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

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

Commonwealth of Pennsylvania
Environmental Resources
August 22, 1990

Subject: Source Test Review

To: Data File
Glenn O. Hawbaker, Inc.
Spring Township, Centre County

From: Thomas P. Bianca
Air Pollution Control Engineer
Division of Technical Services and Monitoring
Bureau of Air Quality Control

Through: Chief, Source Testing and Monitoring Section

Glenn O. Hawbaker, Inc. operates a drum mix asphalt plant in Spring Township, Centre County. Sand, limestone, and gravel are proportioned to production specifications from cold aggregate feed bins onto a belt conveyor for discharge into the feed end of the drum mixer. Recycled asphalt pavement is feed into the drum approximately 20 feet from the burner end. Liquid asphalt is injected into the drum at approximately 25 feet and 35 feet from the burner. The finished product is then conveyed to heated silos for storage pending demand of the product.

Heat is supplied to the drum mixer through the combustion of natural gas.

Effluent from the drum mixer is drawn by an induced draft fan to a Venturi scrubber and is exhausted to the atmosphere through a stack having a discharge point approximately 23 feet above grade.

Three particulate and volatile organic compound emissions test runs were conducted by Keystone Environmental Resources, Inc. for compliance purposes and observed by Mr. Richard Maxwell, Jr. of the Williamsport Regional Office. Keystone Environmental Resources, Inc. did not calculate volatile organic compound mass emission rates required to determine compliance. I have calculated the volatile organic compounds mass emission rates using the data supplied by Keystone Environmental Resources, Inc. and the asphalt concrete production rates reported by Mr. Richard Maxwell, Jr.

The remaining tests were conducted in accordance with the preapproved test protocol. The calculations are correct and the results appear to be valid.

The following is based on data extracted from the test reports:

RUN NO.	1	2	3
Particulate Mass Emission Rate, lb./hr.	2.74	2.36	1.22
Allowable Particulate Mass Emission Rate, lb./hr.	17.23	16.66	16.61
Volitale Organic Compound Concentration, lb./ton	0.097	0.076	0.081
Allowable Volitale Organic Compound Concentration, lb./ton	0.028	0.028	0.028

ccs Richard Maxwell, Jr. through Joseph Cooper - Williamsport Regional Office
14-303-007
EPA/RSL
Reading File
Doug Lesher

TPBarjr

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JUL 1990
DEP AIR QUALITY CONTROL
WILLIAMSPORT REGION

CENTRAL VALLEY ASPHALT
COMPLIANCE STACK
TEST PROGRAM

Prepared for:

CENTRAL VALLEY ASPHALT
DIVISION OF
GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA

Prepared by:

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
3000 TECH CENTER DRIVE
MONROEVILLE, PA 15146

PROJECT NO. 375000-32

JULY 1990

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ABSTRACT

On June 14, 1990, a compliance test program was conducted for Glenn O. Hawbaker, Inc., Pleasant Gap, PA, on the scrubber exhaust stack of the drum mix asphalt plant operated in Pleasant Gap. The purpose of the testing was to determine the (1) concentration and mass emissions of particulate matter, (2) concentration of total gaseous organic vapors, and (3) presence of visible emissions from the stack as required by 40 CFR 60 Subpart I, Standards of Performance for Asphalt Concrete Plants, and Sections 123.13(b) and 123.41 of the Pennsylvania Department of Environmental Resources (DER) Source Testing Manual (Revision No. 1, January 1983). The results of the testing showed an average particulate matter concentration and emission rate of 0.009 gr/scfd and 2.10 lb/hr, respectively. The allowable concentration and emissions rate are 0.04 gr/scfd and 16.80 lb/hr, respectively. Thus, the emissions from the stack are in compliance. The average total gaseous organic vapor concentration was 376 ppmv (as CH_4). No visible emissions were observed from the stack during any of the tests.

1.0 INTRODUCTION

On June 14, 1990, a compliance test program was conducted for Glenn O. Hawbaker, Inc., Pleasant Gap, PA, on the scrubber exhaust stack of the drum mix asphalt plant operated in Pleasant Gap. The purpose of the testing was to determine the (1) concentration and mass emissions of particulate matter, (2) concentration of total gaseous organic vapors, and (3) presence of visible emissions from the stack as required by 40 CFR 60 Subpart I, Standards of Performance for Asphalt Concrete Plants, and Sections 123.13(b) and 123.41 of the Pennsylvania Department of Environmental Resources (DER) Source Testing Manual (Revision No. 1, January 1983).

Testing was performed by the Air Quality Engineering Division of Keystone Environmental Resources, Inc. The test crew was comprised of Mark Grunebach, Manager of the Monitoring Services Department, Daniel Keller, and Thomas Morgan. All test procedures were witnessed by Richard Maxwell of the PA DER.

2.0 METHODOLOGIES

Particulate matter sampling was performed, where possible, in accordance with EPA Stationary Source Sampling Methods 1 through 5 and Sections 139.11 and 139.12 of the PA DER Source Testing Manual. The gas volume sampled for each test was greater than 47.9 dry standard cubic feet. The facility could not operate at or near maximum capacity for time periods long enough to ensure that at least 50 dry standard cubic feet of gas was sampled (as required by PA DER protocol). However, the gas volumes sampled for each test were within 95% of the minimum sample volume required. Under these conditions and constraints, all tests were considered valid by Richard Maxwell of the PA DER.

The process exhaust exited through a 38" (width) by 43" (depth) stack. A total of 25 traverse points (5 per sampling port) were sampled; the traverse points were calculated in accordance with EPA Method 1. Sampling was conducted through 5 ports, with each traverse point sampled for 3 or 3.5 minutes. A schematic diagram of the stack and traverse points is presented in Figure 2-1.

A total of three test runs were performed. During each test, gas concentrations of CO_2, O_2, and N_2 (by difference) were determined with the use of a Fyrite apparatus as specified by EPA Method 3.

Clean up of the sampling train included a water and acetone rinse of both the front-half and back-half components. The water soluble and water insoluble portions of the front-half of the sampling train were determined as a total, while the water soluble and water insoluble portions of the back-half were determined separately in accordance with Section 139.12 of the PA DER Source Testing Manual.

Concentrations of total gaseous organic vapors were determined with a Beckman Model 402 Hydrocarbon Analyzer (flame ionization detector) in accordance with EPA Stationary Source Sampling Method 25A. The concentrations were expressed in terms of methane and recorded continuously with a stripchart recorder. The analyzer was calibrated prior to the first particulate matter test and after the last test with gases containing known concentrations (10, 95, and 822 ppmv CH_4, NIST traceable). The difference between the known concentrations and the measured concentrations were less than 3%. The span values of the analyzer (95 and 822

KEYSTONE ENVIRONMENTAL RESOURCES, INC.

3000 TECH CENTER DRIVE
MONROEVILLE, PA 15146

SKETCH SHEET

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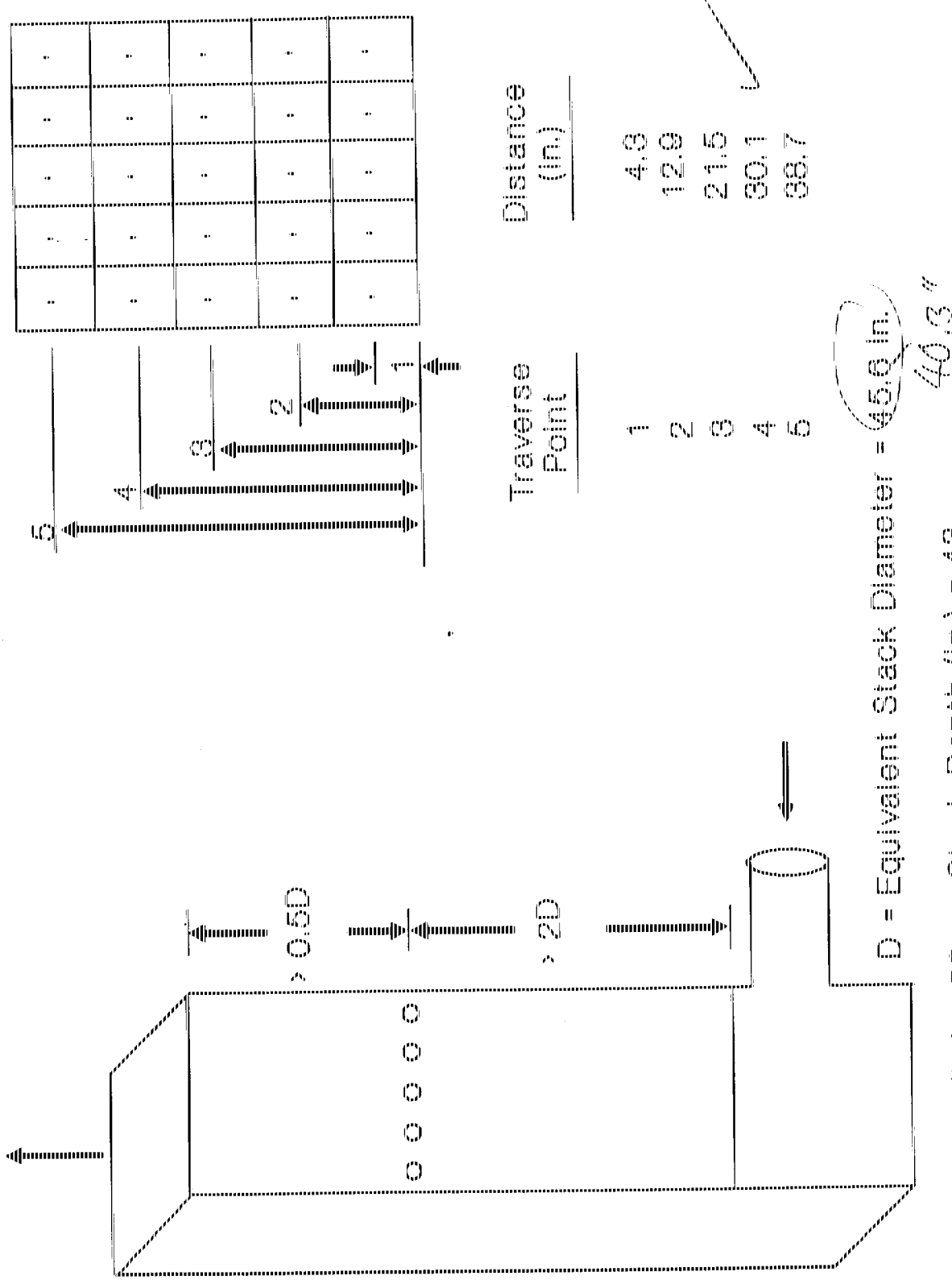


2-1.a.

ACTIVITY No.

REVISION

TITLE SCHEMATIC DIAGRAM OF THE STACK & TRAVERSE POINTS

FIGURE 2-1

09-UP REV. 8 P17-0409 POWDER TRACKER COPYRIGHT

ppmv) were also checked prior to and after each test. The difference between the actual and the recorded concentrations were less than 3%.

All visible emissions determinations were performed in accordance with EPA Stationary Source Sampling Method 9. Visible emissions were recorded for one hour during each particulate matter test.

3.0 RESULTS

All testing was performed during periods of normal plant operation. To validate this, copies of the operational data including the scrubber water flow rate, scrubber pressure drop, and dry aggregate feed rate can be found in Appendix A.

The probes and sampling trains were operate in accordance with EPA Stationary Source Sampling Methods 1 through 5. Copies of the pre-test and post-test calibration results can be found in Appendix B.

Copies of the field data sheets for the particulate matter sampling can be found in Appendix C. The emissions calculations for each test can be found in Appendix D. The results have been summarized in Table 3-1. The average particulate matter concentration and emission rate are 0.009 grains per standard cubic foot dry (gr/scfd) and 2.10 pounds per hour (lb/hr), respectively.

As promulgated by 40 CFR 60 Subpart I, the particulate matter standard for concrete asphalt plants is 0.04 gr/scfd. As promulgated by Section 123.13(b) of the PA DER Source Testing Manual, the allowable emissions rate for asphaltic concrete production is determined from the following formula:

$$A = 0.76E^{0.42}$$

where A = allowable emissions (lb/hr)

E = emission index (lb/hr) = F x W

F = process factor (lb/ton)

= 6 lb/ton for asphaltic concrete production

W = production rate (ton/hr)

= dry aggregate feed rate for asphaltic concrete production

The average dry aggregate feed rate during the hours of testing was 265 ton/hr (from Appendix A). Substituting the appropriate values into the formula above yields an allowable emission rate of 16.80 lb/hr. Thus, the emissions from the stack are in compliance with both regulations.

Copies of the field log sheets and stripchart for the total gaseous organic vapor determinations can be found in Appendix E. The average concentration (expressed in terms of methane) was 376 ppmv.

GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA

TABLE 3-1

PARTICULATE MATTER AND TOTAL HYDROCARBONS EMISSIONS DATA

EMISSIONS	TEST #1.....	TEST #2.....	TEST #3.....	AVERAGE
Particulate Matter				
gr/scfd	0.011	0.011	0.006	0.009
lb/hr	2.74	2.36	1.22	2.10
Total Hydrocarbons				
ppmv	420	345	363	376
STACK CONDITIONS				
Flow (acfm)	38972	35233	37065	37090
Flow (scfm)	32916	29269	30607	30931
Moisture Content (%)	15.05	16.83	19.32	17.07
Stack Temp. (°F)	147	157	160	155
SAMPLING CONDITIONS				
Sampling Time (min)	87.5	75.0	75.0	
Sample Volume (scfd)	47.997	49.589	50.608	
Isokinetics (%)	93.43	100.60	101.22	

Table 3-1 also lists other pertinent stack and sampling parameters including the stack gas flow rate in units of actual cubic feet per minute (acfm) and standard cubic feet per minute (scfm), moisture content of the stack gas, stack gas temperature, gas volume sampled for each test (scfd), and the isokinetics value for each test. The isokinetics value is equal to the ratio of the average linear gas velocity sampled through the probe nozzle to the average stack gas velocity. An isokinetics value between 90% and 110% is considered acceptable.

Copies of the field data sheets for the visible emissions determinations can be found in Appendix F. No visible emissions were observed during any of the three tests. As promulgated by 40 CFR 60 Subpart I, the exhaust gas opacity should always be less than 20%. As promulgated by Section 123.41 of the PA DER Source Testing Manual, the exhaust gas opacity should not be equal to or greater than 20% for a period or periods aggregating more than 3 minutes in any hour or equal to or greater than 60% at any time. Thus, the emissions are in compliance with both regulations.

GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA
COMPLIANCE STACK TEST PROGRAM

APPENDIX A

OPERATIONAL DATA

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

7:19	505	22"	1126000
7:34	570	22"	1121800
7:50	570	22"	1129000
8:04	505	20½"	1128000
8:20	505	20"	1129000
8:36	505	20½"	1130000
8:49	505	20	1130000

TEST #2

TIME	WATER GPM	ΔP	
11:10	500	20½"	1133000
11:26	505	20"	1134000
11:40	505	20½	1135000
11:55	505	20½	1135000
12:10	500	20"	1136500
12:25	500	20½"	1137000
12:36	505	20½	1137000

TEST #3

TIME	WATER GPM	ΔP	
2:01	500	20¾	1146300
2:16	500	20½	1141100
2:30	500	20½	1141800
2:45	500	20½	1142500
3:00	500	20½	1143000
3:14	500	20½	1145000
3:29	505	20½	1144400

AGG 3	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.64	17.64	00023.771	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			283.5	000385.38	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.88

MIX TEMP.= 243 F EXHAUST TEMP. = 267 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 297 F

DATE 06/14/1990 TIME 08:03 MIX# 1 SILO 3 ***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00188.75	0.3
AGG 2	51.0	143.8	143.8	00197.86	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.64	17.71	00023.726	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			282.5	000385.43	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.91

MIX TEMP.= 289 F EXHAUST TEMP. = 271 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 296 F

DATE 06/14/1990 TIME 08:03 MIX# 1 SILO 3 ***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00189.37	0.3
AGG 2	51.0	143.8	143.8	00198.50	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3

DATE	TIME	MIX#	SILO	
06/14/1990	08:13	1	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00211.82	0.3
AGG 2	51.0	143.8	143.8	00221.85	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.80	17.89	00026.688	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			283.1	000432.69	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.91

MIX TEMP.= 287 F EXHAUST TEMP. = 270 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 297 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	08:18	1	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00033.88	0.3
AGG 2	51.0	143.8	143.8	00034.39	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.5
AGG 4	0.0	0.0	0.0	00000.00	1.5
AGG 5	0.0	0.0	0.0	00000.00	0.5
A/C	5.9	17.74	17.75	00015.238	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			283.1	000457.39	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.90

MIX TEMP.= 285 F EXHAUST TEMP. = 269 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 298 F

DATE	TIME	MIX#	SILO	***** AUTOMATIC *****
06/14/1990	08:23	1	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	136.2	138.2	00234.82	0.3
AGG 2	51.0	143.8	143.8	00245.78	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.7	17.86	17.64	00029.644	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
RCS SCALE			282.6	000479.66	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.87

MIX TEMP.= 284 F EXHAUST TEMP. = 270 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 300 F

DATE	TIME	MIX#	SILO	
04/14/1990	08:28	1	5	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00246.54	0.3
AGG 2	51.0	143.8	143.8	00257.75	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.80	17.82	00031.125	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			282.9	000503.46	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.91

MIX TEMP.= 286 F EXHAUST TEMP. = 272 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 299 F

DATE	TIME	MIX#	SILO	
06/14/1990	08:38	1	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00269.45	0.3
AGG 2	51.0	143.8	143.8	00281.31	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.74	17.71	00034.103	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			284.7	000550.89	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.87

MIX TEMP.= 285 F EXHAUST TEMP. = 273 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 297 F

DATE	TIME	MIX#	SILO	
06/14/1990	06:43	1	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	49.0	138.2	138.2	00280.88	0.3
AGG 2	51.0	143.8	143.8	00293.71	0.2
AGG 3	0.0	0.0	0.0	00000.00	0.3
AGG 4	0.0	0.0	0.0	00000.00	0.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.9	17.67	17.64	00035.572	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			252.7	000574.35	0.2

AVERAGE A/C CONTENT 5.90
REALTIME A/C CONTENT 5.90

MIX TEMP.= 283 F EXHAUST TEMP. = 273 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 299 F

DATE	TIME	MIX#	SILO	
06/14/1990	11:13	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	125.6	123.8	00356.72	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00031.05	0.3
AGG 4	26.0	67.1	67.1	00031.12	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.17	17.30	00046.183	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
ASH SCALE			259.2	000732.14	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.24

MIX TEMP.= 284 F EXHAUST TEMP. = 253 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 299 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	11:23	3	2	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	46.0	123.3	123.3	00377.32	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00042.22	0.3
AGG 4	26.0	67.1	67.1	00042.29	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	16.74	16.70	00049.011	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			262.6	000774.79	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.19

MIX TEMP.= 289 F EXHAUST TEMP. = 260 F BURNER FUEL VALVE= 024 PERCEN
A/C TEMP.= 302 F

DATE	TIME	MIX#	SILO	
06/24/1990	11:33	3	2	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	46.5	123.8	123.8	00397.98	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00053.42	0.3
AGG 4	26.0	67.1	67.1	00053.49	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.30	17.14	00051.861	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			261.0	000818.46	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.21

ID TEMP.= 284 F EXHAUST TEMP. = 277 F BURNER FUEL VALVE= 025 PERCEN
A/C TEMP.= 301 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	11:43	3	2	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00418.64	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00064.62	0.3
AGG 4	26.0	67.1	67.1	00064.69	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.13	17.09	00054.754	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			260.2	000861.81	0.6

AVERAGE A/C CONTENT 6.30
RESULTIME A/C CONTENT 6.17

MIX TEMP.= 290 F EXHAUST TEMP. = 280 F BURNER FUEL VALVE= 025 PERCENT
A/C TEMP.= 301 F

DATE	TIME	MIX#	STLO	
06/14/1990	11:53	2	2	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00439.24	0.3
AGG 2	0.0	0.0	0.0	00513.34	0.2
AGG 3	26.0	67.1	67.1	00075.78	0.3
AGG 4	26.0	67.1	67.1	00075.85	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.09	17.41	00057.604	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.3	000904.81	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.24

MIX TEMP.= 289 F EXHAUST TEMP. = 281 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 301 F

DATE	TIME	MIX#	SILO	
06/14/1990	11:58	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	133.8	133.8	00449.59	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	25.0	67.1	67.1	00081.39	0.3
AGG 4	25.0	67.1	67.1	00081.46	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.06	17.06	00059.033	
FILLER	0.0	0.00	0.00	00000.000	
POSITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.3	00926.42	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.24

MIX TEMP.= 286 F EXHAUST TEMP. = 278 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 301 F

DATE	TIME	MIX#	SILO	
06/14/1990	12:03	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00459.91	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	25.0	67.1	67.1	00086.99	0.3
AGG 4	25.0	67.1	67.1	00087.05	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.3	17.03	16.98	00060.453	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.6	000947.90	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.20

MIX TEMP.= 284 F EXHAUST TEMP. = 276 F BURNER FUEL VALVE= 024 PERCEN
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	
06/14/1990	12:08	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	133.8	133.8	00470.26	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00092.60	0.3
AGG 4	26.0	67.1	67.1	00092.67	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.11	17.10	00061.878	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.7	000969.50	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.19

MIX TEMP.= 284 F EXHAUST TEMP. = 278 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 303 F

DATE	TIME	MIX#	SILO	
05/14/1990	12:13	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.6	00481.75	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	25.0	67.1	67.1	00098.84	0.3
AGG 4	25.0	67.1	67.1	00098.91	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.07	16.81	00063.459	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			259.5	000993.58	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.11

MIX TEMP.= 286 F EXHAUST TEMP. = 280 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	
06/14/1990	12:19	3	2	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00490.82	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00103.73	0.3
AGG 4	26.0	67.1	67.1	00103.80	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.12	16.89	00064.718	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.6	001012.46	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.13

MIX TEMP.= 284 F EXHAUST TEMP. = 279 F BURNER FUEL VALVE= 024 PERCEN
A/C TEMP.= 304 F

DATE	TIME	MIX#	SILO	
05/14/1990	12:23	3	2	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	46.0	123.8	123.8	00501.17	0.3
AGG 2	0.0	0.0	0.0	00313.34	0.2
AGG 3	26.0	67.1	67.1	00109.34	0.3
AGG 4	26.0	67.1	67.1	00109.41	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.11	17.26	00066.51	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			259.7	001034.12	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.26

MIX TEMP.= 283 F EXHAUST TEMP. = 276 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 303 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:05	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00583.78	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00142.66	0.3
AGG 4	26.0	67.1	67.1	00142.74	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	16.94	16.90	00078.038	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			256.6	001209.85	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.17

MIX TEMP.= 288 F EXHAUST TEMP. = 283 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	14:10	3	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.5	00594.17	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00148.29	0.3
AGG 4	26.0	67.1	67.1	00148.37	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	16.99	16.87	00079.462	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			257.3	001231.41	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.17

A/C TEMP.= 267 F EXHAUST TEMP. = 281 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	14:15	3	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00604.33	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00153.81	0.3
AGG 4	26.0	67.1	67.1	00153.88	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	16.97	17.03	00080.653	

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	14:20	3	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00614.68	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00159.42	0.3
AGG 4	26.0	67.1	67.1	00159.49	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	5.2	16.97	16.84	00082.273	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			257.8	001274.05	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.16

MIX TEMP.= 263 F EXHAUST TEMP. = 275 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:25	3	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00625.00	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00165.01	0.3
AGG 4	26.0	67.1	67.1	00165.03	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.33	16.91	00083.691	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			256.1	001295.49	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.20

MIX TEMP.= 284 F EXHAUST TEMP. = 277 F BURNER FUEL VALVE= 023 PERCEN
A/C TEMP.= 306 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:30	3	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	133.8	133.8	00656.01	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00170.97	0.3
AGG 4	26.0	67.1	67.1	00171.05	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.03	17.06	00085.204	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			257.8	001318.32	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.22

MIX TEMP.= 286 F EXHAUST TEMP. = 280 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 305 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:35	3	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	133.8	133.8	00645.63	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00176.19	0.3
AGG 4	26.0	67.1	67.1	00176.27	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.02	16.98	00086.527	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				

DATE	TIME	MIX#	SILO	
06/16/1990	14:40	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	46.0	123.8	123.8	00655.95	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00181.76	0.3
AGG 4	26.0	67.1	67.1	00181.86	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.08	17.05	00087.949	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.3	001359.87	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.21

MIX TEMP.= 282 F EXHAUST TEMP. = 279 F BURNER FUEL VALVE= 023 PERCEN
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:45	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	46.0	133.8	133.8	00666.30	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00187.39	0.3
AGG 4	26.0	67.1	67.1	00167.47	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.07	17.05	00089.378	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			257.4	00138.46	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.19

MIX TEMP.= 285 F EXHAUST TEMP. = 278 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 308 F

DATE	TIME	MIX#	SCLO	
06/14/1990	14:50	3	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.6	123.8	00576.62	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00192.99	0.3
AGG 4	25.0	67.1	67.1	00193.06	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.05	17.04	00090.797	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			259.4	001402.95	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.20

MIX TEMP.= 282 F EXHAUST TEMP. = 278 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	
06/14/1990	14:55	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00686.90	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00198.56	0.3
AGG 4	26.0	67.1	67.1	00198.64	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.07	17.10	00092.220	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.3	001424.43	0.5

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.21

MIX TEMP.= 281 F EXHAUST TEMP. = 275 F BURNER FUEL VALVE= 024 PERCENT
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	***** AUTOMATIC *****
06/14/1990	15:00	3	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00697.22	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00204.14	0.3
AGG 4	26.0	67.1	67.1	00204.21	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.06	17.19	00093.644	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.1	001445.97	0.0

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.20

MIX TEMP.= 287 F EXHAUST TEMP. = 279 F BURNER FUEL VALVE= 024 PERCEN
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	
06/14/1990	15:05	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00707.57	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00209.75	0.3
AGG 4	26.0	67.1	67.1	00209.82	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.19	17.10	00095.074	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			257.8	001467.56	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.17

MIX TEMP.= 288 F EXHAUST TEMP. = 292 F BURNER FUEL VALVE= 024 PERCEN
A/C TEMP.= 306 F

DATE	TIME	MIX#	SILO	
06/14/1990	15:10	3	3	***** AUTOMATIC *****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	125.8	00717.88	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00215.34	0.3
AGG 4	26.0	67.1	67.1	00215.41	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.11	16.90	00096.496	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE #2	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.4	001489.08	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.13

