JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MEMORANDUM

Division of Energy
Division of Environmental Quality
Division of Geology and Land Survey
Division of Management Services
Divisionof Parks, Recreation,
and Historic Preservation

DATE: SEPT. 6, 1994

TO: County file: GREENE
Facility: JOURNAGAN CONST.
Location: SPRINGFIELD

FROM: Doug Elley

SUBJECT: COMPLIANCE TEST RESULTS Test Date: July 20, 1994

Testing firm: AEROMET

Test team leader: TOM SCHEPPERS
Source tested: CM1 Continuous Port. Asphalt Plant PVM-375

Pollutants tested for: PM
OPACITY

	% Iso	ft³ samp.	lb/hr	ppm	gr/dscf	gr/dscf corr.	Allowed	Opac%
Run #1	100				.0067			
Run #2	103				.0067			
Run #3	103				.0065			
Averages					.0067		.04	0%

Rated production/operation capacity: 375 ton/hr

Production/operation rate during test: 465 ton/hr

Fuel used: Natural GAS Rate: Analysis:

Combustion Efficiency =CE= $\frac{CO_2}{CO_2 + CO}$ x 100 = ____x100 =_____

Control device: Baghouse
Secondary chamber volume (measured): _____

Retention time: Run #1_____ Run #2_____ Run #3_____
Av.= _____ seconds

Pressure drop(s): 3.8" H2O
Scrubber supply line water psi: _____

dm/5-91

TEST CERTIFICATION

I certify that the enclosed test results are true, accurate, and authentic. I was personally responsible for all phases of the testing to determine the particulate and visible emissions from the CMI Drum Mix Model PVM-375 Asphalt Plant at the Leo Journagan Construction Co., Springfield, Mo., location.

The sampling equipment and procedures conformed to USEPA Method 1,2,3,5, and 9 for particulate and visible emissions from stationary sources. The results of this testing are the basis for this report.

AEROMET ENGINEERING, INC.

Tom Scheppers, P.E.
President

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INTRODUCTION

AeroMet Engineering, Inc., located in Jefferson City, Missouri, has been retained by Leo Journagan Construction Co., located in Springfield, Missouri, to determine the particulate and visible emissions from a new Model PVM-375 asphalt plant installed at the Journagan Construction site, located at U.S. 65 & Evans Road, Springfield, Missouri. Performance testing is required under the condition of a construction permit (# 1293-016) which was issued to Leo Journagan Construction Co. by the Missouri Department of Natural Resources. The asphalt plant is also subject to the Code of Federal Regulation (CFR) Title 40 Part 60 New Source Performance Standards (NSPS) Subpart I - Standards of Performance for Hot Mix Asphalt Facilities. USEPA Methods 5 and 9 were used for the testing with no deviations from the standard procedures. The asphalt plant is permitted to produce up to 760,000 tons per year, emission rate of no greater than 0.04 grains/dry standard cubic foot, and less than 20 percent visible emissions.

Source testing took place on July 20, 1994. Pre-test planning was accomplished by phone conversations with the following individuals: Doug Elley of Missouri Department of Natural Resources; John View, Vice President of Leo Journagan Construction; and Tom Scheppers, P.E., of AeroMet Engineering, Inc.

The project engineer and test team crew chief during the test for AeroMet Engineering was Tom Scheppers, P.E. Two other members of the test team were Mr. Darryl Meister and Mr. Jeff Broker. Mr. Broker is an EPA certified visible emissions reader and performed the Method 9 Visible Emissions Readings. Mr. Doug Elley observed the tests representing the Air Pollution Control Program, Missouri Department of Natural Resources. All aspects of the test program were coordinated with John View, Vice President. The plant operating data was collected by the operator at 15 minute intervals. The data is presented in Appendix K.

Weather did play a factor during the testing program, causing a delay in testing and affecting the production rates near the end of the third run. For most of the test runs, the sky was mostly clear with a storm front moving in. The storm hit the facility near the end of the third run with heavy rain. Testing was continued until a port change to the last port at which time the test was delayed approximately 5 minutes and resumed for the remaining 12 minutes after the heavy rain passed. After the rain had hit the area, production could not be maintained as well as prior to the rain due to the excessive unanticipated moisture. The temperatures were around the upper 80's to 90's.

II. SUMMARY OF RESULTS

The results are summarized in Table I. Actual emissions results are listed for particulate and visible emissions. The results of all three runs demonstrate compliance with the allowable limit of 0.04 grains per dry standard cubic foot (gr/dscf) and 20% opacity. The asphalt plant was operated at approximately 465 ton/hr of both aggregate and asphalt. A detailed description of the process is

TABLE I

Leo Journagan Construction Co.
Summary of Particulate and Visible Emission Test
CMI Drum Mix Model PVM-375 Asphalt Plant

	Run 1 07/20/94	Run 2 07/20/94	Run 3 07/20/94	Ave.
Process Conditions				
Production Rate (ton/hr)	465	466	465*	465
Stack Conditions				
Stack Gas Temperature (°F)	289	287	281	286
Actual Gas Flow (ACFM)	41,372	42,347	43,056	42,258
Std. Gas Flow (DSCFM)	18,607	18,198	17,947	18,250
Isokinetics (%)	100	103	103	
Emissions, Actual				
Visible (percent)	0	0	0	0
Particulate (lb/hr)	1.08	1.05	1.00	1.04
Particulate (gr/DSCF)	0.0067	0.0067	0.0065	0.0067

*Average of normal production prior to heavy rains
See Section I

found in the next section of this report. A summary of the production rates can be found in Table II within that same section.

The isokinetic sampling rate is also shown in Table I. This rate compares the stack gas velocity to the nozzle velocity of the sampling probe. A rate of 100% represents a stack gas velocity equal to the nozzle velocity. The acceptable range is 90% to 110%. EPA has determined that sampling outside this range may cause a bias in the results based on the particle size and aerodynamic properties.

The filters from all three runs were very clean and white in appearance, although appearance does not necessarily indicate weight. All three sets of samples appeared similar in light color and low density. The appearance also coincides with other samples taken from similar asphalt plants showing good combustion.

During the one-day testing period, no abnormalities were discovered to contribute to any errors in the results of the tests.

The particulate emission results should be representative of the actual concentrations within the normal accuracies of Method 5. Although no upper limits of emissions have been established for the test method, an upper limit has not been exceeded based on acceptance of the test method on significantly higher grain loadings. The estimated accuracy of Method 5 is approximately +/- 20% based on results of collaborative tests.

III. DESCRIPTION OF THE PROCESS

Leo Journagan Construction Co. purchased and installed a new asphalt plant at their facility, south of Springfield, Mo. The asphalt plant consists of a new CMI Continuous Drum Mixer Model PVM-375. The Model PVM-375 asphalt plant is a fixed plant with portable capability. The Drum Mix Asphalt Plant consists of a cold feed system (five bin hopper), conveyors, a dryer drum with an integrated dryer/mixer, asphalt storage, fuel storage, and two product storage silos.

A process description is as follows: Virgin aggregate is transported from storage piles to five independent bins by front end loader. The bins of specific sized aggregate are fed independently and continuously onto a feed belt. The feed belt supplies the correctly proportioned aggregate to the dryer drum. Feed rates are determined by automated controllers in order to blend a proper mix meeting any required specifications. The aggregate enters the rotating dryer drum at the upper end. The aggregate is heated with combustion fuel in the rotary drum by direct contact with the combustion gases.

After leaving the drying area, hot asphalt is mixed with the aggregate. From the dryer/mixer, the mixed asphalt is transferred to a storage silo. Asphalt can be stored and dispensed to trucks without interruption of the production process.

Combustion products, moisture, and particulate fines from the process are pulled from the dryer/mixer. All gases and fines will travel to a baghouse under negative pressure from an induced draft fan located at the outlet of the baghouse. The fan forces the air up a rectangular stack to discharge to the atmosphere. Test ports are installed in the upper portion of the stack.

The entire facility uses the latest state-of-the-art technology available in controlling all process feeds, temperatures, blending, weighing, data recording, etc. The facility is automated to the extent that production runs are manufactured consistently and to specification.

IV. DESCRIPTION OF THE SOURCE

The asphalt plant exhaust gases are controlled by a baghouse prior to exiting through a rectangular stack. The gases discharge to the atmosphere through a 25-foot stack. Stack dimensions inside the wall are 42 3/4 Width by 57 1/2 inches, as measured at the test ports. The effective diameter is 49.0 inches.

The test ports (five equally spaced along one wall) are located 61.25 inches (1.25 diameter) from the stack exit, and 245.0 inches (5.0 diameters) from the last disturbance (Louvered damper). The damper is adjustable automatically in order to maintain proper air flow under any condition.

V. PLANT OPERATING CONDITIONS

The asphalt production process was operated in a normal operating manner. The average production rate during the test was approximately 462 tons/hour of finished asphalt product. Raw materials were consistent with normal materials used at this facility. The aggregate was obtained from the quarry and stored in uncovered piles. Moisture content of the aggregates was typical. Fuel used during the entire test duration was natural gas.

The plant operation data for the period July 20, 1994, is presented in Appendix K. This data has been recorded approximately every 15 minutes during each run. The data includes time, process input weight for both aggregate and total asphalt, and temperatures. The pressure drop across the baghouse averaged approximately 3.8 inches of water. This graph is also presented in Appendix K. A summary of the production rates and baghouse pressure drops are presented in Table II. No asphalt mix was recycled during the tests.

VI. TEST CONDITIONS

The Method 5 test samples were drawn from four points on each of five traverses of the stack. The traverse point locations were specified by USEPA Method 1. Samples were collected isokinetically for a total of one hour for each of three runs (3.0 minutes/point).

