16 Empty

10:17 Pull out

10:17 5th truck in

10:23 Pit Empty, start unload 56,660 lb

10:25 1st tandem empty

10:33 Empty, Pull out Sampler off

10:45 6th truck in, Start samplers

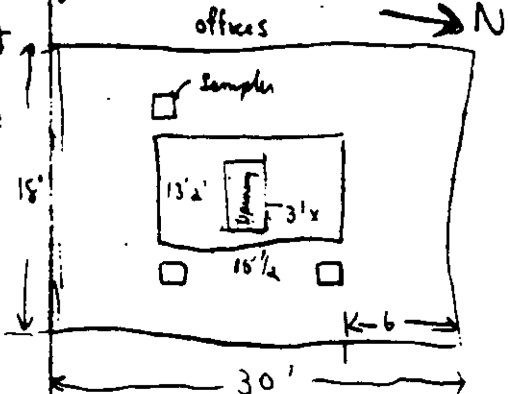
10:52 Start unload

10:53 1st tandem MT. 59,860 lb

10:55 Start 2nd Tander

10:57 Empty

10:59 Pull out Sampler off



3/17 9-930 AM Almost Calm
Very slight Wind From N
(most of time)
~9:30 Very light wind from South
9:30 - 10:30 Very lt, variable
10:30 on Very lt prevailable to calm

March 17, 1992

Recovery P.D. #3 Continued

11:06 7th Truck in Stand Samplers on
11:07 1st MT 58,040lb
11:08 Stand 2nd location
11:15 Empty Pull out Samplers off
11:27 8th Truck in Stand Samplers on
11:28 Stand 1st location 55900lb
11:29 1st Empty
11:32 2nd MT
11:33 Pull out Samplers off
11:39 9th Truck in
11:41 1st MT
11:42 2nd stand 55900lb
11:47 2nd MT
11:48 Pull out Samplers off
12:03 10th Truck in Samplers on
12:04 1st Stand Unload
12:07 1st MT 56320lb
12:11 2nd MT
12:12 Pull out Samplers off
12:17 11th Truck in Samplers on
12:18 Stand 1st Unload
12:20 1st MT 53100lb
12:24 2nd MT
12:26 Pull out Samplers off
1227 12th Truck in Samplers on
P.D. = 50% full
1227 Stand 1st unload 55740lb
1239 2nd MT
1240 Pull out
1240 13th Truck
1241 Stand 1st Unload Put mark full
1248 1st MT
1256 2nd MT 56580lb
1257 Pull out
1257 14th Truck
1258 Stand 1st unload. Put Mark, full
1302 2nd MT 55080lb
1314 Pull out

PIRMI

1314 15th Truck 54200 lb
1314 Stand 1st Unload
1327 2nd MT
1328 Pull out Samplers off.

~~March 1992~~

PIRMI Woodland | Landman Ken.

Mill Tests
March 18, 1992 (Accumulators zeroed @ 7:00 AM + 3:00 PM)

Time	Hd Rice Accum CWT	Paddy Rice Accum CWT
0700	0	0

As recorded by plant personnel ↓

800	255	362 — 553 cwt in 1 hr
900	516	915
1000		down 9:25 — 302 cwt ~ ½ hr
1100	707	1217
1200	757 (start ~1130)	1358
1300		
1400		
1500	1908 + 210	3193
1600	377 CWT	612 CWT

3/19	0800	334	598
	0900	659	1038
	1000	698	1283
	1100	1008	1466

From Down Time Log (3/18) ↑

0715 → 0745 200/Screen, 3d Bunk, Paddy rice ...

0925 → 1130 ML-1-SN-004

Dusty ... on ... , ...

Exposed due to BF 3 ... ~ 0940

Start-up ~1140 - Est. B-5 to go
- ... down 1200 N

BF-5 Bran Dust Collector
- -1 Paddy Clean. Dust ...
- -2 General Duster
- -3 Shelled Rice aspirator
- -4 Brown Rice Table (Unit)
- -8 Hd Rice aspirator

Dust System Tested | Approx Start/End times Start/End BF, ...

[5 (3/18) 0827/1030 /1230

1 (3/18) 1345/1550

2 (3/19) 0805/10.10

3 (3/19) 1345/1550

3/19 Time	Hd Rice (CWT)	Paddy Rice (CWT)
1300	1646	3257
1400		
1500	2305 + 553	4313
1630	443	970

downtime 3/19

840 - Conveyor ML 2 DC 002 down Bin/Box replaced
Restarted 0935.

1347-51 BF 3 down due to Hi Bin level downstream @ Whitener.