MIX TEMP.= 291 F EXHAUST TEMP. = 284 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	
06/14/1990	15:15	3	3	**** AUTOMATIC ****

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE
AGG 1	48.0	123.8	123.8	00728.16	0.3
AGG 2	0.0	0.0	0.0	00337.09	0.2
AGG 3	26.0	67.1	67.1	00220.91	0.3
AGG 4	26.0	67.1	67.1	00220.99	1.3
AGG 5	0.0	0.0	0.0	00000.00	0.3
A/C	6.2	17.10	17.01	00097.912	
FILLER	0.0	0.00	0.00	00000.000	
ADDITIVE 42	0.0	0.00	0.00	00000.000	
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0
RESIDUAL A/C	0.0				
RECYCLE SCALE			0.0	000000.00	0.0
AGG SCALE			258.6	00150.46	0.6

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.22

MIX TEMP.= 283 F EXHAUST TEMP. = 278 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 308 F

DATE	TIME	MIX#	SILO	**** AUTOMATIC ****
06/14/1990	15:20	3	3	

MATERIAL	MIX PERCENT	TARGET	ACTUAL	TONS	PERCENT MOISTURE	
AGG 1	48.0	123.5	123.8	00738.48	0.3	
AGG 2	0.0	0.0	0.0	00337.09	0.2	
AGG 3	26.0	67.1	67.1	00226.50	0.3	
AGG 4	26.0	67.1	67.1	00226.58	1.3	
AGG 5	0.0	0.0	0.0	00000.00	0.3	
A/C	6.2	17.09	17.18	00099.335		
FILLER	0.0	0.00	0.00	00000.000		
ADDITIVE #2	0.0	0.00	0.00	00000.000		
RECYCLE 1	0.0	0.0	0.0	000000.00	0.0	
RESIDUAL A/C	0.0					
RECYCLE SCALE			0.0	000000.00	0.0	
AGG SCALE			258.3	001531.95	0.6	

AVERAGE A/C CONTENT 6.20
REALTIME A/C CONTENT 6.23

MIX TEMP.= 281 F EXHAUST TEMP. = 276 F BURNER FUEL VALVE= 023 PERCENT
A/C TEMP.= 309 F

...ALITY CONTROL LAB (GOHO) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(6160 & (619)

ESTED BY: [illegible]
ATE 06-14-1990
AB TELE.: (814)359-3414

TYPE OF AGGR. 484 847 Sample
FINE AGGR. FACTOR : .1304435
COARSE AGGR. FACTOR: 5.470459E-02

****COARSE AGGREGATE SPLIT DATA**** PAN WT.: 13.86

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	25.78	11.9	11.9
3/8	20.05	6.169999	18.07
1/2	20.26	6.38	18.28

****FINE AGGREGATE SPLIT DATA****

SIEVE	ORIG WT.	% FA
200	29.3	5.9
100	47	9.4
50	75.1	15.1
30	117.5	23.6
16	187.1	37.5
8	335.9	67.4
4	498.3	100

****COMB GRADATION RESULTS****

SIEVE	% AGGR.	SPECS
200	4	0-10
100	6	------
50	10	------
30	15	------
16	24	10-90
8	44	------
4	65	84-96
3/8	99	96-100
1/2	100	------

847 Sample Coi Plant 1st (1-1)
ED-2 [illegible] (4)

Test #1

QUALITY CONTROL LAB CGDHD PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(616)&(619)

TESTED BY: L. Gaddad
DATE : 06-14-1990
LAB TELE.: (814)359-3414

TYPE OF AGGR. : 84- Dec Sands
FINE AGGR. FACTOR : .1073779
COARSE AGGR.FACTOR: 4.948046E-02

****COARSE AGGREGATE SPLIT DATA****

PAN WT.: 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	26.42	12.54	12.54
3/8	21.23	7.349999	19.89
1/2	21.55	7.669999	20.21

******FINE AGGREGATE SPLIT DATA******

SIEVE	ORIG WT.	% FA
200	31.4	5.4
100	54.1	9.4
50	89.9	15.6
30	147.4	25.5
16	232.1	40.2
8	390.5	67.6
4	577.4	100

********20- GRADATION RESULTS******

SIEVE	% AGGR.	SPECS
200	3	0-10
100	6	------
50	10	------
30	16	------
16	23	40-80
8	42	------
4	62	80-95
3/8	98	95-99
1/2	100	------

Bcp Scale Dat Cnt Lst (2-1)

Zoa acc. 4

JALITY CONTROL LAB (GOHO) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(6165)&(6190)

ESTED BY: [illegible]

ATE : 06-14-1990

AB TELE. : (814)359-3414

TYPE OF AGGR. : SM Belt Sands

FINE AGGR. FACTOR : .1250733

COARSE AGGR.FACTOR: 4.8332538E-02

++++COARSE AGGREGATE SPLIT DATA++++ PAN WT. : 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	27.14	13.26	13.26
3/8	21.14	7.259999	20.52
1/2	21.31	7.429999	20.69

++++FINE AGGREGATE SPLIT DATA++++

SIEVE	ORIG WT.	% FA
200	24.5	4.8
100	40.9	8
50	63.3	12.4
30	107.5	21
16	177.5	34.7
8	318.8	62.3
4	511.7	100

++++++SA GRADATION RESULTS++++++

SIEVE	% AGGR.	-SPECS-
200	3	0-10
100	5	.....
50	8	.....
30	13	.....
16	22	10-30
8	40	.....
4	64	20-50
3/8	99	85-10
1/2	100	.....

Belt Sands CEI Plant Lot (4-D)

ID-2 [illegible]

QUALITY CONTROL LAB (GOHO) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM61608(619)

TESTED BY: [illegible]
DATE : 06-14-1990
LAB TELE.: (814)359-3414

TYPE OF AGGR. : 484 Bat Sample
FINE AGGR. FACTOR : 8.408319E-02
COARSE AGGR.FACTOR: 5.763689E-02

++++COARSE AGGREGATE SPLIT DATA++++ PAN WT.: 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	23.8	9.919999	9.919999
3/8	20.48	6.599999	16.52
1/2	21.31	7.429999	17.35

++++++FINE AGGREGATE SPLIT DATA++++++

SIEVE	ORIG WT.	% FA
200	39.4	5.8
100	76.2	11.2
50	137.7	20.3
30	230.2	34
16	357.4	52.7
8	576.5	85.3
4	677.9	100

++++++84+GRADATION RESULTS++++++

SIEVE	% AGGR.	SPECS
200	3	0-10
100	6	------
50	12	------
30	19	------
16	30	10-50
8	49	------
4	57	30-60
3/8	95	90-70
1/2	100	------

Lot one 47 (2-1)
50-3 ave. 98

Test # 2

QUALITY CONTROL LAB (GOH) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(6160&6190)

TESTED BY: [illegible]
DATE : 06-14-1990
LAB TELE. : (814)359-3414

TYPE OF AGGR. : 2A Belt Sample
FINE AGGR. FACTOR : .0845295
COARSE AGGR.FACTOR: 5.837712E-02

****COARSE AGGREGATE SPLIT DATA****

PAN WT. : 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	22.96	9.079999	9.079999
3/8	21.2	7.320001	16.4
1/2	21.93	8.05	17.13

****FINE AGGREGATE SPLIT DATA****

SIEVE	ORIG WT.	% FA
200	29	4.6
100	59.3	9.5
50	110.8	17.7
30	186.8	29.8
16	288.3	46
8	464.3	74.1
4	627	100

****COA. GRADATION RESULTS****

SIEVE	% AGGR.	SPECS
200	2	0-10
100	5	------
50	9	------
30	16	------
16	24	00-00
8	39	------
4	53	00-00
3/8	96	90-00
1/2	100	------

Part one Lot (2-2)
Date 6/8

QUALITY CONTROL LAB (GOH) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(616)&(619)

TESTED BY: [illegible]
DATE : 06-14-1990
LAB TELE. : (814)359-3414

TYPE OF AGGR. : Gap Gabbro
FINE AGGR. FACTOR : .1232993
COARSE AGGR.FACTOR: 5.458516E-02

++++COARSE AGGREGATE SPLIT DATA++++ PAN WT.: 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	24.58	10.7	10.7
3/8	20.92	7.04	17.74
1/2	21.5	7.62	18.32

++++FINE AGGREGATE SPLIT DATA++++

SIEVE	ORIG WT.	% FA
200	25.5	5.4
100	46.3	9.8
50	81.3	17.3
30	136.6	29
16	219.1	46.6
8	363.7	77.3
4	470.4	100

++++2A GRADATION RESULTS++++

SIEVE	% AGGR.	SPECS
200	3	0-10
100	6	------
50	10	------
30	17	------
16	27	10-30
8	45	------
4	58	44-56
3/8	97	96-76
1/2	100	------

Lot one Lot (2-3)
102 a.c. (64)

QUALITY CONTROL LAB (8004) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(6165)&(6190)

TESTED BY: [illegible]
DATE : 06-14-1990
LAB TELE. : (814)359-3414

TYPE OF AGGR. : Sap Bar Sample
FINE AGGR. FACTOR : .1037753
COARSE AGGR. FACTOR: 5.197505E-02

****COARSE AGGREGATE SPLIT DATA****

PAN WT. : 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	25.05	11.17	11.17
3/8	21.3	7.419999	18.59
1/2	21.95	8.070001	19.24

****FINE AGGREGATE SPLIT DATA****

SIEVE	ORIG WT.	% FA
200	27.7	5
100	52.3	9.4
50	95.7	17.1
30	165	29.5
16	263.3	47.1
8	440.1	78.7
4	558.9	100

****BA-GRADATION RESULTS****

SIEVE	% AGGR.	SPECS
200	3	0-10
100	5	------
50	10	------
30	17	------
16	27	10-30
8	46	------
4	58	20-50
3/8	97	80-90
1/2	100	------

Not enough LT (3-7)

Ba-2 use (6IE)

Test #3

UALITY CONTROL LAB CGOHO PLEASANT GAP,PA

COARSE & FINE GRADATION PTM(616)&(619)

ESTED BY: [illegible]
ATE :06-14-1990
LAB TELE.: (814)359-3414

TYPE OF AGGR. [illegible]
FINE AGGR. FACTOR : .1050669
COARSE AGGR.FACTOR: 5.429936E-02

++++COARSE AGGREGATE SPLIT DATA++++ PAN WT.: 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	25.36	11.48	11.48
3/8	20.21	6.329999	17.81
1/2	20.83	6.95	18.43

++++FINE AGGREGATE SPLIT DATA++++

SIEVE	ORIG WT.	% FA
200	25.9	4.4
100	52.1	8.8
50	98.9	16.7
30	171.6	29.1
16	271.2	46
8	436.3	73.9
4	590.1	100

++++++GRADATION RESULTS++++

SIEVE	% AGGR.	SPECS
200	3	0-10
100	5	.....
50	10	.....
30	18	.....
16	28	10-30
8	46	.....
4	62	24-46
3/8	97	96-70
1/2	100	.....

PZNT CAT 4T (3-2)

ID-2 4C (6P)

QUALITY CONTROL LAB (GCHD) PLEASANT GAP, PA

COARSE & FINE GRADATION PTM(616)&(619)

TESTED BY: [illegible]
DATE : 06-14-1990
LAB TELE. : (814)359-3414

TYPE OF AGGR. : SA- Belt Sample
FINE AGGR. FACTOR : 9.379263E-02
COARSE AGGR. FACTOR : 3.980892E-02

++++COARSE AGGREGATE SPLIT DATA++++ PAN WT. : 13.88

SIEVE	ORIG WT.	WT.-PAN	CUMUL. WT.
4	27.65	13.77	13.77
3/8	24.35	10.47	24.24
1/2	25.23	11.35	25.12

++++++FINE AGGREGATE SPLIT DATA++++++

SIEVE	ORIG WT.	% FA
200	20.2	3.4
100	44	7.5
50	84.4	14.4
30	146.6	25
16	232.3	39.6
8	393.5	67.1
4	586.4	100

++++++24- GRADATION RESULTS++++++

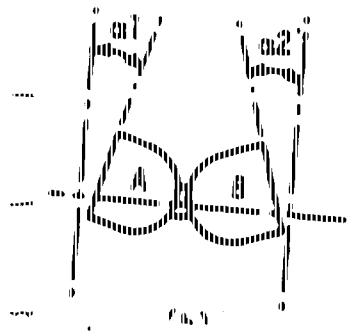
SIEVE	% AGGR.	SPECS
200	2	0-10
100	4	.....
50	8	.....
30	14	.....
16	22	10-30
8	37	.....
4	55	40-60
3/8	96	85-90
1/2	100	.....