TABLE II

Summary of
Asphalt Plant Daily Operations Reports
Leo Journagan Construction Co.

Date	Run Number	Asphalt (TPH)	Baghouse Diff. Press. ("H_2O)
07/20/94	1	465	3.9
07/20/94	2	466	3.9
07/20/94	3	465*	3.8
Averages During Tests		465	3.9

*Average of normal production prior to heavy rains
See Section I

No problems of either the asphalt plant operations or the sampling were encountered during the tests. The asphalt plant was charged with typical aggregate mix, asphalt and fuel in a steady state manner.

A cyclonic flow test and preliminary velocity traverse was performed prior to the first Method 5 test. Stack flow conditions were acceptable for testing. All sampling points were found to have flow angles within 0 to 1°. The average angle of rotation of the stack gases for the 20 points in the vertical plane was less than 2°. (Averages up to 20° are acceptable according to the USEPA procedures.)

VII. TEST EQUIPMENT AND METHODS

The test procedures and equipment used to determine the particulate and visible concentrations in the stack gases of the asphalt plant are described in Appendix E of this report. In brief, a Research Appliance Corporation stack sampling train was used to determine the particulate emissions according to USEPA Reference Method 5, and a certified visual emissions observer was used to determine the visible emissions according to USEPA Reference Method 9.

Particulate Test Analysis

JOURNAGAN
MAIN STACK
CMI ASPHALT PLANT

Run Number		1	2	3
Data Set		1	2	3
Date		07-20-94	07-20-94	07-20-94
Location		STACK	STACK	STACK
Start Time		08:55	11:42	14:18
End Time		10:03	12:50	15:28
Barometric Pressure	In. Hg	28.65	28.43	28.08
Static Pressure	In H2O	-0.20	-0.20	-0.20
Volume of Condensate	ML	525.9	595.0	630.1
Volume Sampled	DCF	54.795	57.096	57.515
Pitot Tube Coeffecient		0.84	0.84	0.84
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		0.558	0.566	0.572
Orifice Pressure	In H2O	2.71	2.89	2.98
Meter Temperature	Deg. F	100.4	116.2	120.8
Flue Temperature	Deg. F	289	287	281
Percent CO2	%	8.0	8.0	8.0
Percent O2	%	7.2	7.2	7.2
Diameter of Nozzle	In.	0.373	0.373	0.373
Area of Flue	Sq Ft	17.07	17.07	17.07
Sample Time	Min	60	60	60
Weight Gain	Grams	0.0217	0.0218	0.0207
Absolute Flue Pressure	In. Hg	28.64	28.42	28.07
Corrected Sample Volume	DSCF	49.54	49.84	49.21
Moisture in Flue Gas	%	33.3	36.0	37.6
Molecular Weight	Lb/LbMole	25.71	25.41	25.22
Velocity of Flue Gas	Fps	40.39	41.35	42.04
Volume of Flue Gas	ACFM	41,372	42,347	43,056
Volume of Flue Gas	DSCFM	18,607	18,198	17,947
Dust Concentration	Lb/DSCF	9.66E-07	9.64E-07	9.27E-07
Dust Concentration	Lbs/Hour	1.08	1.05	1.00
Dust Concentration	Grs/ACF	3.04E-03	2.90E-03	2.71E-03
Dust Concentration	Grs/DSCF	6.76E-03	6.75E-03	6.49E-03
Isokinetic Rate	%	99.9	102.8	102.9

Averages:

Stack Temperature	DEGR F :	286		
Flue Gas Volume	ACFM :	42258	DSCFM :	18250
Dust Concentration	Lb/DSCF:	9.53E-07	Lb/Hour:	1.043
	Grs/ACF:	2.88E-03	Grs/DSCF :	6.67E-03

Particulate Field Data Sheet

Client: JOURNAGAN CONST.									Date: 7/20/94	Page 1 Of 1			
Project No.: 475			Operator: Tom SCHEPPERS						Orsat Analysis				
Sampling Location: MAIN STACK						Run No.: 2			CO_2	$+O_2$	O_2	CO	
Filter No.: 06		Acetone No.: MG		Condensate: 595.0					8.0	15.2	7.2	0	
Barometric Pressure: 28.43			Static Pressure: -.2		Probe Number: P5				8.0	15.2	7.2	0	
Nozzle Diameter: .373		Nozzle Number: A375		Pitot Coefficient: .84		Pitot Number: P5			8.0	15.2	7.2	0	
Meter Corr. Factor: .996				Meter-Orifice: .176					8.0	15.2	7.2	0	
Sample Pt. Time: 3 min/pt 11:42			Assumed % Moisture: 30%			Leak Test: Before 0.000 @ 15" Hg			After 0.012 @ 6" Hg				

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack (1)	Probe (2)	Imp. Out (4)	Oven (3)	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
A											464.500
1	.17		1.45	285	245	64	238	95	95	4	466.643
2	.18		1.54	285	254	64	263	98	96	4	468.800
3	.18		1.54	289	256	61	257	105	96	4	471.001
4	.20		1.73	288	253	61	265	111	97	4	473.398
B			3.02								
1	.35		3.02	288	255	66	266	109	98	3	476.264
2	.32		2.80	287	261	62	252	119	100	3	479.121
3	.30		2.64	286	259	62	256	123	101	3	481.819
4	.34		3.00	286	260	64	235	127	102	3	484.655
C											
1	.36		3.19	287	247	74	271	128	105	4	487.621
2	.32		2.84	290	252	70	249	134	107	4	490.520
3	.33		2.92	290	253	65	251	128	108	4	493.351
4	.39		3.46	289	251	66	256	130	108	5	496.463
D											
1	.36		3.21	289	257	61	244	134	110	4	499.451
2	.32		2.86	287	254	59	243	135	111	4	502.238
3	.36		3.23	288	247	58	234	138	112	5	505.231
4	.43		3.87	287	249	58	248	141	113	5	508.586
E											
1	.39		3.52	287	244	59	245	141	114	5	511.800
2	.42		3.79	287	249	59	238	141	116	5	515.083
3	.42		3.80	286	246	62	244	143	116	5	518.342
4	.38		3.47	281	246	64	248	144	118	5	521.596

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet

Client: JOURNAGAN CONST.										Date: 7/20/94	Page 1 Of 1		
Project No.: 475			Operator: TOM SCHERPERS							Orsat Analysis			
Sampling Location: MAIN STACK					Run No.: 1					CO_2	$+O_2$	O_2	CO
Filter No.: 05		Acetone No.: M6		Condensate: ~~M6~~ 525.9						8.0	15.2	7.2	0
Barometric Pressure: 28.65		Static Pressure: -.2		Probe Number: P5						8.0	15.2	7.2	0
Nozzle Diameter: .373	Nozzle Number: A 375	Pitot Coefficient: .84		Pitot Number: P5						8.0	15.2	7.2	0
Meter Corr. Factor: .996		Meter-Orifice: .176								8.0	15.2	7.2	0
Sample Pt. Time: 3 min/pt 60 min		Assumed % Moisture: 30 %				Leak Test: Before 0.002@16"Hg			After 0.002@8"Hg				

8:55 Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: 1 Stack	2 Probe	Imp. Out	3 Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
A											1409.400
1	.35		2.89	292	263	62	261	82	82	5	1412.143
2	.17		1.41	291	271	59	230	86	82	3	1414.493
3	.19		1.59	289	270	60	270	92	84	3	1416.841
4	.20		1.69	288	271	60	268	98	84	3	1419.032
B											~~1421.721~~
1	.35		2.97	287	248	62	265	99	85	5	1421.721
2	.26		2.21	289	235	62	264	102	87	4	1424.259
3	.32		2.73	289	236	63	252	106	88	4	1427.131
4	.26		2.23	288	238	65	235	110	89	4	1429.636
C											
1	.34		2.88	290	250	65	266	98	92	3	1432.475
2	.28		2.40	289	238	64	240	108	94	3	1435.310
3	.32		2.74	292	245	61	230	111	94	3	1438.111
4	.37		3.19	292	241	60	235	115	95	4	1440.615
D											
1	.29		2.51	291	236	63	270	116	96	4	1443.252
2	.33		2.86	290	238	63	245	116	98	4	1446.071
3	.35		3.05	287	241	61	247	118	98	4	1448.882
4	.40		3.50	286	239	60	253	121	99	4	1451.935
E											
1	.38		3.32	287	234	65	237	119	100	4	1454.961
2	.37		3.24	286	236	63	258	120	100	4	1458.023
3	.40		3.49	290	240	63	261	122	101	4	1461.081
4	.37		3.24	291	242	64	234	126	102	4	1464.195