1456 - 1500 same again

1505 - 1535 Paddy gate

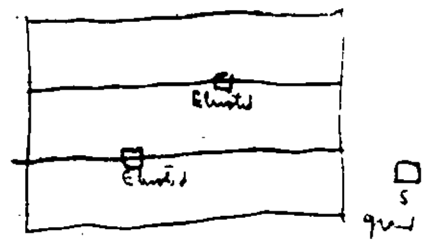
1600 - 1610 kick ...

Perim · March 18, 1992

Hull Loadout

Truck #1 — 9:02 Start Samplers   Bin 1 + 1 1
Loading started immediately
9:06 Truck Full   To level off and come around for more
(Two Trailers - Tandem)
9:09 Truck Back To Top off. Bin 7 + 7.
9:11 Truck Topped off (30,000 lb)   : Lt to Moderate Breeze From N/NW.
9:12 Samplers off

Truck #2 in @ 10:49 (Two trailers) (Loading started immediately
10:49 Start Samplers
Breeze thru Hull loadout area From W To E
Bin 1 + 1, + 3, 4
10:54 Truck Full (32640 lb)
10:57 Truck Back to Top off
Bin 7 + 7.
10:58 Truck Topped off
Samplers off   on Trailer



Truck #3 PIRMI Truck small
13:10 Sampler on   Hulls meant to cover load tops. Then covered to dump
13:10 Truck full on less than 1 min.
13:11 Sampler off   Bin 1 only

Truck #4
13:35 Samplers on
Loading Started Bins 1 + 1, 3, 4
1340 Truck Full (34000 lb)
1343 Truck Back To Top off Bin 7 + 7
1344 Full
Samplers left on

Breeze still thru shed W to E

Truck #5
1345 Loading Started Bin 4 - little
all bins 1 → 6 EMPT.
1347 Truck out to return on center track.
1349 Bin 11, 10 MT. Bin 9, 8, 7 + 7
1354 Full
1355 Samplers off. (30920 lb)

Bran Warehouse | March 19, 1992

SE Filter only LD Breeze from NW to NE

0738 Start loading truck #1 Sampler on
(Truck entered ~ 07:30, operator talked a little)

[45320 lb] (most of bran on west end of Bldg with loading at center.

0750 Truck full - drove out Sampler off

0752 Truck 2 in Sampler On.

0754 Start loading [49960 lb]
1st truck back for one add'l scoop.

0810 Truck Full & out Sampler off

~1025 Truck #3 in

1032 Sampler On, Front loader on — Driver said man [illegible] a lot of [illegible] bran will be pelleted binder.

1033 Start loading — Scoops 𝍸 II (1st Truck) 𝍸 II (2nd Truck.

[54910 lb]

10:46 Full

10:47 Truck pulled out - Sampler off. Floor cleanup by front loader (no sample)

10:57 Truck back for 2 add'l scoops.

10:59 Finished Filling cover with tarp.

During off season, usually have 6-8 Trucks on M/T, then 4± on W, Th, F. No Sat/Sun

PIRMI Gardner Bin Loading | March 20, 1992

Per Steve Martin Bin 54 [illegible] [illegible] truck load of 565 cwt or 56,500 lb.

Time	Truck #	Samplers	Loading	Wind Cotton
0828		on		
0829	1		Start	PerPaul – some of the
0837	1		End	[illegible] [illegible] he has seen
0837	2		Start	H. Moore [illegible] – [illegible] [illegible] [illegible]
0845	2		End	Opacity up on truck
0845		OFF		max ~30%
0853		ON		[illegible]
0853	3		Start	[illegible] [illegible] 15–20
0901	3		End	
901		OFF		Hazy in alley ~5-10%
916	4	ON		N wind to Ext LT Breeze from N.
916	4		Start	up to 15-20%, mean
924		OFF	End	[illegible] [illegible]
938	5 (Center Fill)	ON	Start	~0900 – Noted [illegible] from [illegible] [illegible] [illegible]
946		OFF	End	[illegible] [illegible] [illegible] continued [illegible] [illegible] [illegible]
0954	6	ON	Start	[illegible] transferred to Gardner bins
1002	6	OFF	End	BF in Plant [illegible] seemed
1006	7	ON	Start	ineffective on [illegible] Bin [illegible]
1013	7	OFF	End	
1019	8	ON	Start	
1027	8	OFF	End	
1034	9	ON	Start	Vy LT Breeze Wind from E
1042	9	OFF	End	
1048	10	ON	Start	Breeze from E
1055	10	OFF	End	
1056		OFF		