Bat cat 4T (3-2)

Total (SPE)

GEOMETRIC PITOT CALIBRATION

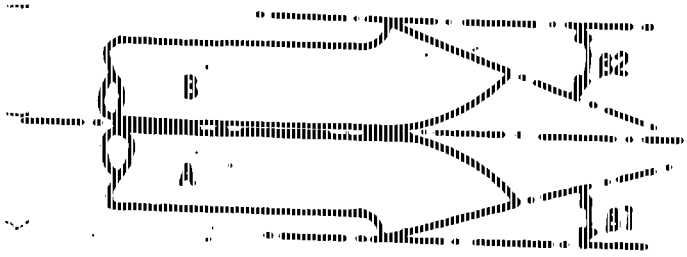
Probe No. S-4
Date 6-4-90
Initials DRK



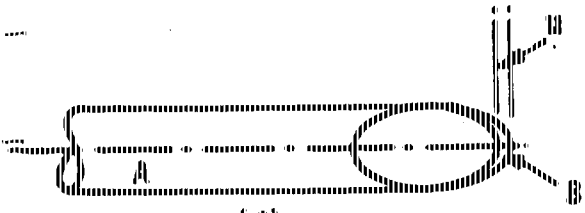
a1, a2 <10°

a1 = 0°
a2 = 2°
B1 = 2°
B2 = 2°
A = .858
u = .080
v = .060
W = 20°
X = 1.062
Y = 23"
Z = 22"
D_t = .376

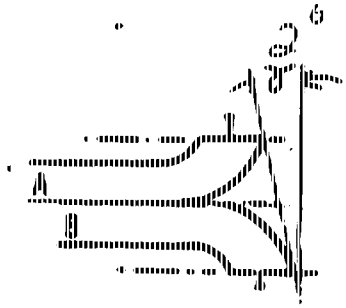
pre-test



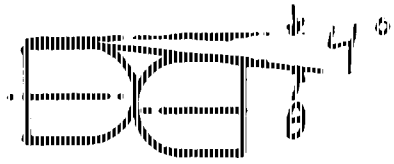
B1, B2 <5



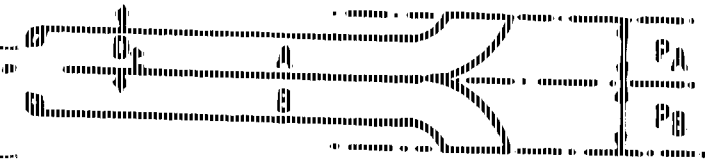
(P)



u = A SIN δ
V = A SIN θ



A-SIDE PLANE

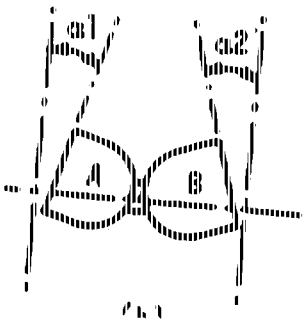


B-SIDE PLANE

.395 .564
$1.05\ D_t < P < 1.50\ D_t$
$P_A = P_B$
$2.10\ D_t < A < 3.00\ D_t$
.790 1.129

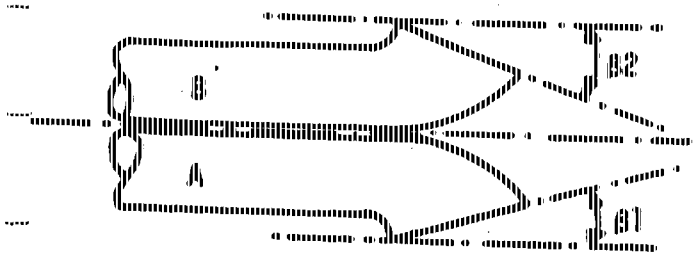
GEOMETRIC PITOT CALIBRATION

Probe No. 54
Date 6-21-90
Initials DPK
post-test

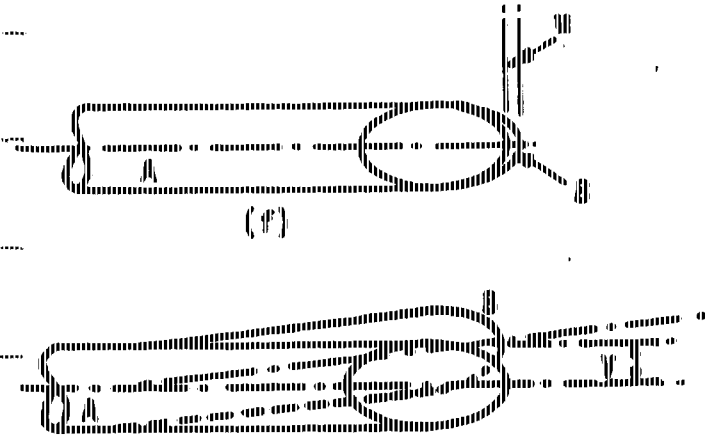


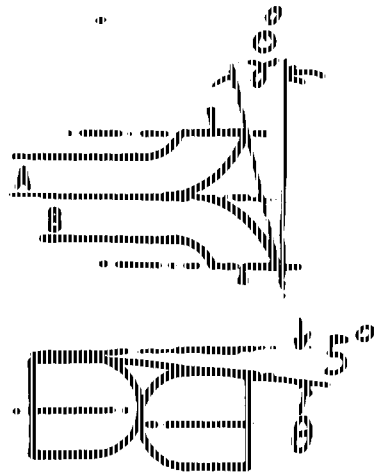
α1, α2 <10°

α1 = 2°
α2 = 4°
β1 = 1°
β2 = 1°
A = .865
u = 0
v = .075
w = 20
x = 23.4"
y = 23"
z = 22"
D_t = .313



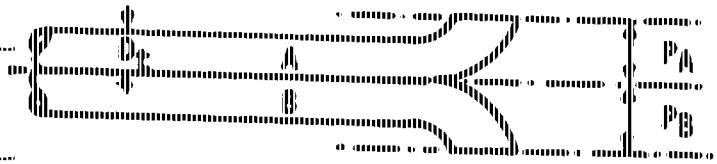
β1, β2 <5





u = A SIN θ
v = A SIN φ

A-SIDE PLANE



B-SIDE PLANE

.392 .560
$1.05\ D_t < P < 1.50\ D_t$
$P_A = P_B$
$2.10\ D_t < A < 3.00\ D_t$
.785 1.09

CONTROL BOX CALIBRATION

THREE POINT CALIBRATION

BOX NO. 1
DATE 6-12-90
BP 29.1
OPERATOR TJO

	TIME	WET TEST METER TEMP T_W	WET TEST METER VOLUME V_W	WET TEST METER PRESSURE P_W	T_E	T_O	DRY TEST METER TEMP IN T_A	TEMP OUT P_D	TEMP AVG V_D	T	ORIFICE $H_@$	VOLUME	METER CORRECT	ORIFICE COEFFICIE
START				0.000		29.10					0.50	464.200		
HALF			78.0				96.0	92.0	93.0					
STOP	11.50			5.000								469.118		
CALCULATION	11.50		538.0	5.057		29.10				553.0	29.16	4.918	1.0555	1.475
START				0.000		29.10					1.00	470.000		
HALF			78.0				90.0	91.0	96.5					
STOP	8.63			5.000								474.977		
CALCULATION	8.63		538.0	5.057		29.10				554.5	29.17	4.977	1.0445	1.580
START				0.000		29.10					2.00	476.000		
HALF			78.0				99.0	92.0	95.5					
STOP	6.12			5.000								480.920		
CALCULATION	6.12		538.0	5.057		29.10				555.5	29.25	4.920	1.0558	1.463
AVERAGE													1.0519	1.573

POOT TEST

RUN NO. 1
DATE 6-25-90
BP 28.96
OPERATOR BOB

	TIME	WET TEST METER TEMP T_W	WET TEST METER VOLUME V_W	PRESSURE P_W	T_I	P_I	DRY TEST METER TEMP IN T_A	TEMP OUT T_B	TEMP AVG T	ORIFICE $H_@$	VOLUME	METER CORRECT	ORIFICE COEFFICE
START				0.000		28.96				1.00	88.800		
HALF			82.0				95.0	87.0	91.0				
STOP	8.00			5.000							93.752		
CALCULATION	8.00		942.0	5.057		28.96			551.0	29.01	4.952	1.0354	1.801
START				0.000		28.96				1.00	94.000		
HALF			81.0				98.0	90.0	94.0				
STOP	8.07			5.000							99.095		
CALCULATION	8.07		941.0	5.057		28.96			554.0	29.01	5.095	1.0137	1.781
START				0.000		28.96				1.00	99.300		
HALF			81.0				100.0	91.0	95.5				
STOP	8.00			5.000							104.418		
CALCULATION	8.00		941.0	5.057		28.96			555.5	29.01	5.118	1.0119	1.780
AVERAGE												1.0203	1.787
DIFFERENCE												3.103	-12.013

MAGNAHELIC CALIBRATION

DATE 6-29-90

OPERATOR DBK

P 0-10		P 0-.5		D	
MAGNEHELIC	MANOMETER	MAGNEHELIC	MANOMETER	MAGNEHELIC	MANOMETER
0.50	0.50	0.50	0.50	4.00	4.00
1.00	1.00	0.40	0.40	3.00	3.00
2.00	2.00	0.30	0.30	2.00	2.00
4.00	4.00	0.20	0.20	1.00	1.00
6.00	6.00	0.10	0.10	0.50	0.50
8.00	8.00				

LEAK CHECK

DATE 6-29-90

OPERATOR DBK

	START CF	STOP CF	VOL	TIME	LEAK RATE
DRY	976.760	976.960	0.200	10.000	-0.001
WET	0.000	0.190	0.190		

PYROMETER CALIBRATION

DATE 06-28-88

OPERATOR JAL

mV Input	Temp °F	Temp rdg °F
0.10	40	40.0
0.40	50	50.0
0.86	70	70.0
1.29	90	90.0
1.76	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	300	301.0
8.39	400	400.0
10.57	500	500.0

PYROMETER CHECK

DATE 6-29-90

OPERATOR DBK

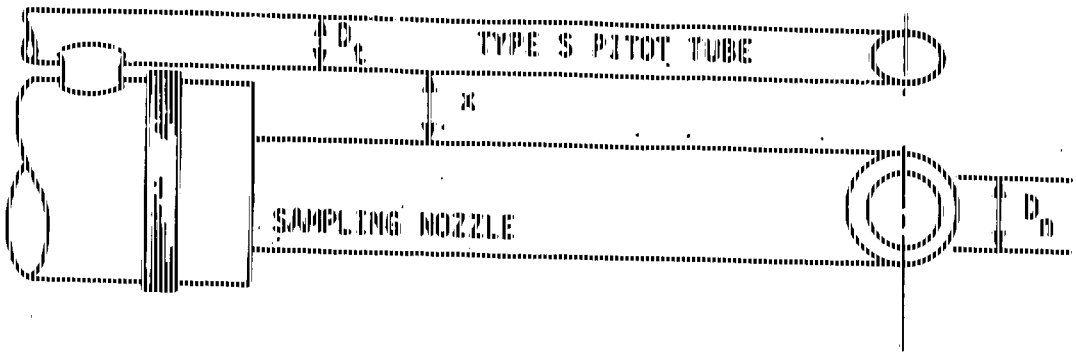
mV Input	Temp °F	Temp rdg
0.18	40	40.0
0.40	50	50.0
0.86	70	70.0
1.29	90	90.0
1.76	110	110.0
2.66	150	150.0
3.82	200	200.0
6.09	301	300.0
8.31	400	400.0
10.57	500	500.0

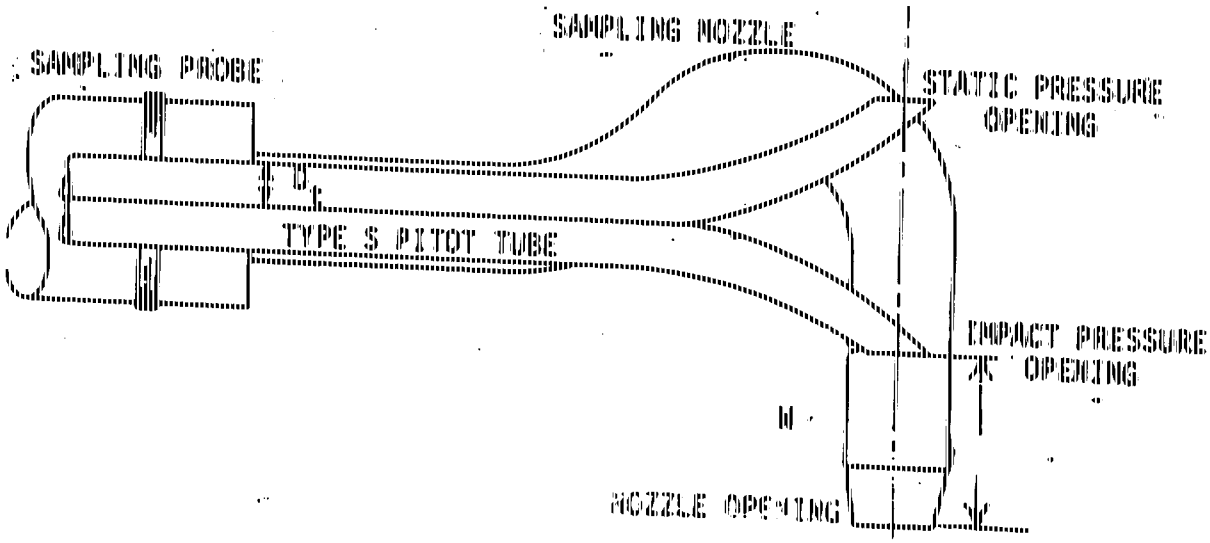
GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA
COMPLIANCE STACK TEST PROGRAM

APPENDIX B

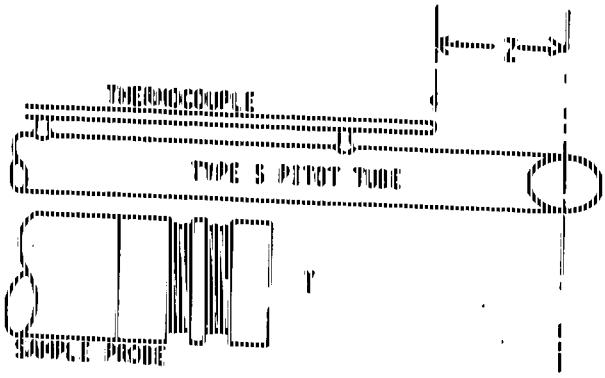
CALIBRATION RESULTS

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.