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

$\Delta H_a = 1.830$

Particulate Field Data Sheet

Client: JOURNAGAN CONST.				Date: 7/20/94	Page 1 Of 1
Project No.: 475	Operator: TOM SCHEPPERS			Orsat Analysis	
Sampling Location: MAIN STACK			Run No.: 3	CO_2	$+O_2$ / O_2 / CO
Filter No.: 07	Acetone No.: M6	Condensate: 630.1		8.0	15.2 / 7.2 / 0
Barometric Pressure: 28.08	Static Pressure: -.2	Probe Number: P5		8.0	15.2 / 7.2 / 0
Nozzle Diameter: .373	Nozzle Number: A375	Pitot Coefficient: .84	Pitot Number: P5	8.0	15.2 / 7.2 / 0
Meter Corr. Factor: .996		Meter-Orifice: .176		8.0	15.2 / 7.2 / 0
Sample Pt. Time: 3 min/pt 14:18	Assumed % Moisture: 30		Leak Test: Before 0.003@15"Hg	After 0.004 @17"Hg	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
A											521.827
1	.26		2.28	278	243	60	256	104	106	7	524.406
2	.20		1.76	280	242	59	258	108	106	6	526.789
3	.20		1.75	286	246	61	253	114	106	6	529.148
4	.25		2.20	286	245	62	248	118	106	7	531.590
B											
1	.32		2.82	285	245	65	252	121	106	10	534.304
2	.27		2.40	285	248	62	257	126	107	8	536.936
3	.28		2.49	287	250	61	243	130	108	8	539.562
4	.34		3.04	285	255	62	256	134	109	9	542.365
C											
1	.36		3.23	284	242	63	246	135	111	11	546.351
2	.29		2.62	283	243	63	242	140	112	9	548.341
3	.33		2.99	282	244	63	256	141	112	10	551.975
4	.39		3.55	282	245	65	248	143	114	12	554.017
D								~~145~~	~~115~~		
1	.37		3.37	282	243	66	246	145	115	11	557.100
2	.36		3.28	281	245	64	243	143	115	11	560.107
3	.38		3.50	276	244	64	254	148	118	11	563.413
4	.39		3.60	272	246	64	251	149	118	11	566.702
E 15:10	Interruption		by heavy rain				Rain start @ 15:02				
1	.~~50~~47		4.27	268	230	64	259	120	114	16	570.416
2	.40		3.60	278	235	64	264	125	114	14	573.000
3	.40		3.58	284	236	64	256	129	114	14	576.306
4	.36		3.24	284	238	67	254	136	114	13	579.342

Pitot Tube Leak Check: Before OK After OK

Integratec Bag Leak Check: Before OK After OK

Particulate Test
Method 5
Impinger Volumes

Run 1 **Date** 7/20/94 **Facility** JOURNAGAN

	Impinger		Final		Initial		Reagent	Liquid Gain
M4	1	MGS	877.6	ml	622.0 100	ml	H_2O	255.6
M3	2	GS	839.9	ml	606.8 100	ml	H_2O	233.1
C4			545.4		528.0			17,4
M2	3	MGS	529.6	ml	525.6 0	ml	Empty	4.0
S3	4	MGS	1030.3	g	1014.5	g	Silica Gel	15.80

Total: 525.90

GS - Greenburg Smith

MGS - Modified Greenburg Smith

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Particulate Test
Method 5
Impinger Volumes

Run 2 **Date** 7/20/94 **Facility** JOURNAGAN

	Impinger	Final	Initial	Reagent	Liquid Gain
M4	1 MGS	889.3 ml	625.4 / 100 ml	H_2O	263.9
M3	2 GS	886.4 / 571.3 ml	598.2 / 545.4 ml	H_2O	288.2 / 25.9
M2	3 MGS	533.0 ml	528.6 0 ml	Empty	4.4
	4 MGS	1014.0 g	1001.4 g	Silica Gel	12.6

Total: 595.0

GS - Greenburg Smith

MGS - Modified Greenburg Smith

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Particulate Test
Method 5
Impinger Volumes

Run 3 **Date** 7/20/94 **Facility** JOURNAGAN

	Impinger	Final		Initial		Reagent	Liquid Gain
	1 MGS	888.1	ml	637.4 100	ml	H_2O	250.7
	2 GS	891.0	ml	604.5 100	ml	H_2O	286.5
C4		602.4		528.6			73.8
M2	3 MGS	531.6	ml	526.90	ml	Empty	4.7
C5	4 MGS	1032.7	g	1018.3	g	Silica Gel	14.4

Total: 630.1

GS - Greenburg Smith

MGS - Modified Greenburg Smith

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METHOD 1
CYCLONIC FLOW DETERMINATION

Source Name JOURNAGAN

Date 7/20/94

Sampling Location MAIN STACK

SAMPLE POINT	DELTA P	ANGLE (degrees)
A 1	0	0-1°
2	0	
3	0	
4	0	
B 1	0	
2	0	
3	0	
4	0	
C 1	0	
2	0	
3	0	
4	0	
D 1	0	
2	0	
3	0	
4	0	
E 1	0	
2	0	
3	0	
4	0	0-1°
	0	
	0	
	0	
	0	

ΔP = .35 - .50

~~1-70~~ ° Saturated

AEROMET ENGINEERING, INC.

Testing ● Monitoring ● Consulting

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Analytical Data Sheet

Client JOURNAGAN Project No. 475 Date 7/29/94

Run No. 1
Filter No. 05
Acetone No. M6
Amount liquid lost during transport 0
Acetone blank volume, ml 250
Acetone wash volume, ml 140
Acetone blank concentration, mg/mg (equation 5-4)** 1.5×10^{-6}
Acetone wash blank, mg (equation 5-5)** 0.0002

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	0.6917	0.6912	0.0005
2	96.6948	96.6734	0.0214
3			
Less acetone blank			0.0002
Weight of particulate matter			0.0217

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final		
Initial		
Liquid collected		
Total Volume Collected		g* ml

Run No. 2
Filter No. 06
Acetone No. M6
Amount liquid lost during transport 0
Acetone blank volume, ml 250
Acetone wash volume, ml 130
Acetone blank concentration, mg/mg (equation 5-4)** 1.5×10^{-6}
Acetone wash blank, mg (equation 5-5)** 0.0002

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	0.6885	0.6883	0.0002
2	95.1222	95.1004	0.0218
3			
Less acetone blank			0.0002
Weight of particulate matter			0.0218

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final		
Initial		
Liquid collected		
Total Volume Collected		g* ml

Run No. 3
Filter No. 07
Acetone No. M6
Amount liquid lost during transport 0
Acetone blank volume, ml 250
Acetone wash volume, ml 110
Acetone blank concentration, mg/mg (equation 5-4)** 1.5×10^{-6}
Acetone wash blank, mg (equation 5-5)** 0.0001

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	0.6934	0.6934	0.0000
2	98.1693	98.1485	0.0208
3			
Less acetone blank			0.0001
Weight of particulate matter			0.0207

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final		
Initial		
Liquid collected		
Total Volume Collected		g* ml

Run No. BLANK
Filter No. N/A
Acetone No. M6
Amount liquid lost during transport 0
Acetone blank volume, ml 250
Acetone wash volume, ml N/A
Acetone blank concentration, mg/mg (equation 5-4)** 1.5×10^{-6}
Acetone wash blank, mg (equation 5-5)** N/A

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	95.7882	95.7879	.0003
2			
3			
Less acetone blank			
Weight of particulate matter			

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final		
Initial		
Liquid collected		
Total Volume Collected		g* ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{1\text{g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

EXPANDED RANGE DIGITAL THERMOMETER INSTRUCTIONS

Specifications

Digital Display: 4 LCD digits

Sampling Time: Less than 1 second

Resolution: 1 Degree

Fahrenheit Model

Accuracy Chart:

Temp. Range	Accuracy (+/-)
32 to 932 °F	0.75% + 2 °F
933 to 1382 °F	1% + 2 °F
1383 to 1832 °F	2% + 2 °F (typical)
1833 to 2000 °F	4% + 2 °F (typical)
31 to -4 °F	4 °F (typical)
-5 to -50 °F	6 °F (typical)

Celsius Model

Accuracy Chart:

Temp. Range	Accuracy (+/-)
0 to 500 °C	0.75% + 1 °C
501 to 750 °C	1% + 1 °C
751 to 1000 °C	2% + 1 °C (typical)
1001 to 1200 °C	4% + 3 °C (typical)
0 to -20 °C	2 °C (typical)
-21 to -40 °C	3 °C (typical)
-41 to -50 °C	4 °C (typical)

Case: ABS plastic

Failsafe: Low battery indicator

Power: 9 Volt alkaline battery

Probe Supplied: Ultra-fast response, naked bead type K thermocouple with operating temperature range to 482 °F or 250 °C, and short term usage to 572 °F or 300 °C, Cat. No. 4028.

Dry Gas Meter Calibration Sheet

Client _____ Run By _____

Project No. _____ Date 2-23-94

Module L-1 Barometric Press 29.13

Orifice .176

ΔH in. H_2O	Vw initial	Vw final	Vw ft.³	Vd initial	Vd final	Vd ft.³	tw °F	tdi °F	tdo °F	Pw in. H_2O	Time θ min.
.5	13.297	18.707	5.410	996.988	002.534	5.546	69	69/86	69/75	0	14
1.0	18.707	23.792	5.085	1002.534	007.774	5.240	70	86/98	75/78	0	9
2.0	23.792	29.259	5.467	007.774	013.428	5.654	70	98/106	78/82	0	7
4.0	29.259	34.635	5.376	013.428	019.003	5.575	70	106/112	82/84	0	5
6.0	34.635	40.090	5.455	019.003	024.688	5.685	70	112-116	84/88	0	4

ΔH	$\frac{\Delta H}{13.6}$	Mc (Y) $\frac{Vw\ Pb\ (td + 460)}{Vd\ (Pb + \Delta H/13.6)\ (tw + 460)}$	ΔHa (For Small Orifice Only) $\frac{0.0317\ \Delta H}{Pb\ (td + 460)} \cdot \left[\frac{(tw + 460)\ \theta}{Vw}\right]^2$
.5	.0368	.984	1.908
1.0	.0737	.994	1.760
2.0	.147	1.000	1.819
4.0	.294	1.001	1.902
6.0	.441	0.999	1.761
Average		.996	1.830

ΔH = Orifice Setting
Vw = Volume of Gas of Wet Test Meter
Vd = Volume of Gas of Dry Gas Meter
Pw = Pressure of Wet Test Meter
tw = Temperature of Fluid in Wet Test Meter
tdi = Inlet Temperature of Dry Gas Meter
tdo = Outlet Temperature of Dry Gas Meter
td = Average Temperature of Dry Gas Meter
θ = Time required to pull specified cubic feet
Mc = Dry Gas Meter Correction Factor
ΔHa = Orifice setting that would pull .75 cfm of air at standard conditions

Dry Gas Meter Calibration Sheet

Client _____ Run By TOM SCHEPPERS

Project No. _____ Date 7/29/94

Module L-1 Barometric Press 29.40

Orifice .176

ΔH in. H_2O	Vw initial	Vw final	Vw ft^3	Vd initial	Vd final	Vd ft^3	tw °F	tdi °F	tdo °F	Pw in. H_2O	Time θ min.
.5	41.588	48.701	7.113	903.784	911.161	7.377	88/	95/103	98/99	0	18
1.0	48.701	54.525	5.824	911.161	917.244	6.083	88	103/123	99/103	0	10
2.0	54.525	60.078	5.553	917.244	923.057	5.813	87	124/127	103/106	0	7
4.0	60.078	65.527	5.449	923.057	928.748	5.691	87	127/132	106/109	0	5
6.0	65.527	71.054	5.527	928.748	934.509	5.761	87	132/137	109/111	0	4

ΔH	ΔH / 13.6	Mc (Y) $\frac{Vw\ Pb\ (td + 460)}{Vd\ (Pb + \Delta H/13.6)\ (tw + 460)}$	ΔHa (For Small Orifice Only) $\frac{0.0317\ \Delta H}{Pb\ (td + 460)} \cdot \left[\frac{(tw + 460)\ \theta}{Vw}\right]^2$
.5	.0368	0.981	1.879
1.0	.0737	0.988	1.705
2.0	.147	0.998	1.807
4.0	.294	1.002	1.903
6.0	.441	1.005	1.764
Average		0.995	1.811

ΔH = Orifice Setting
Vw = Volume of Gas of Wet Test Meter
Vd = Volume of Gas of Dry Gas Meter
Pw = Pressure of Wet Test Meter
tw = Temperature of Fluid in Wet Test Meter
tdi = Inlet Temperature of Dry Gas Meter
tdo = Outlet Temperature of Dry Gas Meter
td = Average Temperature of Dry Gas Meter
θ = Time required to pull specified cubic feet
Mc = Dry Gas Meter Correction Factor
ΔHa = Orifice setting that would pull .75 cfm of air at standard conditions

AEROMET ENGINEERING

ANEROID BAROMETER CALIBRATION

Instrument Number BM-60

Calibrated By TOM SCHEPPERS

Date 6/19/93 - 7/29/94

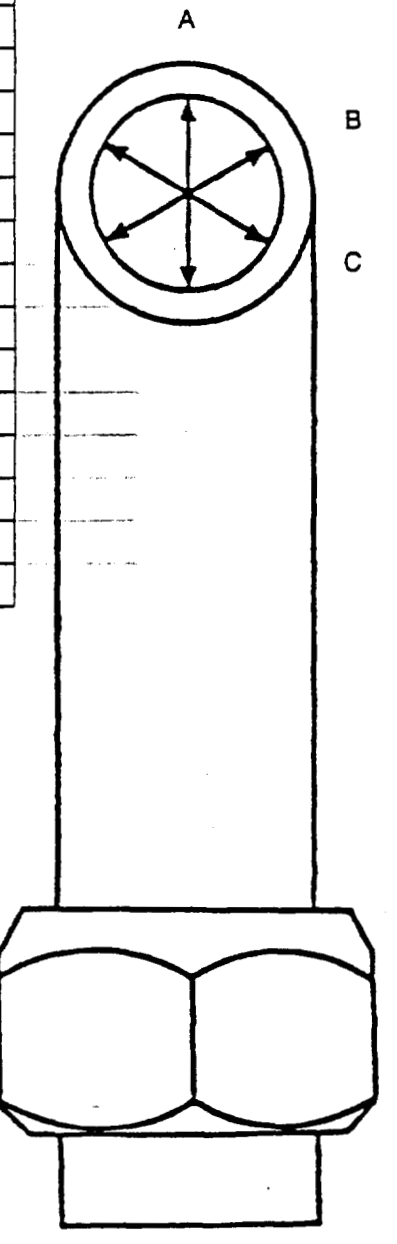
Date	Aneroid Barometer Reading ("Hg)	Mercury Barometer Reading ("Hg)	Deviation ("Hg)
6/19/93	29.83	29.83	0.00
2/23/94	29.13	29.13	0.00
7/29/94	29.40	29.40	0.00

Nozzle Calibration

Sized By TOM SCHEPPERS

Date	Nozzle	Dimension			Difference	Avg. Diameter
		A	B	C		
7/20/94	A375	0.373	0.373	0.374	0.001	0.373

All Dimensions are in inches.



Pitot Calibration Form

Client _____ Run By TOM SCHEPPERS

Project No. _____ Date 5/5/94

Test Location _____ Pitot No. P5

	• "A" Side Calibration			
Run No.	Δ P std cm H_2O (in. H_2O)	Δ P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s) - \bar{C}_p(A)$
1	1.0	1.41	.84	0
2	1.0	1.41	.84	0
3	1.0	1.41	.84	0
Average		$\bar{C}_p$ (Side A)	.84	0

	•• "B" Side Calibration			
Run No.	Δ P std cm H_2O (in. H_2O)	Δ P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s) - \bar{C}_p(B)$
1	1.0	1.41	.84	0
2	1.0	1.41	.84	0
3	1.0	1.41	.84	0
Average		$\bar{C}_p$ (Side B)	.84	0

Calculations:

$$C_p(s) = 0.99 \sqrt{\frac{\Delta P \text{ (standard)}}{\Delta P \text{ (s)}}}$$

Deviation = $C_{p(s)} = \bar{C}_p$ (A or B)

$$\text{Average Deviation} = \sigma(\text{A or B}) = \frac{\sum_{1}^{3} |C_p(s) - \bar{C}_p(\text{A or B})|}{3}$$

$|\bar{C}_p(\text{Side A}) - \bar{C}_p(\text{Side B})| =$ 0

Nozzle size used for Calibrations (inches) .500

Intercomponent Spacings During Calibrations:

Pitot - Nozzle: >3/4"

* Pitot - Thermocouple: ~2" back

Pitot - Probe Sheath: > 3"

* or two inches from end of thermocouple to center line of pitot tube.

Thermocouple Calibrations

(Oven, Probe)

Client AEROMET 2-9-93

Project No. -

Thermocouple Identification	Trendicator	Thermometer	Thermometer Number	Date
THT-4-780	67	67.4	NIST-C	2-9-93
THT-4-780	157	157.3	NIST-C	2-9-93
THT-4-780	212	211.0	NIST-C	2-9-93
THT-4-740	67	67.4	NIST-C	2-9-93
THT-4-740	157	157.3	NIST-C	2-9-93
THT-4-740	211	211.0	NIST-C	2-9-93
G8A	67	67.4	NIST-C	2-9-93
G8A	211	211.4	NIST-C	2-9-93
G8B	67	67.4	NIST-C	2-9-93
G8B	211	211.2	NIST-C	2-9-93
L-1 OVEN	250	248	THT-4-780	2-9-93
L-1 DGM IN	67	67.4	NIST-C	2-9-93
L-1 DGM OUT	68	67.4	NIST-C	2-9-93
L-1 IMP OUT	67	67.4	NIST-C	2-9-93
D-1 OVEN	255	253	THT-4-780	2-9-93
D-1 DGM IN	67	67.4	NIST-C	2-9-93
D-1 DGM OUT	67	67.4	NIST-C	2-9-93
D-1 IMP OUT	67	67.4	NIST-C	2-9-93

DIGITAL THERMOM. PROBES

L-1 METER BOX

D1 METER BOX

Denver Instrument Company

Certificate of Calibration

Model A-250 Date 12-13-91

Serial Number B033665

We hereby certify that the referenced instrument was manufactured in the United States and that it has been calibrated to full capacity using NBS Class S-1 weights. This instrument has been fully inspected and has passed all quality tests as specified by Denver Instrument Company quality control guidelines.

To assure proper operation, it may be necessary to recalibrate the instrument periodically using known weights.

Quality Technician

Quality Control Manager

Denver Instrument Company
6542 Fig Street • Arvada, Colorado 80004 • 1-800-321-1135

TESTING EQUIPMENT - EPA METHOD 5 SAMPLING TRAIN

A RAC Corporation Stack Sampler was used at the sampling location(s). The particulate sampling train consisted basically of a glass or stainless steel probe; a variable-heat-controlled filter oven with a calibrated thermometer located at the impinger outlet; a 1/2-hp shaft sealed carbon vane vacuum pump assembly with a vacuum gauge; a control unit with an elapse time indicator, a temperature indicator (potentiometer), temperature controllers, gauges, a calibrated dry gas meter, and an umbilical and various interconnecting hoses, fitting and valves. An appropriately sized glass or stainless-steel nozzle, a calibrated Type K temperature sensor, a static pressure tube, a calibrated S type pitot tube and a variable-heat-controlled stainless-steel liner are integral parts of the probe assembly.

The vacuum pump was used to control gas sampling rates. The control unit was used to control probe and oven temperatures. The control unit was also used to monitor elapsed sampling times, temperatures, velocities, static pressure, gas sampling rates and sampled gas volume.

Analyzer (Orsat)

Flue gas concentrations were determined with a Gas Analyzer (Orsat) which measures the percentage of carbon dioxide, percentage of oxygen and percentage of carbon monoxide to the nearest tenth of a percent.

Programmable Calculator

A Hewlett Packard, Model HP41CX, programmable calculator was used to determine the isokinetic sampling rate at each sampling point.