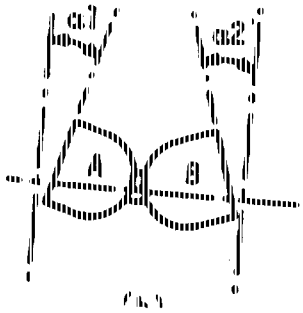
D_n = Nozzle diameter
D_t = 3/16 to 3/8"



W ≥ 0
X ≥ 3/4" for 1/2" Nozz
Y ≥ 3"
Z ≥ 2"

GEOMETRIC PITOT CALIBRATION

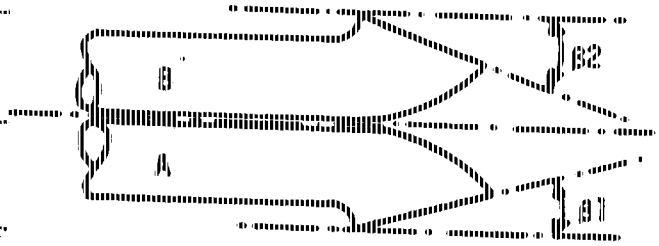
Probe No. S-2
Date 6-4-90
Initials DRR



α1, α2 <10°

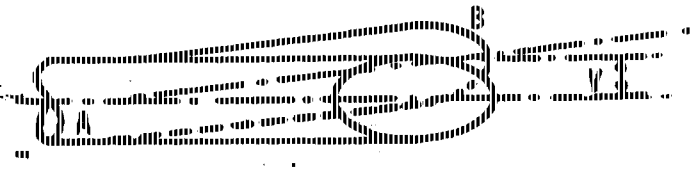
α1 = 1°
α2 = 5°
β1 = 3°
β2 = 3°
A = .968
u = .248
v = .068
W = >0
X = 1.188
Y = 23"
Z = 22"
D_t = .375

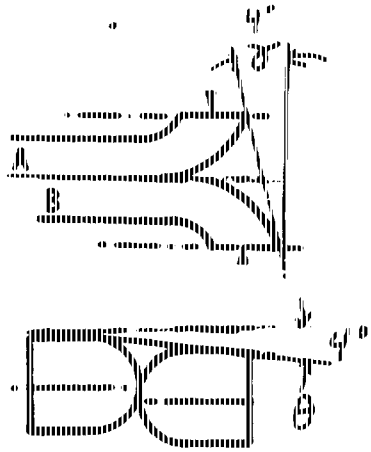
PA-401



β1, β2 <5

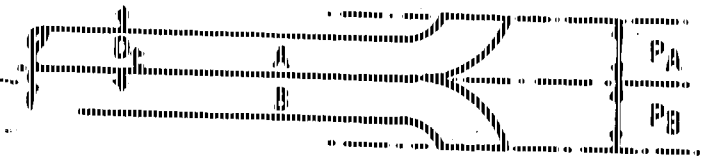
(C)





u = A SIN θ
v = A SIN θ

A-SIDE PLANE

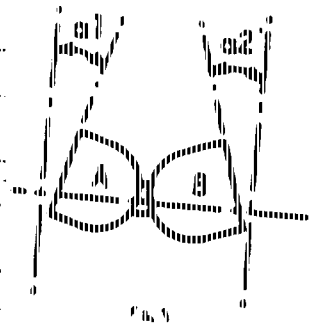


B-SIDE PLANE

.374 .563
1.05 D_t <P <1.50 D_t
P_A = P_B
2.10 D_t <A <3.00 D_t
.787 1.125

GEOMETRIC PITOT CALIBRATION

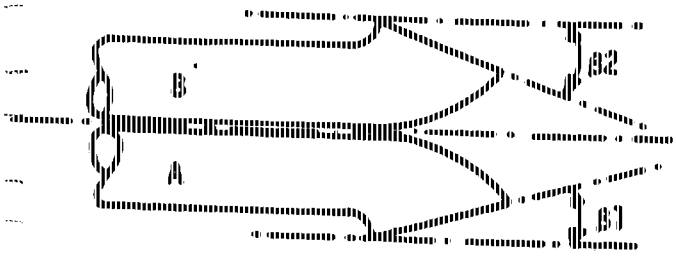
Probe No. 53
Date 6-9-90
Initials DRQ



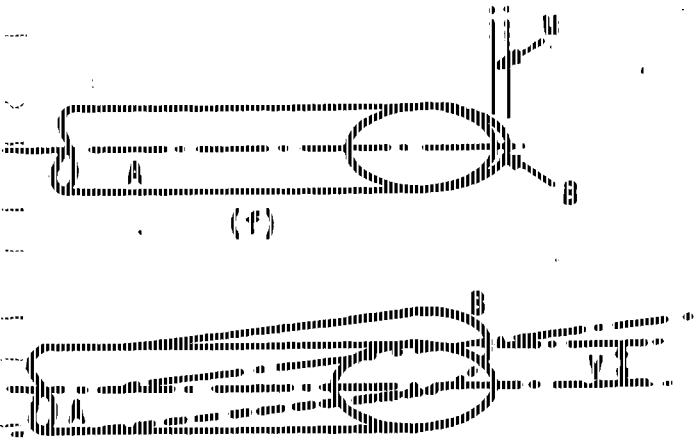
α1, α2 <10°

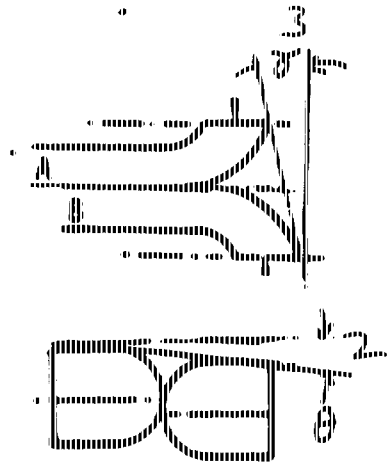
α1 = 1°
α2 = 1°
β1 = 3°
β2 = 3°
A = .847
u = .644
v = .830
w = 20
x = 1.125
y = 23
z = 28
D_t = .374

pre-test



β1, β2 <5

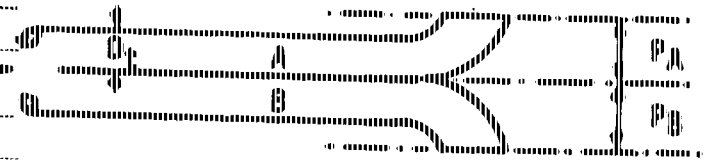




u = A SIN θ

v = A SIN θ

A-SIDE PLANE



B-SIDE PLANE

.393 .561

$1.05\ D_t < P < 1.50\ D_t$

$P_A = P_B$

$2.10\ D_t < A < 3.00\ D_t$

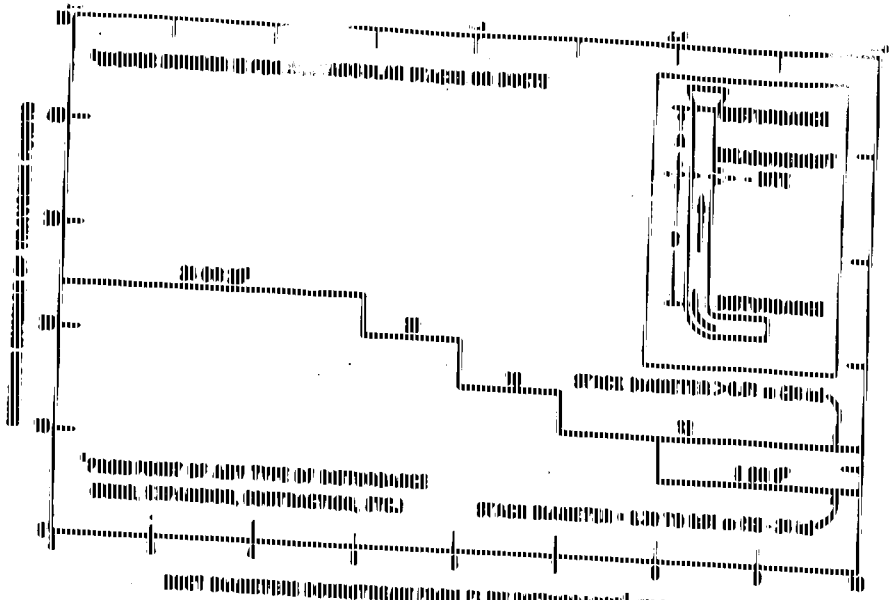
.785 1.122

GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA
COMPLIANCE STACK TEST PROGRAM

APPENDIX C

PARTICULATE MATTER
DATA SHEETS

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.



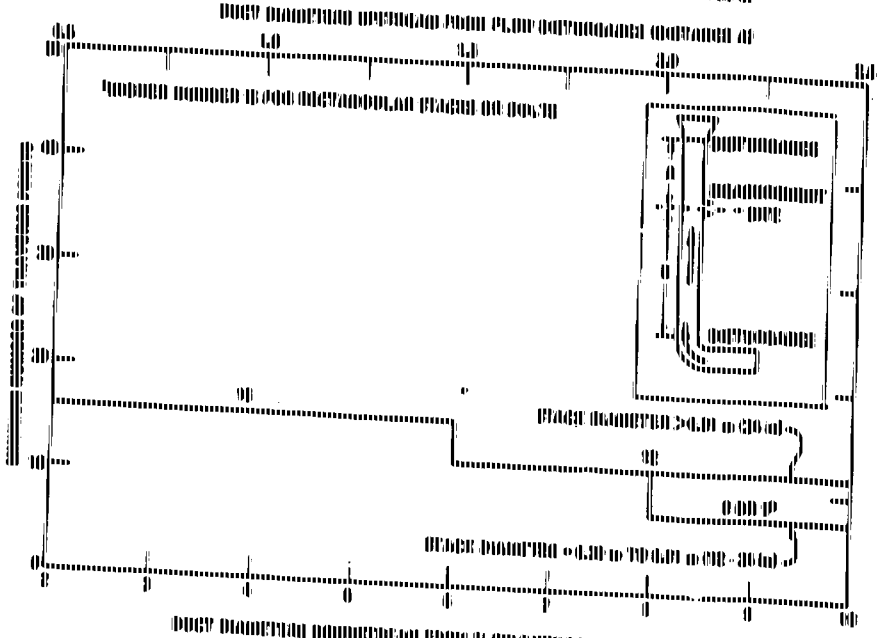


TABLE 1-2. LOCATION OF TRAVERSE POINTS IN CIRCULAR STACKS

(Percent of stack diameter from stack wall to traverse point)

Traverse point number on a diameter	Number of traverse points on a diameter											
	2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.6	3.2
3		75.0	85.4	19.4	14.6	11.8	9.9	8.6	7.6	6.7	6.0	5.4
4		93.3	95.6	80.6	85.4	17.7	14.6	12.6	10.9	9.7	8.7	7.9
5			98.4	89.5	85.4	82.3	85.4	14.9	13.1	11.8	10.8	9.9
6			99.6	97.2	93.3	88.2	85.4	83.1	14.9	13.2	11.9	10.9
7				99.6	98.2	93.3	88.2	85.4	83.1	14.9	13.2	11.9
8				99.8	99.4	96.8	93.3	88.2	85.4	83.1	14.9	13.2
9				99.8	99.6	97.9	95.6	93.3	88.2	85.4	83.1	14.9
10					99.8	98.4	96.8	95.0	93.3	88.2	85.4	83.1
11					99.8	99.3	97.9	96.8	95.0	93.3	88.2	85.4
12					99.8	99.6	98.4	97.9	96.8	95.0	93.3	88.2
13						99.8	99.3	98.4	97.9	96.8	95.0	93.3
14						99.8	99.6	99.3	98.4	97.9	96.8	95.0
15							99.8	99.6	99.3	98.4	97.9	96.8
16							99.8	99.8	99.6	99.3	98.4	97.9
17								99.8	99.8	99.6	99.3	98.4
18									99.8	99.8	99.6	99.3
19										99.8	99.8	99.6
20											99.8	99.8
21												99.8
22												
23												
24												

TABLE 1-1. CROSS-SECTION LAYOUT FOR RECTANGULAR STACKS

Number of traverse points	Duct width
0	
12	30
14	40
16	40
18	40
20	50
22	50
24	60
26	60
28	60
30	60
32	70
34	70
36	70

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Central Valley Aggregate DATE: 6-14-90 BAR: 1.573 (6-12-90) HOT BOX NO.: 4
LOCATION: Pleasant Grove PA TEST NO.: CVA-DAP-1 METER CORRECTION: 1.0519 COLD BOX NO.: 4
ACTIVITY NO: NOZZLE: 4 (44) .209 PITOT CORRECTION: .84 PROBE NO.: 5-3
CONTROL BOX OPERATOR STATIC PRESSURE Ps: -.60 CONTROL BOX NO.: 1 FILTER NO.: 421
PROBE WRANGLER PORT DIRECTION: A, B, C, D, E MANOGRAPH SET POINT: STACK DIA.: 38x43
CLEAN UP BAROMETRIC PRESSURE 29.01 LENGTHS OF UMBILICAL x 25' / x 50'

Point/Time Point	Time	Meter Reading (dry) Cf	Velocity HD in. H_2O	Orifice dH in. H_2O Req.	Orifice dH in. H_2O Act.	Meter Temp. Tm °F In	Meter Temp. Tm °F Out	Vacuum Vm in. Hg	Stack Temp. Ts °F	Probe Temp. Tp °F	Imp. Temp. Ti °C/°F	Hot Box Temp. In °F	Comments
38.7	0701	482.494	0.90	1.08	1.08	75	69	5.0	147	266	Bowlers	250	35 min/pt
30.1			.0075	.90	.90	79	71	4.5	148	≡	50		
24.5			.80	.89	.89	80	72	4.5	147				
12.9			1.1	1.22	1.22	83	74	5.1	146		52		
4.3	0718.6	492.820	1.2	1.33	1.33	84	74	5.8	147				
Point 6													
38.7	0725	492.821	.70	.78	.78	81	77	4.0	148	242		255	
30.1			.65	.72	.72	84	77	4.0	147		57		
24.5			.75	.83	.83	86	78	4.0	146				
12.9			1.1	1.22	1.22	88	79	5.1	146		56		
4.3	0742.6	502.300	1.1	1.22	1.22	90	80	5.1	147				
38.7	0746	502.310	.60	.67	.67	86	81	3.8	146	260		255	
30.1	(rem 4)		.55	.62	.62	89	82	3.5	142		58		
24.5			.50	.56	.56	90	83	3.2	145				
12.9			.65	.73	.73	91	84	4.0	148		58		
4.3	0809	510.523	.85	.95	.95	92	84	4.7	147				

LEAK CHECK

	In Hg	Rate
Before	6.0	0.02 cfm

	1	2	3
CO2	4.5	4.5	
O2	14.5	14.5	
CO			
N			

ORSAT

Pitot Check OK
Red OK
Green OK

Impinger No.	Final	Initial	Difference
Impinger 1	683.0 -	558.1	124.9
Impinger 2	595.6 -	559.5	36.1
Dry 3	474.8 -	469.3	5.5
Silica 4	1062.4 -	1051.6	13.8
5			

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Central Valley Ag DATE: 6-14-9 BAR: 1.573 (6-12-96) HOT BOX NO.: 4
LOCATION: Pleasant Grove PA TEST NO.: CVA-DMP-1 METER CORRECTION: 1.0519 COLD BOX NO.: 4
ACTIVITY NO: NOZZLE (44) .1209 PITOT CORRECTION: .84 PROBE NO.: 5-3
CONTROL BOX OPERATOR STATIC PRESSURE Ps: 160 CONTROL BOX NO.: 1 FILTER NO.: 421
PROBE HANDLER PORT DIRECTION: D, E NOMOGRAPH SET POINT: STACK DIA.: 38 x 43
CLEAN UP BAROMETRIC PRESSURE 29.01 LENGTHS OF UMBILICAL ____ x 25' ____ x 50' ____

Point	Time	Meter Reading (Gry) Cf	Velocity Hd In. H2O	Orifice dH In. H2O Req.	Orifice dH In. H2O Act.	Meter Temp. Tm °F In	Meter Temp. Tm °F Out	Vacuum Vm In. Hg	Stack Temp. Ts °F	Probe Temp. Tp °F	Imp. Temp. Ti °C/°F	Hot Box Temp. Th °F	Comments
Leak-D	0807	520.522								260			
38.7	0807	520.522	1.0	1.12	1.12	90	85	5.0	146	260		255	36 x 1ft
30.1			.65	.73	.73	93	85	4.0	147		55		
21.5			.60	.67	.67	94	86	3.8	149				
12.9			.75	.84	.84	94	86	4.3	149		58		
4.3	0824	520.015	1.0	1.12	1.12	95	87	5.0	148				
Leak-E													
38.7	0828	520.018	1.3	1.46	1.46	93	87	6.0	148	258		255	
30.1			1.0	1.12	1.12	96	87	5.0	149		60		
21.5			.65	.73	.73	98	89	5.0	149				
12.9			.95	1.06	1.06	99	90	5.0	147		62		
4.3	0845	520.910	1.4	1.57	1.57	100	91	6.0	147				

LEAK CHECK

	In Hg	Rate
Pre-test		
Post-test		

ORSAT

	1	2	3
CO_2			
O_2			
CO			

Impinger No.	Final	Initial	Difference
1			
2			
3			
4			
5			

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Centralia Asphalt DATE: 6-14-90 AMB: 1.573 (6-12-90) HOT BOX NO.: 6
LOCATION: Pleasant Gap PA TEST NO.: EVA-DMP-2 METER CORRECTION: 1.059 COLD BOX NO.: 6
ACTIVITY NO: NOZZLE: #37 .237 PITOT CORRECTION: .84 PROBE NO.: 5-2
CONTROL BOX OPERATOR STATIC PRESSURE Ps: .165 CONTROL BOX NO.: 1 FILTER NO.: 419
PROBE HANDLER PORT DIRECTION: A,B,C,D,E NOMOGRAPH SET POINT: STACK DIA.: 38x42
CLEAN UP BAROMETRIC PRESSURE 29.01 LENGTHS OF UMBILICAL ___ x 25' ___ x 50'

Point	Time	Meter Reading (dry) Cf	Velocity HD in. H2O	Orifice ΔH in. H2O Req.	Orifice ΔH in. H2O Act.	Meter Temp. Tm °F In	Meter Temp. Tm °F Out	Vacuum Vm in. Hg	Stack Temp. Ts °F	Probe Temp. Tp °F	Imp. Temp. Ti °C/°F	Hot Box Temp. Th °F	Comments
Port-A		531.042											Bank/Pt
38.7	1106	531.042	.90	1.84	1.84	92	89	9.0	151	260	50/46	245	
26.5			.65	1.33	1.33	96	90	6.5	149		60		
21.5			.55	1.13	1.13	99	92	6.0	156				
12.9			.75	1.54	1.54	101	92	8.0	157				
4.3	1121	545.005	1.1	2.24	2.24	102	93	11.0	156		62		
Port-B													
38.7	1124	573.025	.70	1.42	1.42	100	93	7.5	155	265		250	
30.1			.55	1.13	1.13	102	93	6.0	160		64		
21.5			.50	1.02	1.02	104	94	5.7	157				
12.9			.65	1.32	1.32	106	96	6.7	156		64		
4.3	1139	653.013	.75	1.53	1.53	107	97	8.0	153				
Port-C													
38.7	1141	653.013	.55	1.12	1.12	105	99	6.0	158	260		245	
30.1			.50	1.02	1.02	107	100	5.7	158		63		
21.5			.45	.92	.92	108	100	5.3	159				

? LEAK CHECK

	In Hg	Rate
Before	5.0	0.01 cfm
After	15.5	0.01 cfm

ORSAT

	1	2	3
CO2	4.5	4.5	
O2	14.5	14.5	
CO			
N			

Pitot Check
Port A OK 16"
Port B OK 15"
Port C OK 16"

Impinger No.	Final	Initial	Difference
Total	716.9	544.1	172.8
2 (ml)	556.9	542.5	23.4
3 (ml)	454.4	450.2	4.2
Silica Gel	682.7	661.2	12.9
5	673.6		

2/2-87

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Cannelton Alloys — DATE: 6-14-90 — BAR: 1573 6-12-90 — HOT BOX NO.: 6

LOCATION: Pleasant Gap PA — TEST NO.: CYA-Bap-2 — METER CORRECTION: 1.0519 — COLD BOX NO.: 6

ACTIVITY NO: — NOZZLE: #37 (23) — PITOT CORRECTION: .84 — PROBE NO.: S-2

CONTROL BOX OPERATOR — STATIC PRESSURE Ps: .65 — CONTROL BOX NO.: 1 — FILTER NO.: 419

PROBE HANDLER — PORT DIRECTION: C, D, E — NOMOGRAPH SET POINT: — STACK DIA.: 38x43

CLEAN UP — BAROMETRIC PRESSURE 29.61 — LENGTHS OF UMBILICAL ___ x 75' ___ x 50' ___

Point	Time	Meter Reading (dry) CF	Velocity HD in. H_2O	Orifice ΔH in. H_2O Req.	Orifice ΔH in. H_2O Act.	Meter Temp., T_m °F In	Meter Temp., T_m °F Out	Vacuum Vm in. Hg	Stack Temp. Ts °F	Probe Temp. Tp °F	Imp. Temp. Ti °C/°F	Hot Box Temp. Th °F	Comments
12.9			.60	1.22	1.22	109	100	6.2	157				
4.3	1156	562.273	.70	1.42	1.42	109	100	7.5	157				
Pox end													
38.7	1158	562.273	.60	1.22	1.22	106	101	6.2	155	260	64	250	
30.1			.50	1.02	1.02	109	101	5.8	160				
21.5			.55	1.13	1.13	110	102	6.0	159				
12.9			.70	1.42	1.42	110	102	7.5	159		65		
4.3	1213	572.209	.80	1.63	1.63	111	102	8.6	161				
Pox end													
38.7	1215	572.229	.85	1.73	1.73	110	103	8.8	157	260		250	
30.1			.70	1.42	1.42	111	103	7.7	162		65		
21.5			.65	1.32	1.32	113	104	6.9	160				
12.9			.80	1.63	1.63	114	104	8.6	159		66		
4.3	1230	583.510	1.0	2.03	2.03	114	105	10.5	161				

LEAK CHECK

	In Hg	Rate
Before		
After		

ORSAT

	1	2	3
CO_2			
O_2			
CO			
N			

Impinger No.	Final	Initial	Difference
1			
2			
3			
4			
5			

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Cumberland Valley Asphalt
DATE: 6-14-90
AMB: 1.573 6-12-90
HOT BOX NO.: 7
LOCATION: Pleasant Gap PA
TEST NO.: CVA-DMP-3
METER CORRECTION: 1.0549
COLD BOX NO.: 7
ACTIVITY NO:
NOZZLE: #8 (.237)
PITOT CORRECTION: .84
PROBE NO.: 5-4
CONTROL BOX OPERATOR
STATIC PRESSURE Ps: .60
CONTROL BOX NO.: 1
FILTER NO.: 412
PROBE HANDLER
PORT DIRECTION: A,B,C,D,E
NOMOGRAPH SET POINT:
STACK DIA.: 38 x 43
CLEAN UP
BAROMETRIC PRESSURE 28.97
LENGTHS OF UMBILICAL ___ x 25' ___ x 50' +

Point	Time	Meter Reading (dry) Cf	Velocity HD in. H2O	Orifice dH in. H2O Req.	Orifice dH in. H2O Act.	Meter Temp. Tm °F In	Meter Temp. Tm °F Out	Vacuum Vm in. Hg	Stack Temp. Ts °F	Probe Temp. Tp °F	Imp. Temp. Ti °C/°F	Hot Box Temp. Th °F	Comments
Port-A	12	Sellect											
38.7	1357	584.354	.85	1.00	1.70	102	98	6.0	157	260	55 55 40	250	2-/pt
30.1			.65	1.30	1.30	107	100	5.0	161		63		
21.5			.60	1.20	1.20	109	101	4.5	161				
12.9			.75	1.50	1.50	111	102	5.3	161		54		
4.3	1412	595.407	1.1	2.2	2.2	113	103	8.5	159				
Port-B													
38.7	1414	595.407	.80	1.60	1.60	110	104	6.0	157	262		255	
30.1			.60	1.20	1.20	112	104	4.7	160		57		
21.5			.60	1.20	1.20	113	105	4.7	160				
12.9			.55	1.10	1.10	113	106	4.4	162		60		
4.3	1429	605.541	.80	1.60	1.60	115	106	6.0	160		6-		
Port-C													
38.7	1431	605.541	.60	1.20	1.20	110	105	4.7	160	245		255	
30.1			.50	1.0	1.0	112	105	4.2	161		52		
21.5			.55	1.10	1.10	113	106	4.4	161				

LEAK CHECK

	In Hg	Rate
Before	0.0	0.00
After	0.0	1.00

ORSAT

	1	2	3
CO2	4.5	4.5	
O2	15.0	15.0	
CO			
N			

Pitot Check OK 15% Pitot OK 15% Good

Impinger No.		Final	Initial	Difference
1	100ml H2O	741.2	533.1	208.1
2	100ml H2O	574.6	541.8	32.8
3	DRY	407.8	405.6	4.2
4	Silicel	656.9	638.7	18.0
5				