Prior to the field testing, the following procedures were performed: All instruments were checked and calibrated. Gelman Spectro Grade, glass-fiber-mat filters with 99.95 percent retention of 0.3-micron particles were individually numbered, placed in similarly numbered glass petri dishes, desiccated for 24 hours and weighed on a Sartorious analytical balance to the nearest 0.1-milligram, and weighed a minimum of every six hours until two consecutive weights within +0.5 milligram were obtained, or heated for two to three hours at 220 degrees F, cooled in a desiccator and weighed. Several 250 milliliter crucibles were desiccated for a minimum of 24 hours and weighed in the same manner as the filters and petri dishes. Also, several 200-gram quantities of Type 6-16 mesh indicating silica gel were weighed on an beam balance and placed into separate airtight storage containers.

The number of sampling points and positions of the points in the flue at the sampling location(s), and the sampling time at each point were determined prior to the particulate testing. The sampling procedures were performed in accordance with the Environmental Protection Agency's Reference Method 5, "Determination of Particulate Emissions from Stationary Sources" in the July 1, 1989 Federal Register, "Standards of Performance for New Stationary Sources" and subsequent revisions.

Before each test run a particulate sampling train was prepared inpart at the sampling location(s) in the following manner: An appropriately sized sampling nozzle was installed onto the inlet of the sampling probe and capped. The probe was then dimensioned and marked at increments that corresponded with the predetermined sampling positions in the flue. A standard impinger assembly was prepared by adding 100 milliliters of distilled water to each of the first two impingers. The third impinger was left dry and the fourth was filled with approximately 200 grams of type 6-16 mesh indicating silica gel. The entire impinger assembly was then placed in an ice bath. A disc filter was removed from its petri dish and placed inside of a filter holder. The filter holder was then placed inside of a filter oven and assembled to the sampling probe outlet and the impinger unit inlet. Next, an umbilical and sampling hoses were connected to the sampling probe, filter oven, impinger unit, a vacuum pump and the control unit, accordingly. The probe and oven were then heated to and held at 248 degrees plus or minus 25 degrees.

As soon as the probe and oven termperatures had stabilized the entire sampling train assembly was leak-checked at a minimum of 15 inches of mercury vacuum for one minute and the leakage rate recorded. A leakage rate of less than .02 cfm and no vacuum loss was considered acceptable.

After the particulate sampling train had been assembled, the probe and oven heated, and the entire system leak-checked, as previously described, the particulate sampling was performed.

Three test runs were performed at the sampling location(s). The sampling data for each test run was recorded on a field test form during each of the sampling periods.

After the completion of a test run, the following procedures were performed: A final leak-check was performed at maximum vacuum or greater incurred during the test for one minute and the leakage rate recorded. The flue gas moisture collected in the first three impingers was measured and recorded. The moisture laden silica gel in the fourth impinger was weighed on site. The weight gain of the silica gel

moisture collection was added to the measured moisture condensed for that test run. The sample nozzle, probe and filter holder were capped and taken to a clean area for sample recovery. At the recovery area, the disc filter was carefully removed from the filter holder and transferred to its petri dish for later weighing.

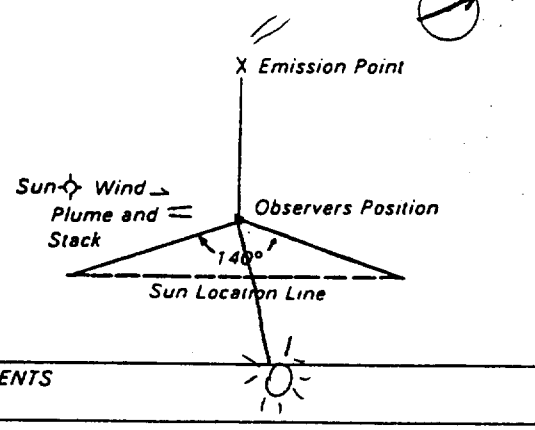
The sampling nozzle, probe and filter holder were washed with nanograde acetone, glass components were washed three times, stainless steel components were washed six times and visually inspected for cleanliness. The acetone washing and acetone blank were collected and labeled polypropylene sample bottles and retained for later evaporation, desiccation and weighing.

Flue gas concentrations (percentage of CO_2, percentage of O_2, and percentage of CO) were determined by taking several Orsat samples of the gas collected, simultaneously with the particulate sampling, throughout the test run, by an integrated gas sampling train. The integrated gas sample was collected from the discharge of the particulate control unit. The sampling train was set at a predetermined constant flow rate to obtain an adequate sample or by taking direct readings from the sampling points. The concentrations for each test run were recorded on a field test form.

Visible Emission Observation Form

SOURCE NAME: JOURNAGAN CONST	OBSERVATION DATE: 7/20/94
ADDRESS: US 65 South at Evans Rd	START TIME: 8:54
CITY: SPRINGFIELD	STATE: Mo
ZIP:	STOP TIME: 9:54
PHONE: 417-869-7222	SOURCE ID NUMBER:
PROCESS EQUIPMENT: ASPHALT PLANT	OPERATING MODE:
CONTROL EQUIPMENT: BAGHOUSE	OPERATING MODE:
DESCRIBE EMISSION POINT: START MAIN STACK	STOP main stack
HEIGHT ABOVE GROUND LEVEL: 45'	HEIGHT RELATIVE TO OBSERVER: 45'
DISTANCE FROM OBSERVER: 150'	DIRECTION FROM OBSERVER: W
DESCRIBE EMISSIONS: START Clear	STOP clear
EMISSION COLOR: START Clear STOP clear	PLUME TYPE: CONTINUOUS ☒ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☒ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1 Diameter	STOP
DESCRIBE BACKGROUND: START Blue Sky	STOP Blue Sky
BACKGROUND COLOR: START Blue STOP	SKY CONDITIONS: START CLR STOP
WIND SPEED: START 10 mph STOP 10 mph	WIND DIRECTION: START S STOP S
AMBIENT TEMP.: START 80's STOP	WET BULB TEMP.: RH,percent

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

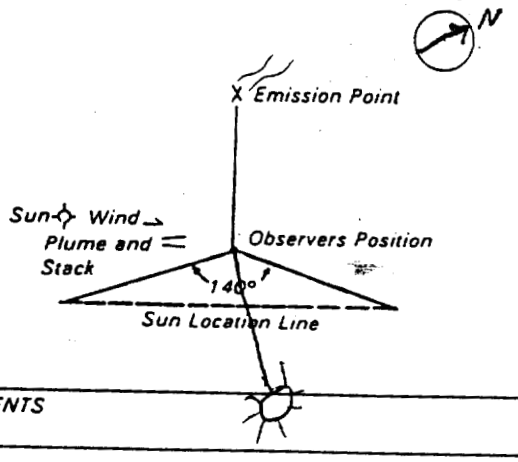
AVERAGE OPACITY FOR HIGHEST PERIOD: 0	NUMBER OF READINGS ABOVE: 0 % WERE 0
RANGE OF OPACITY READINGS: 0 MINIMUM	0 MAXIMUM
OBSERVER'S NAME (PRINT): JEFF BROKER	
COMMENTS	OBSERVER'S SIGNATURE: Jeff Broker — DATE: 7/20/94
	ORGANIZATION: AEROMET ENGINEERING, INC
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: AEROMET - TOM SCHEPPERS — DATE: 07/18/94
TITLE — DATE	VERIFIED BY: MoDNR - DOUG ELLEY — DATE: 07/18/94

Visible Emission Observation Form

SOURCE NAME: JOURNAGAN CONST.	OBSERVATION DATE: 7/20/94
ADDRESS: US 65 South at Evans Rd	START TIME: 11:45
CITY: SPRINGFIELD / STATE: MO / ZIP:	STOP TIME: 12:45
PHONE: 417 869 7222 / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Asphalt PLANT / OPERATING MODE: NORMAL	
CONTROL EQUIPMENT: Bag House / OPERATING MODE: NORMAL	
DESCRIBE EMISSION POINT: START Main STACK STOP main stack	
HEIGHT ABOVE GROUND LEVEL: 45' / HEIGHT RELATIVE TO OBSERVER: 45'	
DISTANCE FROM OBSERVER: 150' / DIRECTION FROM OBSERVER: W	
DESCRIBE EMISSIONS: START clear STOP clear	
EMISSION COLOR: START clear STOP clear / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: NO ☒ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START Discharge STOP	
DESCRIBE BACKGROUND: START Blue sky STOP Blue	
BACKGROUND COLOR: START Blue STOP / SKY CONDITIONS: START CLR STOP	
WIND SPEED: START 10 mph STOP 10 mph / WIND DIRECTION: START S STOP S	
AMBIENT TEMP. START 80's STOP / WET BULB TEMP. / RH,percent	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD: 0 — NUMBER OF READINGS ABOVE: 0 % WERE 0

RANGE OF OPACITY READINGS: 0 MINIMUM 0 MAXIMUM

OBSERVER'S NAME (PRINT): JEFF BROKER

OBSERVER'S SIGNATURE: Jeff Broker — DATE: 7/20/94

ORGANIZATION: AEROMET ENGINEERING, INC

CERTIFIED BY: AEROMET - TOM SCHEPPERS — DATE: 07/18/94

VERIFIED BY: MoDNR - DOUG ELLEY — DATE: 07/18/94

COMMENTS:

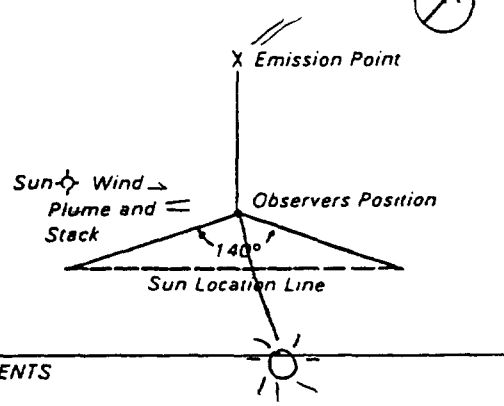
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE

TITLE / DATE

Visible Emission Observation Form

SOURCE NAME: JOWAGAN CONST.	OBSERVATION DATE: 7/20/94
ADDRESS: US 65 South at Evans Rd	START TIME: 2:19
CITY: SPRINGFIELD	STATE: MO ZIP:
PHONE: 417-869-7222	SOURCE ID NUMBER:
PROCESS EQUIPMENT: Asphalt Plant	OPERATING MODE: NORMAL
CONTROL EQUIPMENT: Bag house	OPERATING MODE: NORMAL
DESCRIBE EMISSION POINT: START Main Stack	STOP Main Stack
HEIGHT ABOVE GROUND LEVEL: 45'	HEIGHT RELATIVE TO OBSERVER: 45'
DISTANCE FROM OBSERVER: 150'	DIRECTION FROM OBSERVER: W
DESCRIBE EMISSIONS: START Clear	STOP Clear
EMISSION COLOR: START Clear STOP Clear	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☒ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1 diameter	STOP
DESCRIBE BACKGROUND: START Cloudy	STOP cloudy
BACKGROUND COLOR: START Grey STOP Grey	SKY CONDITIONS: START Cloudy STOP cloudy
WIND SPEED: START 10 mph STOP 10 mph	WIND DIRECTION: START S STOP S
AMBIENT TEMP: START 80's STOP	WET BULB TEMP. / RH, percent

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD: 0 — NUMBER OF READINGS ABOVE: 0 % WERE 0

RANGE OF OPACITY READINGS: MINIMUM 0 MAXIMUM 0

OBSERVER'S NAME (PRINT): JEFF BROKER

COMMENTS

OBSERVER'S SIGNATURE: Jeff Broker — DATE: 7/20/94

ORGANIZATION: AEROMET ENGINEERING, INC.

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE

TITLE — DATE

CERTIFIED BY: AEROMET - Tom Schepper — DATE: 07/18/94

VERIFIED BY: MoDNR - Doug Eley — DATE: 07/18/94

AEROMET
ENGINEERING

1325 AEROTEC DRIVE
JEFFERSON CITY, MO 65109
(314) 636-6393
(314) 636-9767 FAX

July 29, 1994

Mr. Jeff Broker
AeroMet Engineering, Inc.
1325 Aerotec Drive
Jefferson City, MO 65109

Dear Mr. Broker:

AeroMet Engineering, Inc. hereby informs you that you have successfully completed Visible Emissions Observer Training held in Jefferson City on July 18, 1994. This qualifies you for certification by the State of Missouri as a Visible Emissions Observer.

Sincerely,

AEROMET ENGINEERING, INC.

Thomas Scheppers, P.E.
President

8258 P-39

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	08:48:53	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	203.5	203.5	129.41	2.5
AGG 5	50.0	203.5	203.5	129.41	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	23.93	23.84	57.470	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			429.9	1032.78	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
451.4	5.30	5.30

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
307 F	312 F	294 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	08:52:52	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	208.5	208.5	143.13	2.5
AGG 5	50.0	208.5	208.5	143.13	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.19	24.25	59.074	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			434.8	1061.55	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
456.5	5.30	5.30

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
303 F	306 F	293 F	*** F

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p 3.9 T ~~82,207.2~~ 82,272

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	08:53:01	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	208.5	208.5	143.65	2.5
AGG 5	50.0	208.5	208.5	143.65	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.18	24.06	59.134	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			434.0	1062.63	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
455.9	5.30	5.24

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
302 F	306 F	293 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	08:53:35	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	208.5	208.5	145.62	2.5
AGG 5	50.0	208.5	208.5	145.62	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.55	24.51	59.364	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			434.0	1066.73	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
463.2	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
300 F	304 F	292 F	*** F

AP-3.6

82,330

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	08:59:47	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	208.5	208.5	167.16	2.5
AGG 5	50.0	208.5	208.5	167.16	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.64	24.62	61.876	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			441.2	1111.74	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
464.9	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
295 F	302 F	289 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:11:56	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	209.71	2.5
AGG 5	50.0	210.5	210.5	209.71	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.42	24.38	66.846	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			435.1	1200.24	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
460.8	5.30	5.29

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
293 F	297 F	287 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:12:10	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	210.53	2.5
AGG 5	50.0	210.5	210.5	210.53	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.31	24.42	66.941	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			435.3	1201.94	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
458.7	5.30	5.32

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
294 F	297 F	287 F	*** F

ΔP-3.9 82,455

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:16:06	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5

AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	224.32	2.5
AGG 5	50.0	210.5	210.5	224.32	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.82	24.71	68.547	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			442.6	1230.77	2.5
RECYCLE SCALE			0.0	0.00	0.0

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MIX TOTAL TPH: 468.1
AVERAGE A/C CONTENT: 5.30
REALTIME A/C CONTENT: 5.28

BURNER FUEL VALVE: 69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
299 F	301 F	285 F	*** F

ΔP 3.8 82,515

DATE: 94-JUL-20
TIME: 09:23:39
MIX: 9
SILO: 2
***** AUTOMATIC *****

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	250.81	2.5
AGG 5	50.0	210.5	210.5	250.81	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.96	24.98	71.663	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			442.5	1286.52	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH: 471.0
AVERAGE A/C CONTENT: 5.30
REALTIME A/C CONTENT: 5.30

BURNER FUEL VALVE: 69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
313 F	317 F	290 F	*** F

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DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:30:53	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	276.19	2.5
AGG 5	50.0	210.5	210.5	276.19	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	25.03	24.91	74.647	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			445.0	1339.85	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
472.2	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
308 F	312 F	290 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:31:22	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	277.94	2.5

AGG 5	50.0	210.5	210.5	277.94	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.92	25.05	74.855	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			444.9	1343.54	2.5
RECYCLE SCALE			0.0	0.00	0.0

9

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
470.4	5.30	5.32

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
309 F	312 F	290 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:31:34	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	278.64	2.5
AGG 5	50.0	210.5	210.5	278.64	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.86	25.04	74.938	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			440.4	1345.02	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
469.3	5.30	5.34

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
310 F	312 F	291 F	*** F

T82 Less

DATE 94-JUL-20 | TIME 09:40:26 | MIX 9 | SILO 2 | ***** AUTOMATIC *****

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	309.65	2.5
AGG 5	50.0	210.5	210.5	309.65	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.58	24.72	78.808	
FILLER	0.0	0.00	0.00		
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			439.1	1410.06	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH 463.9 | AVERAGE A/C CONTENT 5.30 | REALTIME A/C CONTENT 5.32

BURNER FUEL VALVE

MIX TEMP. 294 F | EXHAUST TEMP. 297 F | OUTLET TEMP. 286 F | A/C TEMP. *** F

DATE 94-JUL-20 | TIME 09:41:04 | MIX 9 | SILO 2 | ***** AUTOMATIC *****

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	311.87	2.5
AGG 5	50.0	210.5	210.5	311.87	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.74	24.68	78.843	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			438.9	1414.72	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH 466.8 | AVERAGE A/C CONTENT 5.30 | REALTIME A/C CONTENT 5.29

BURNER FUEL VALVE

69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
294 F	296 F	285 F	*** F

12

Δp = 3"

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DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:47:33	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	334.62	2.5
AGG 5	50.0	210.5	210.5	334.62	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.73	24.63	81.501	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			444.1	1462.33	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
466.5	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
298 F	304 F	284 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:48:03	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	336.37	2.5
AGG 5	50.0	210.5	210.5	336.37	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.96	24.84	81.707	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			445.8	1466.03	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
470.7	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
298 F	304 F	284 F	*** F

14

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	09:57:20	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	369.00	2.5
AGG 5	50.0	210.5	210.5	369.00	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.73	24.81	85.583	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			442.2	1535.17	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
466.7	5.30	5.32

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
304 F	310 F	289 F	*** F

3.1 Delta

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	10:06:27	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	401.05	2.5
AGG 5	50.0	210.5	210.5	401.05	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.42	24.30	89.339	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			434.3	1602.07	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
460.6	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
295 F	297 F	284 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	10:06:55	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	402.57	2.5
AGG 5	50.0	210.5	210.5	402.57	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.17	24.28	89.515	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			442.2	1605.23	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
456.2	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
296 F	298 F	284 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	10:07:07	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	112.79	2.5
AGG 2	0.0	0.0	0.0	319.50	2.5
AGG 3	0.0	0.0	0.0	319.54	2.5
AGG 4	50.0	210.5	210.5	403.27	2.5
AGG 5	50.0	210.5	210.5	403.27	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.42	24.31	89.596	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			436.0	1606.70	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
460.6	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
296 F	298 F	284 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	11:33:58	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	203.5	203.5	438.04	2.5
AGG 5	50.0	203.5	203.5	438.04	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.64	24.68	122.883	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			440.6	2201.47	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
464.9	5.30	5.33

BURNER FUEL VALVE
68 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
298 F	311 F	291 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	11:34:39	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	203.5	203.5	440.42	2.5
AGG 5	50.0	203.5	203.5	440.42	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.65	24.70	123.171	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			442.1	2206.61	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
465.2	5.30	5.31

BURNER FUEL VALVE
68 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
300 F	310 F	292 F	*** F

1P
3.7
83529

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	11:39:51	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	458.26	2.5
AGG 5	50.0	208.5	208.5	458.26	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	25.30	25.30	125.312	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			454.8	2245.13	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
477.4	5.30	5.30

BURNER FUEL VALVE
68 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
295 F	304 F	290 F	*** F

83,606

5.1

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	11:49:46	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	492.72	2.5
AGG 5	50.0	208.5	208.5	492.72	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	25.10	25.04	129.452	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			441.2	2318.82	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
473.4	5.30	5.29

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
294 F	302 F	288 F	*** F

ΔP
3.9
83,690

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:00:13	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	528.96	2.5
AGG 5	50.0	208.5	208.5	528.96	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.57	24.69	133.757	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			439.5	2395.70	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
463.8	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
288 F	298 F	285 F	*** F

17.