KEYSTONE

STACK SAMPLING DATA SHEET

PLANT: Cement Valley Lime DATE: 6-14-90 AMB: 1.573 - 6-12-90 HOT BOX NO.: 7

LOCATION: Pleasant Gap PA TEST NO.: CVA-DAP-3 METER CORRECTION: 1.0519 COLD BOX NO.: 2

ACTIVITY NO: NOZZLE: #8 .237 PITOT CORRECTION: .84 PROBE NO.: 5-4

CONTROL BOX OPERATOR STATIC PRESSURE Ps: .60 CONTROL BOX NO.: 1 FILTER NO.: 412

PROBE HANDLER PORT DIRECTION: A,B,C,D,E NOMOGRAPH SET POINT: STACK DIA.: 38X42

LEAK UP BAROMETRIC PRESSURE 28.97 LENGTHS OF UMBILICAL ___ x 25' ___ x 50' +

Point	Time	Meter Reading (dry) Cf	Velocity HD in. H_2O	Orifice ΔH in. H_2O Req.	Orifice ΔH in. H_2O Act.	Meter Temp. T_m °F In	Meter Temp. T_m °F Out	Vacuum V_m in. Hg	Stack Temp. T_s °F	Probe Temp. T_p °F	Imp. Temp. T_i °C/°F	Hot Box Temp. In °F	Comments
12.9			.60	1.20	1.20	115	107	4.7	158		58		Start
4.3	1446	615.118	.75	1.50	1.50	116	108	5.5	161				
Port D													
38.7	1448	615.118	.70	1.40	1.40	114	108	5.2	157	260		250	
30.1			.60	1.20	1.20	116	109	4.7	156		57		
21.5			.60	1.20	1.20	115	109	4.7	160				
12.9			.75	1.52	1.52	117	109	5.5	163		58		
4.3	1503	625.509	.80	1.60	1.60	118	109	6.0	163				
Port E													
38.7	1505	625.509	1.0	2.03	2.03	116	110	7.2	158	260		250	
30.1			.95	1.92	1.92	118	110	7.0	159		54		
21.5			.80	1.60	1.60	119	110	6.0	162				
12.9			.86	1.72	1.72	119	110	6.3	164		57		
4.3	1520	637.759	1.1	2.22	2.22	120	111	8.5	160				

LEAK CHECK

	In Hg	Rate
Before		
After		

ORSAT

	1	2	3
CO_2			
O_2			
CO			
N			

Impinger No.	Final	Initial	Difference
1			
2			
3			
4			
5			

KEYSTONE

DATE: _____

TEST NO.: _____

SAMPLED BY: _____

TEST LOCATION: _____

ACTIVITY NO.: _____

STACK SAMPLING CALCULATIONS

A. B.P. _____ in. Hg.

B. Pitot correction _____

C. Gas meter correction _____

D. Stack area _____ ft^2 (0.785 D^2)

E. Nozzle Area _____ ft^2

F. Avg. Stack Temp. _____ °R (460 + T_s)

G. Avg. Meter Temp. _____ °R (460 + T_m)

H. Condensate vol. _____ ml

I. Absorbed H_2O _____ ml

J. Total H_2O _____ ml (H + I)

K. Wt. particulate on filter _____ g

L. Wt. particulate in probe _____ g

M. Wt. particulate in impingers _____ g

N. Total wt. particulate _____ g

O. Metered gas _____ CF

P. Corrected metered gas _____ CF (OC)

Q. H_2O gas volume _____ CF [0.00267 J (G/A+0.0447/28.6)]

R. Total sampled volume _____ CF (P + Q)

S. % H_2O _____ % (Q/R) · 100

T. SCF dry _____ SCF [P $\left(\frac{528}{T}\right)\left(\frac{A+0.0447/28.6}{29.92}\right)$] 29.40

U. Grain loading _____ gr/SCF $\left(\frac{15.43}{T}\right)$ 49.567 test 1

V. Avg. mol. wt.: Dry std (scfm) 46.791 test 1

Component	Vol. % / 100	x Moisture Correction (1 - S/100)	x Mol. Wt.	Wt. per mole
H_2O				
CO_2			18	
CO			44	
O_2			28	
N_2			32	
			28.2	

W. Gas density _____ $\left(\frac{V}{28.95}\right)$ Avg. Mol. Wt. _____

X. Gas density correction _____ $\left(\sqrt{\frac{T}{W}}\right)$

Y. Avg. velocity _____ FPS

Z. Corrected velocity _____ FPS [(X · Y · B)]

AA. Avg. Flow rate _____ CFM (ZD · 60)

BB. Stack Flow Rate _____ SCFM [528 $\left(\frac{A}{T}\right)\left(\frac{A+0.0447/28.6}{29.92}\right)$]

CC. Sample Time _____ sec.

DD. Nozzle volume _____ ft^3 $\left[\frac{P\ (E/6)}{T - (S/100)T}\right]$

EE. % Isokinetic _____ $\left[\frac{(DD \times 100)}{E\ (CC)\ (Z)}\right]$

FF. lb./hr. _____ $\frac{U \cdot BB\ (1-S/100) \cdot 60}{7000}$

TSP	40.11	% ISO	92.0
		ACT CF	50.971
		SCF DAY	46.791
TSP	40.12	% ISO	100.85
		ACT CF	54.246
		SCF DAY	49.567
TSP	40.13	% ISO	98.39
		ACT CF	56.173
		SCF DAY	50.607

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-2 6-14-90

PARAMETER	CYCLONE WT. (G)	MATL. ON FILTER (G)	INSOL. MATL. IN PROBE (G)	SOL. MATL. IN PROBE (G)
PARTICULATE	.00000	.00800	.00000	.00740

PARAMETER	INSOL. MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.02100	.02090

PARTICULATE	.05730
ALL MATLS.	.05730

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.01130	2.35866

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

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA
STACK

DATE: 6-14-90
CHARGE #: ...150-375000
TEST #: CVA-DMP-3

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00574	1.21533

2. STACK CONDITIONS

FLOW (ACFM)	37065.
(SCFM)	30607.
MOISTURE CONTENT (%)	19.32
STACK TEMPERATURE (F)	160.0

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	75.0
SCFD GAS SAMPLED	50.608
PERCENT ISOKINETIC	101.22

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-3 6-14-90

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTED VELOCITY FT/SEC
38.7A	1357.0	584.354	.850	1.70	1.70	102.	98.	6.0	157.	58.5
30.1A			.650	1.30	1.30	107.	100.	5.0	161.	51.3
21.5A			.600	1.20	1.20	109.	101.	4.5	161.	49.3
12.9A			.750	1.50	1.50	111.	102.	5.3	161.	55.1
4.3A	1412.0	595.407	1.100	2.20	2.20	113.	103.	8.5	159.	66.6
38.7B	1414.0	595.407	.800	1.60	1.60	110.	104.	6.0	157.	56.7
30.1B			.600	1.20	1.20	112.	104.	4.7	160.	49.2
21.5B			.600	1.20	1.20	113.	105.	4.7	160.	49.2
12.9B			.550	1.10	1.10	113.	106.	4.4	162.	47.2
4.3B	1429.0	605.541	.800	1.60	1.60	115.	106.	6.0	160.	56.9
38.7C	1431.0	605.541	.600	1.20	1.20	110.	105.	4.7	160.	49.2
30.1C			.500	1.00	1.00	112.	105.	4.2	161.	45.0
21.5C			.550	1.10	1.10	113.	106.	4.4	161.	47.2
12.9C			.600	1.20	1.20	115.	107.	4.7	158.	49.2
4.3C	1446.0	615.118	.750	1.50	1.50	116.	108.	5.5	161.	55.[illegible]
38.7D	1448.0	615.118	.700	1.40	1.40	114.	108.	5.2	157.	53.1
30.1D			.700	1.20	1.20	116.	109.	4.7	156.	53.0
21.5D			.600	1.20	1.20	115.	109.	4.7	160.	49.2
12.9D			.750	1.52	1.52	117.	109.	5.5	163.	55.2
4.3D	1503.0	625.509	.800	1.60	1.60	118.	109.	6.0	163.	57.0
38.7E	1505.0	625.509	1.000	2.03	2.03	116.	110.	7.2	158.	63.5
30.1E			.950	1.92	1.92	118.	110.	7.0	159.	61.9
21.5E			.800	1.60	1.60	119.	110.	6.0	162.	57.0
12.9E			.850	1.72	1.72	119.	110.	6.3	164.	58.8
4.3E	1520.0	637.755	1.100	2.22	2.22	120.	111.	8.5	160.	66.7

O R S A T

CO2	4.5
O2	15.0
CO	.0
N	80.5

IMPINGER NO.	1	208.1
	2	32.8
	3	4.2
	4	.0
ABSORBED H2O		12.0

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.573	6-12-90
METER	1.0519	6-12-90
PITOT	0.84	6-04-90

LEAK CHECK

	RATE	IN.HG
INITIAL	LT 0.02CFM	7.0
FINAL	0.017 CFM	9.0

CONTROL BOX NO. 1 PROBE NO. 5-4 NOZZLE NO. 8

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-3 6-14-90

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.	28.97
B.	AVG. DELTA H (IN H2O)	1.48
C.	METER PRESSURE (IN. HG.)	29.08
D.	STATIC PRESSURE (IN. H2O)	.60
E.	STATIC PRESSURE (IN. HG.)	.044
F.	STACK PRESSURE (IN. HG.) (A+E)	29.01
G.	STACK DIMENSIONS 43.0 X 38.0 IN.	
H.	STACK AREA (SQ. FT.) (LENGTH X WIDTH)	11.35
	NOZZLE DIAMETER	.2370
I.	NOZZLE AREA (SQ. FT.)	.000306
J.	AVG. STACK TEMP (DEG. R.)	620.0
K.	AVG. METER TEMP (DEG. R.)	570.0
L.	CONDENSATE VOL. (ML)	245.1
M.	ABSORBED H2O (ML)	12.0
N.	TOTAL H2O (ML)	257.1
O.	METERED GAS (CF)	53.401
P.	GAS METER CORRECTION	1.0519
Q.	CORRECTED METERED GAS (CF)	56.173
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	13.455
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	69.627
T.	PERCENT H2O (100R/S)	19.32
	THEORETICAL MAXIMUM	33.29
	PERCENT WATER USED	19.32
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	50.608

V. MOLECULAR WEIGHT OF STACK GAS

COMPONENT	ORSAT-DRY VOL.PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.045	X	.8068	X	44.0	=	1.60
CO	.000	X	.8068	X	28.0	=	.00
O2	.150	X	.8068	X	32.0	=	3.87
N2	.805	X	.8068	X	28.2	=	18.31
H2O		X	T/100= .1932	X	18.0	=	3.48
					MOLECULAR WEIGHT OF STACK GAS	=	27.26

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT((J*DELTA P)/(V*F))]	54.44
Y.	AVG. FLOW RATE (CFM) (X*H*60)	37065.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	30607.
	STACK FLOW RATE (DRY)	24693.
AA.	SAMPLE TIME (SEC)	4500.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*X*AA*I*P*(1-T/100))	101.22

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-3 6-14-90

PARAMETER	CYCLONE WT. (G)	MATL. ON FILTER (G)	INSOL. MATL. IN PROBE (G)	SOL. MATL. IN PROBE (G)
PARTICULATE	.00000	.00770	.00000	.00800

PARAMETER	INSOL. MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.00317	.00750

PARTICULATE	.02637
ALL MATLS.	.02637

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.00574	1.21533

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

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA
COMPLIANCE STACK TEST PROGRAM

APPENDIX D

EMISSIONS CALCULATIONS

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Plant: Central Valley Asphalt **Date:** 6/20/90

Activity No. 375000-32 (Pleasant Gap)

PARTICULATE REPORTING FORM

Test Number	Component	Molecular Weight	Cyclone Weight	Particulate Filter Weight (g)	Insol. Part. in Front Half	0.22 μm Millipore Filter Insol. Part. in Back Half (g)	Soluble Part. in Back Half	Soluble Part. in Front Half
CVA-DMP-1	Particulate			0.0071		0.0160	0.0095	0.0125
CVA-DMP-2	Particulate			0.0080		0.0210	0.0209	0.0074
CVA-DMP-3	Particulate			0.0077		0.0317	0.0075	0.0080

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA
STACK

DATE: 6-14-90
CHARGE #: ...150-375000
TEST #: CVA-DMP-1

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.01142	2.73782

2. STACK CONDITIONS

FLOW (ACFM)	38972.
(SCFM)	32916.
MOISTURE CONTENT (%)	15.05
STACK TEMPERATURE (F)	147.0

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	87.5
SCFD GAS SAMPLED	47.997
PERCENT ISOKINETIC	93.43

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-1 6-14-90

FIELD DATA AND VELOCITY CALCULATIONS

POINT	TIME	METER READING (DRY) CF	DELTA P IN.H2O	ORIFICE DELTA H REQ	ORIFICE DELTA H ACT	METER TEMP DEG F IN	METER TEMP DEG F OUT	VACUUM IN.HG.	STACK TEMP DEG F	CORRECTED VELOCITY FT/SEC
38.7A	701.0	482.454	.900	1.08	1.08	75.	69.	5.0	147.	59.1
30.1A			.750	.90	.90	79.	71.	4.5	148.	54.0
21.5A			.800	.89	.89	80.	72.	4.5	147.	55.7
12.9A			1.100	1.22	1.22	83.	74.	5.1	146.	65.3
4.3A	718.5	492.821	1.200	1.33	1.33	84.	74.	5.8	147.	68.3
38.7B	725.0	492.821	.700	.78	.78	81.	77.	4.0	148.	52.2
30.1B			.650	.72	.72	84.	77.	4.0	147.	50.2
21.5B			.750	.83	.83	86.	78.	4.0	146.	53.9
12.9B			1.100	1.22	1.22	88.	79.	5.1	146.	65.3
4.3B	742.5	502.318	1.100	1.22	1.22	90.	80.	5.1	147.	65.4
38.7C	746.0	502.318	.600	.67	.67	86.	81.	3.8	146.	48.2
30.1C			.550	.62	.62	89.	82.	3.5	142.	46.0
21.5C			.500	.56	.56	90.	83.	3.2	145.	44.[illegible]
12.9C			.650	.73	.73	91.	84.	4.0	148.	50.[illegible]
4.3C	803.5	510.523	.850	.95	.95	92.	84.	4.7	147.	57.5
38.7D	807.0	510.523	1.000	1.12	1.12	90.	85.	5.0	146.	62.3
30.1D			.650	.73	.73	93.	85.	4.0	147.	50.2
21.5D			.600	.67	.67	94.	86.	3.8	149.	48.3
12.9D			.750	.84	.84	94.	86.	4.3	149.	54.1
4.3D	824.5	520.018	1.000	1.12	1.12	95.	87.	5.0	148.	62.4
38.7E	828.0	520.018	1.300	1.46	1.46	93.	87.	6.0	148.	71.1
30.1E			1.000	1.12	1.12	96.	87.	5.0	149.	62.4
21.5E			.650	.73	.73	98.	89.	4.0	149.	50.3
12.9E			.950	1.06	1.06	99.	90.	5.0	147.	60.7
4.3E	845.5	530.910	1.400	1.57	1.57	100.	91.	6.0	147.	73.7