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:11:18	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	567.53	2.5
AGG 5	50.0	208.5	208.5	567.53	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.76	24.88	138.325	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			439.0	2477.24	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
467.3	5.30	5.32

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
294 F	305 F	286 F	*** F

1P
3.P
83,860

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:22:21	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	605.91	2.5
AGG 5	50.0	208.5	208.5	605.91	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.51	24.63	142.855	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			443.9	2558.19	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
462.6	5.30	5.32

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
290 F	296 F	285 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:31:14	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	636.78	2.5
AGG 5	50.0	208.5	208.5	636.78	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.46	24.56	146.466	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			437.3	2622.59	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
461.6	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
286 F	295 F	284 F	*** F

ΔP
4.0

84,005

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:41:23	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	671.99	2.5
AGG 5	50.0	208.5	208.5	671.99	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.52	24.52	150.577	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			440.6	2696.12	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
462.6	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
285 F	294 F	285 F	*** F

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:50:48	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	704.69	2.5
AGG 5	50.0	208.5	208.5	704.69	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.52	24.58	154.423	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			436.6	2764.79	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
462.8	5.30	5.31

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
283 F	290 F	278 F	*** F

ΔP
3.7
84,091

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	12:52:38	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	188.11	3.1
AGG 2	0.0	0.0	0.0	532.84	3.1
AGG 3	0.0	0.0	0.0	532.89	3.1
AGG 4	50.0	208.5	208.5	711.12	2.5
AGG 5	50.0	208.5	208.5	711.12	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.37	24.38	155.177	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			434.1	2778.24	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
459.8	5.29	5.29

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
285 F	291 F	278 F	*** F

ΔP
3.9
84,658

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:12:40	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	203.5	203.5	722.49	2.5
AGG 5	50.0	203.5	203.5	722.49	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.25	24.31	185.412	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			437.0	3317.72	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
457.6	5.30	5.31

BURNER FUEL VALVE
67 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
315 F	322 F	288 F	*** F

ΔP
4.0
84,104

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:19:04	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	208.5	208.5	744.62	2.5
AGG 5	50.0	208.5	208.5	744.62	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.82	24.92	188.040	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			441.8	3364.83	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
468.3	5.30	5.32

BURNER FUEL VALVE
67 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
292 F	300 F	289 F	*** F

ΔP
3.9

84,778

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:28:26	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	208.5	208.5	777.17	2.5
AGG 5	50.0	208.5	208.5	777.17	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.63	25.10	191.867	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			435.9	3433.10	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
465.1	5.30	5.40

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
287 F	298 F	286 F	*** F

ΔP
3.9

84,839

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:36:31	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	208.5	208.5	805.21	2.5
AGG 5	50.0	208.5	208.5	805.21	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.56	24.35	195.173	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			439.2	3492.16	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
463.6	5.30	5.33

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
288 F	296 F	282 F	*** F

ΔP
3.7

84,915

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:46:12	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	208.5	208.5	838.92	2.5
AGG 5	50.0	208.5	208.5	838.92	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.62	24.46	199.138	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			437.2	3562.88	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
464.4	5.30	5.27

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
282 F	294 F	278 F	*** F

ΔP
3.8
84,993

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	14:56:09	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	208.5	208.5	873.44	2.5
AGG 5	50.0	208.5	208.5	873.44	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.49	24.63	203.181	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			441.7	3635.27	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
462.2	5.30	5.33

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
277 F	288 F	277 F	*** F

ΔP
3.8
85,059

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	15:04:57	9	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	0.0	0.0	0.0	263.12	3.1
AGG 2	0.0	0.0	0.0	745.35	3.1
AGG 3	0.0	0.0	0.0	739.48	3.1
AGG 4	50.0	203.5	203.5	903.50	2.5
AGG 5	50.0	203.5	203.5	903.50	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	24.04	23.92	206.736	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			422.9	3698.54	2.5
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
453.4	5.30	5.28

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
275 F	267 F	259 F	*** F

ΔP

4.0

85,143

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	15:17:51	12	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	15.0	56.1	56.1	272.98	3.1
AGG 2	42.5	159.0	159.0	773.29	3.1
AGG 3	42.5	159.0	159.0	767.41	3.1
AGG 4	0.0	0.0	0.0	909.25	2.5
AGG 5	0.0	0.0	0.0	909.25	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	21.57	21.20	211.274	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			374.6	3778.80	3.1
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
406.6	5.30	5.20

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
306 F	309 F	281 F	*** F

ΔP
3.8
85,188

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	15:23:52	12	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	15.0	60.3	60.3	278.87	3.1
AGG 2	42.5	170.8	170.8	789.97	3.1
AGG 3	42.5	170.8	170.8	784.10	3.1
AGG 4	0.0	0.0	0.0	909.25	2.5
AGG 5	0.0	0.0	0.0	909.25	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	22.66	22.67	213.472	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			409.6	3818.56	3.1
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
427.6	5.29	5.30

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
293 F	292 F	280 F	*** F

ΔP
3.7
85214

DATE	TIME	MIX	SILO	***** AUTOMATIC *****
94-JUL-20	15:27:10	12	2	

MATERIAL	MIX %	TARGET	ACTUAL	TONS	% MOISTURE
AGG 1	15.0	60.3	60.3	282.18	3.1
AGG 2	42.5	170.8	170.8	799.37	3.1
AGG 3	42.5	170.8	170.8	793.49	3.1
AGG 4	0.0	0.0	0.0	909.25	2.5
AGG 5	0.0	0.0	0.0	909.25	2.5
RCY 1	0.0	0.0	0.0	0.00	0.0
A/C	5.3	23.03	22.78	214.729	
FILLER	0.0	0.00	0.00	0.000	
ADDITIVE 1	0.0	0.000	0.000	0 0	
AGGREGATE SCALE			410.6	3841.08	3.1
RECYCLE SCALE			0.0	0.00	0.0

MIX TOTAL TPH	AVERAGE A/C CONTENT	REALTIME A/C CONTENT
434.4	5.30	5.27

BURNER FUEL VALVE
69 %

MIX TEMP.	EXHAUST TEMP.	OUTLET TEMP.	A/C TEMP.
280 F	280 F	276 F	*** F

NOMENCLATURE

- acf = actual cubic feet
- acfm = actual cubic feet per minute
- A = effective area of flue in square feet
- acm = actual cubic meters
- acmm = actual cubic meters per minute
- A_n = inside area of sampling nozzle in square feet
- B_{ws} = water vapor in gas stream, proportion by volume
- %C = percent carbon by weight, dry basis
- %CO = percent carbon monoxide by volume, dry basis
- $\%CO_2$ = percent carbon dioxide by volume, dry basis
- C_p = pitot tube coefficient
- D_l = dust loading per heat input in pounds (grams) per million Btu (calories) per Fr constant
- D_l' = dust loading per heat input in pounds (grams) per million Btu (calories) per Fr calculated
- dscf = dry standard cubic feet
- dscfh = dry standard cubic feet per hour
- dscm = dry standard cubic meters
- dscmh = dry standard cubic meters per hour
- fps = feet per second
- F_r = ratio factor of dry flue gas volume to heat value of combusted fuel in dry standard cubic feet (meters) per million Btu (calories)
- gms = grams
- gm-mole = gram-mole
- grs = grains
- ΔH = orifice pressure drop in inches water, average
- %H = percent hydrogen by weight, dry basis
- H_c = heat of combustion in Btu per pound, dry basis
- hr = hour
- %I = percent isokinetic
- in. Hg = inches mercury
- lbs = pounds
- lb-mole = pound-mole
- %M = percent moisture by volume
- mmBtu = million Btu
- mmcal = million calories
- mm Hg = millimeters mercury
- mps = meters per second
- M_s = molecular weight in pound (gram) per pound (gram) mole (wet basis)
- %N = percent nitrogen by weight, dry basis
- $\%N_2$ = percent nitrogen by difference, dry basis
- %O = percent oxygen by difference, dry basis
- $\%O_2$ = percent oxygen by volume, dry basis
- P_b = barometric pressure in inches mercury
- P_{std} = standard absolute pressure (29.92 in Hg)
- P_s = absolute pressure in flue in inches (millimeters) mercury
- P_f = static pressure in flue in inches water, average
- $\sqrt{\Delta P}$ = square root of velocity head in inches water, average
- %S = percent sulfur by weight, dry basis
- scf = standard cubic feet
- scm = standard cubic meters
- T_{std} = absolute temperature of air in degrees Rankine at standard conditions (528 degrees)
- T_s = absolute temperature of flue gas in degrees Rankine, average
- T_m = absolute temperature at meter in degrees Rankine, average
- V_s = velocity of flue gas in feet (meters) per second
- V_l = volume of condensate through the impingers in milliliters
- V_{lc} = volume of liquid collected in condenser in milliliters plus weight of liquid absorbed in silica gel in grams indicated as milliliters
- V_m = volume of metered gas measured at meter conditions in cubic feet
- V_{ms} = volume of metered gas corrected to dry standard conditions in cubic feet (meters)
- V_o = volume of flue gas at actual conditions in cubic feet (meters) per minute
- Q_{sd} = volume of flue gas corrected to dry standard conditions in cubic feet (meters) per hour
- V_t = total volume of flue gas sampled at actual conditions in cubic feet (meters)
- V_w = volume of water vapor in metered gas corrected to standard conditions in cubic feet (meters)
- V_{wc} = volume of water condensed in impingers corrected to standard conditions
- V_{wsg} = volume of water collected in silica gel corrected to standard conditions
- W_a = total weight of dust collected per unit volume in grains (grams) per actual cubic feet (meters)
- W_d = total weight of dust collected per unit volume in pounds (grams) per dry standard cubic feet (meters)
- W_g = total weight of dust collected in grams
- W_h = total weight of dust collected per unit volume in pounds (grams) per hour, dry basis
- W_p = total weight of dust collected in pounds
- W_s = total weight of dust collected per unit volume in grains (grams) per dry standard cubic feet (meters)
- W_{sg} = impinger silica gel weight gain in grams
- Y = metered gas volume correction factor
- Θ = total elapsed sampling time in minutes