O R S A T	
CO2	4.5
O2	14.5
CO	.0
N	81.0

IMPINGER NO.	1	124.9
	2	36.1
	3	5.5
	4	.0
ABSORBED H2O		13.8

CONTROL BOX CALIBRATIONS

	FACTOR	DATE
ORIFICE	1.573	6-12-90
METER	1.0519	6-12-90
PITOT	0.84	6-04-90

LEAK CHECK

	RATE	IN.HG
INITIAL	LT 0.02CFM	6.0
FINAL	0.008 CFM	7.0

CONTROL BOX NO. 1 PROBE NO. 5-3 NOZZLE NO. 44

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-1 6-14-90

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG	29.01
B.	AVG. DELTA H (IN H2O)	.97
C.	METER PRESSURE (IN. HG.)	29.08
D.	STATIC PRESSURE (IN. H2O)	.60
E.	STATIC PRESSURE (IN. HG.)	.044
F.	STACK PRESSURE (IN. HG.) (A+E)	29.05
G.	STACK DIMENSIONS 43.0 X 38.0 IN.	
H.	STACK AREA (SQ. FT.) (LENGTH X WIDTH)	11.35
	NOZZLE DIAMETER	.2090
I.	NOZZLE AREA (SQ. FT.)	.000238
J.	AVG. STACK TEMP (DEG. R.)	607.0
K.	AVG. METER TEMP (DEG. R.)	545.4
L.	CONDENSATE VOL. (ML)	166.5
M.	ABSORBED H2O (ML)	13.8
N.	TOTAL H2O (ML)	180.3
O.	METERED GAS (CF)	48.456
P.	GAS METER CORRECTION	1.0519
Q.	CORRECTED METERED GAS (CF)	50.971
R.	H2O GAS VOLUME (CF) (0.00267N(K/C)	9.028
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	59.999
T.	PERCENT H2O (100R/S)	15.05
	THEORETICAL MAXIMUM	24.20
	PERCENT WATER USED	15.05
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	47.997

V. MOLECULAR WEIGHT OF STACK GAS

COMPONENT	ORSAT-DRY VOL. PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.045	X	.8495	X	44.0	=	1.68
CO	.000	X	.8495	X	28.0	=	.00
O2	.145	X	.8495	X	32.0	=	3.94
N2	.810	X	.8495	X	28.2	=	19.41
H2O		X	T/100= .1505	X	18.0	=	2.71
					MOLECULAR WEIGHT OF STACK GAS	=	27.74

W.	PITOT CORRECTION	.840
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT((J*DELTA P)/(V*P))]	57.24
Y.	AVG. FLOW RATE (CFM) (X*H*60)	38972.
Z.	STACK FLOW RATE (SCFM) (528*Y/J*P/29.92)	32916.
	STACK FLOW RATE (DRY)	27964.
AA.	SAMPLE TIME (SEC)	5250.
BB.	PERCENT ISOKINETIC (J*100*U*29.92)/(528*K*AA*X*F*(1-T/100))	93.43

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA STACK
CVA-DMP-1 6-14-90

PARAMETER	CYCLONE WT. (G)	MATL. ON FILTER (G)	INSOL. MATL. IN PROBE (G)	SOL. MATL. IN PROBE (G)
PARTICULATE	.00000	.00710	.00000	.01250

PARAMETER	INSOL. MATL. IN IMP. (G)	SOLUBLE MATL. IN IMP. (G)
PARTICULATE	.01600	.00950

PARTICULATE	.04510
ALL MATLS.	.04510

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.01142	2.73782

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

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA
STACK

DATE: 6-14-90
CHARGE #: ...150-375000
TEST #: CVA-DMP-2

1. EMISSION RESULTS

PARAMETER	GR/SCFD	LB/HR
PARTICULATE	.01130	2.35866

2. STACK CONDITIONS

FLOW (ACFM)	35233.
(SCFM)	29269.
MOISTURE CONTENT (%)	16.83
STACK TEMPERATURE (F)	157.3

3. SAMPLING CONDITIONS

SAMPLE TIME (MIN.)	75.0
SCFD GAS SAMPLED	49.589
PERCENT ISOKINETIC	100.60

AIR QUALITY ENGINEERING

CENTRAL VALLEY ASPHALT
PLEASANT GAP, PA — STACK
CVA-DMP-2 — 6-14-90

STACK SAMPLING CALCULATIONS

A.	BAROMETRIC PRESSURE IN. HG.	29.01
B.	AVG. DELTA H (IN H2O)	1.40
C.	METER PRESSURE (IN. HG.)	29.11
D.	STATIC PRESSURE (IN. H2O)	.65
E.	STATIC PRESSURE (IN. HG.)	.048
F.	STACK PRESSURE (IN. HG.) (A+E)	29.06
G.	STACK DIMENSIONS 43.0 X 38.0 IN. (LENGTH X WIDTH)	
H.	STACK AREA (SQ. FT.)	11.35
	NOZZLE DIAMETER	.2370
I.	NOZZLE AREA (SQ. FT.)	.000306
J.	AVG. STACK TEMP (DEG. R.)	617.3
K.	AVG. METER TEMP (DEG. R.)	562.4
L.	CONDENSATE VOL. (ML)	200.4
M.	ABSORBED H2O (ML)	12.4
N.	TOTAL H2O (ML)	212.8
O.	METERED GAS (CF)	51.568
P.	GAS METER CORRECTION	1.0519
Q.	CORRECTED METERED GAS (CF)	54.244
R.	H2O GAS VOLUME (CF) (0.002670(R/C)	10.975
S.	TOTAL SAMPLED VOLUME (CF) (Q+R)	65.220
T.	PERCENT H2O (100R/S)	16.83
	THEORETICAL MAXIMUM	30.94
	PERCENT WATER USED	16.83
U.	SCFD GAS SAMPLED (528*Q*C/(29.9*K))	49.589
V.	MOLECULAR WEIGHT OF STACK GAS	

COMPONENT	ORSAT-DRY VOL. PCT./100	X	MOISTURE CORRECTION (1-T/100)	X	MOLECULAR WEIGHT	=	WEIGHT PER MOLE
CO2	.045	X	.8317	X	44.0	=	1.65
CO	.000	X	.8317	X	28.0	=	.00
O2	.145	X	.8317	X	32.0	=	3.86
N2	.810	X	.8317	X	28.2	=	19.00
H2O		X	T/100= .1683	X	18.0	=	3.03
					MOLECULAR WEIGHT OF STACK GAS	=	27.53

W.	PITOT CORRECTION	
X.	AVERAGE CORRECTED VELOCITY (FPS) [85.49*W*SQRT((J*DELTA P)/(V*F))]	.840
Y.	AVG. FLOW RATE (CFM) (X*H*60)	51.75
Z.	STACK FLOW RATE (SCFM) (528*Y/J*F/29.92)	35233.
	STACK FLOW RATE (DRY)	29269.
AA.	SAMPLE TIME (SMIN)	24343.
BB.	PERCENT ISOKINETIC	4500.
	(J*100*U*29.92)/(528*K*AA*I*P*(1-T/100))	100.60

GLENN O. HAWBAKER, INC.
PLEASANT GAP, PA
COMPLIANCE STACK TEST PROGRAM

APPENDIX E

TOTAL GASEOUS ORGANIC VAPOR DATA SHEETS

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Cooper Valley Aspect 6-15/90

Zero=0.0 Span 822-812 95-93 ppm

Time		
	0705	490 ppm
	0715	405
	0725	450
	0735	470
	0745	490
	0755	430
	0805	420
	0820	410
	0830	390
	0840	390
	0846	380

Run-1
(CM-009-1)

Zero=0.0
95-93 ppm
822-830 ppm
Span

(1106)	1065	270
	1116	300
	1126	340
	1136	400
	1147	335
	1157	380
	1207	340
	1220	370
	1230	378

Run 2
(CM-009-2)

Zero=0.0
Span 822-811
95-93

Central Valley Asphalt

6-14-90

Run #3

CM-090-3

Time	Psig
1400	370
1410	350
1420	380
1430	355
1440	360
1450	360
1505	365
1515	355
1520	370

Zero = 0.0

822 = 87 Span

95 = 92 Span

Bag Check

822 570 475 47 840 I 1775

high mile Begins 6mo -69 Sep 20

Line Pr IT Shows 600 645 Sept 20

Test (1550) 6-14-90 no 6445

CHART NO. LC-0100-0025
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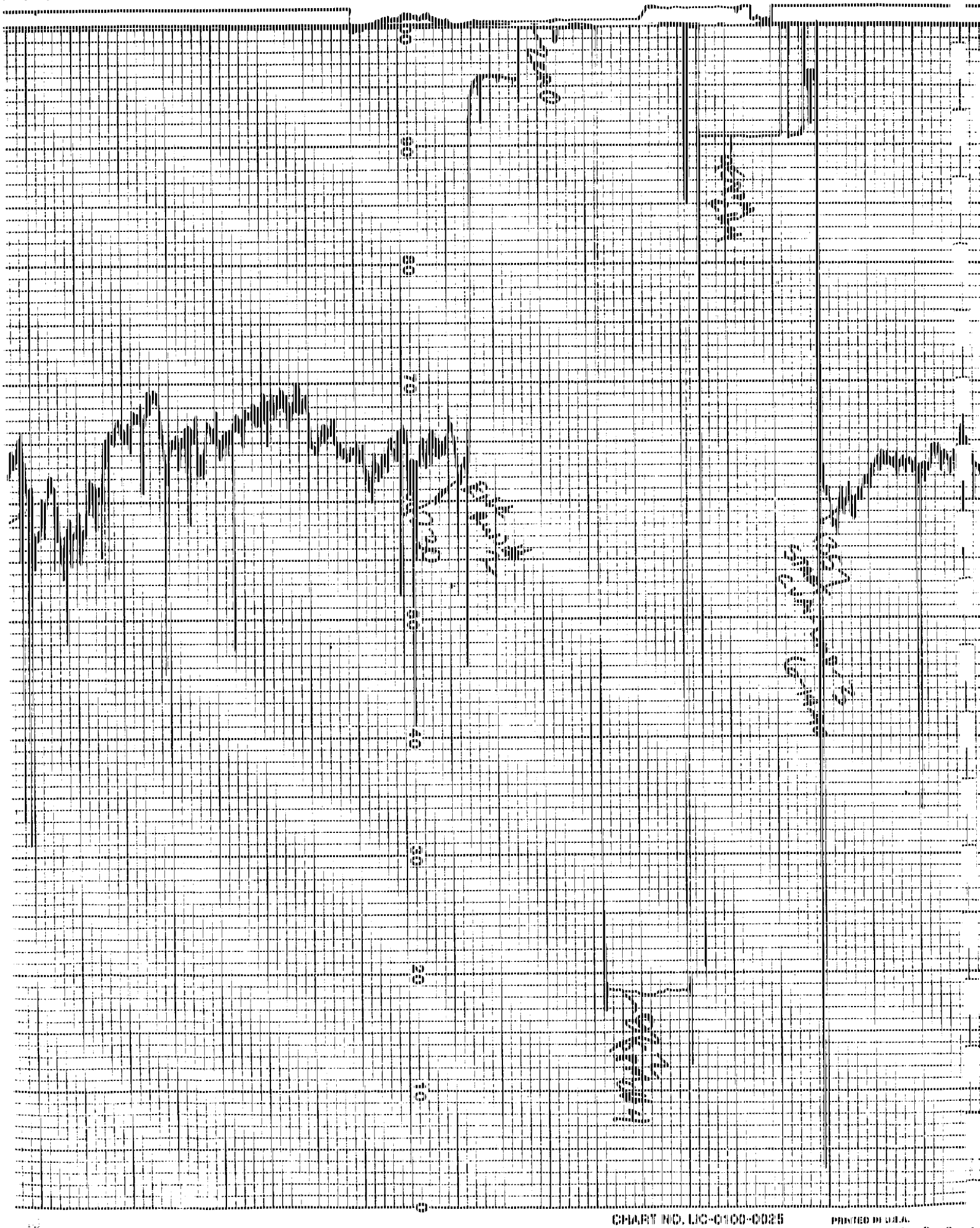
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CHART NO. JC-0100-0025
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