EPA DUST LOADING FORMULAS

(1) ABSOLUTE FLUE PRESSURE (in. Hg)

$$P_s = (\pm P_f \div 13.6) + P_b$$

(2) WATER VAPOR VOLUME IN METERED GAS CORRECTED TO STANDARD CONDITIONS (scf)

$$V_{wc} = .04707 \times V_l \qquad V_{wsg} = .04715 \times W_{sg}$$

$$V_w = V_{wc} + V_{wsg}$$

(3) METERED GAS VOLUME CORRECTED TO STANDARD CONDITIONS (scf)

$$V_{ms} = 17.64 \times Y \times V_m \ \frac{P_b + (\Delta H/13.6)}{T_m}$$

(4) PERCENT MOISTURE IN FLUE GAS

$$B_{ws} = \frac{V_w}{(V_{ms} + V_w)} \qquad \%M = B_{ws} \times 100$$

(5) AVERAGE RESULTS OF FLUE GAS ANALYSIS

$$\%N_2 \text{ dry} = 100 - (\%CO_2 + \%O_2 + \%CO)$$

(6) APPROXIMATE MOLECULAR WEIGHT OF FLUE GAS (WET BASIS) (lb/lb-mole)

$$M_s = (18 \times B_{ws}) + \left((.440\ (\%CO_2) + .320\ (\%O_2) + .280\ (\%N_2 + \%CO)\right) \times (1 - B_{ws})$$

(7) GAS VELOCITY IN FLUE (fps)

$$V_s = 85.49 \times C_p \times (\sqrt{\Delta P}\ )_{avg} \sqrt{\frac{T_s}{P_s \times M_s}}$$

(8) FLUE GAS VOLUME AT ACTUAL CONDITIONS (acfm)

$$V_o = V_s \times A \times 60$$

(9) FLUE GAS VOLUME CORRECTED TO DRY STANDARD CONDITIONS (dscfh)

$$Q_{sd} = \frac{T_{std}}{29.92} \times \frac{P_s}{T_s} \times V_o \times (1 - B_{ws}) \times 60$$

(10) TOTAL FLUE GAS VOLUME SAMPLED AT ACTUAL CONDITIONS (acf)

$$V_l = \left[V_m \times Y \times \frac{T_s}{T_m} \times \left(\frac{P_b + (\Delta H/13.6)}{P_s}\right)\right] + \left(0.00267 \times V_{lc} \times \frac{T_s}{P_s}\right)$$

EPA DUST LOADING FORMULAS (Continued)

(11) DUST CONCENTRATION FOR INDIRECT HEATING UNIT AT ACTUAL CONDITIONS AND STANDARD CONDITIONS

W_g = gms

$W_p = 0.002205 \times W_g$ (lb)

$W_d = \frac{W_p}{V_{ms}}$ (lb/dscf)

$W_h = W_d \times Q_{sd}$ (lb/hr dry)

$W_a = \frac{7000 \times W_p}{V_t}$ (gr/acf)

$W_s = 7000 \times W_d$ (gr/dscf)

$D_l = \frac{9820 \times 20.9 \times W_d}{(20.9 - \%O_2)}$ (lb/mmBtu with constant 9820 F_r)

$F_r = \frac{10^6 \times [(3.64 \times \%H) + (1.53 \times \%C) + (0.57 \times \%S) + (0.14 \times \%N) - (0.46 \times \%O)]}{H_c}$ (dscf/mmBtu)

$D_l' = \frac{20.9 \times W_d \times F_r}{(20.9 - \%O_2)}$ (lb/mmBtu with calculated F_r)

(12) PERCENT OF ISOKINETIC SAMPLING

$$\%I = \frac{1.667 \times T_s \times \left\{0.00267 \times V_{lc} + \left[\frac{V_m \times Y}{T_m} \times \left(P_b + \Delta H/13.6\right)\right]\right\}}{\Theta \times V_s \times P_s \times A_n}$$

STATE OF MISSOURI

Mel Carnahan, Governor • David A. Shorr, Director

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

January 27, 1994

Mr. John A. View, III
Vice-President, Contracts
Journagan Construction/Aggregates
3003 E. Chestnut Expressway, Suite 1200
Springfield, MO 65802

RE: Portable Source Relocation Request for PORT-0129-006, drum mix asphaltic plant, Permit Number 1293-016.

Dear: Mr. View:

Your report of new source location, which includes the revised drawings, was received by our program on January 19th, 1994.

Authorization for this plant to operate in Christian County at SW ¼, NW ¼, Section 34, Township 28N, Range 21W is granted, provided that:

1. The equipment is operated and maintained in accordance with your permit.

2. Consecutive operation of this plant at the new location shall not go beyond February 1, 1996.

3. No other equipment shall be operating on the site other than that with was specified in Permit Number 1293-016.

If you have any questions, please contact me at (314) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Mike Ambrose

Mike Ambrose
Environmental Engineer

MA:td

c: Source file
Southwest Regional Office

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 2 1
To Tom S	From John V
Co.	Co.
Dept.	Phone #
Fax # 314 636 9767	Fax #

RECYCLED PAPER

STATE OF MISSOURI
Mel Carnahan, Governor • David A. Shorr, Director
DEPARTMENT OF NATURAL RESOURCES
- DIVISION OF ENVIRONMENTAL QUALITY -
P.O. Box 176 Jefferson City, MO 65102-0176

Certification No.: P 206 488 369

December 28, 1993

Mr. John View, III
Vice-President
Journagan Construction Company, Inc.
3003 E. Chestnut Expressway
Suite 1200
Springfield, MO 65802

RE: Air Permit Application - Project/Facility No. PORT-0129-005

Dear Mr. View:

Enclosed with this letter is your permit to construct. Please note the special conditions, if any, on accompanying pages. Operation in accordance with these conditions and your permit application is necessary for continued compliance. The document entitled "Review of Application for Authority to Construct" is part of the permit as well and should be kept with the permit in your files.

The reverse side of your permit certificate has important information concerning your rights and obligations.

If you have any questions or need additional information regarding this permit, you can contact me by phone at (314) 751-4817 or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

for Michael J. Stansfield, P. E.
Environmental Engineer

MJS:td

Enclosures

c: Southwest Regional Office
APCP Technical Support
Source file

Permit Number: 1293-016

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the facility described below, in accordance with the laws, rules, and conditions as set forth herein.

Permit Number: 1293-016 Facility I.D. Number: PORT-0 129-0 05

Owner: Journagan Construction Company, Inc.

Owner's Address: 3003 E. Chestnut Expressway, Suite 1200, Springfield, MO 65802

Facility Name: Journagan Construction Company, Inc.

Facility Address: Near the Junction of Route 65 and Business Route 165, Hollister, MO

Legal Description: Taney County, S20, T22N, R21W

Application for Authority to Construct was made for:

**** Authority to construct a drum mix asphaltic concrete plant. The plant is a portable continuous type with a rated capacity of 375 tons per hour controlled by a baghouse. This review was conducted in accordance with Section (3), Missouri State Rule 10 CSR 10-6.060, "Permits Required." ****

☐ Special Conditions are not applicable to this permit.

☒ Special Conditions do apply to this permit and are listed as attachments starting on page 2.

December 22, 1993
EFFECTIVE DATE

John A Young
DIRECTOR
DIVISION OF ENVIRONMENTAL QUALITY

MO 780-1254 (6-93)

PERMIT NUMBER
1293-016

FACILITY I.D. NUMBER
PORT-0129-005

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

GENERAL CONDITIONS FOR PORTABLE FACILITIES

1. This facility shall use a baghouse, as specified in its permit application, in order to control the particulate emissions from the asphalt plant. This baghouse shall be in use at all times that the asphalt plant is in production, and shall be operated and maintained (spare bags shall be kept on-site, bags in baghouse will be inspected prior to start-up of asphalt plant replacing those bags that show signs of deterioration) in accordance with the manufacturer's specifications.

2. A minimum of wet system controls, including water application, is required to be implemented on all dust sources including, but not limited to, haul roads, vehicular traffic areas, and aggregate storage piles when conditions exist which would otherwise cause a violation of Missouri State Rule 10 CSR 10-6.170, "Restriction of Particulate Matter from Becoming Airborne," or Missouri State Rule 10 CSR 10-3.080, "Restriction of Emission of Visible Air Contaminants."

3. The exhaust gas stream from this asphalt plant shall not contain particulate matter in excess of 0.04 gr/dscf (grains per dry standard cubic foot) and shall not exhibit an opacity in excess of 20 percent, as set forth in Missouri State Rule 10 CSR 10-6.070, and "New Source Performance Standards," Subpart I (40 CFR 60.92).

4. A "Report of New Source Location" form shall be filed with the Air Pollution Control Program at least 21 (twenty-one) days prior to the relocation of this plant to an unpermitted site, or 7 (seven) days for a site previously permitted for this facility.

PERMIT NUMBER
1293-016
FACILITY I.D. NUMBER
PORT-0129-005

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

SITE SPECIFIC OPERATING CONDITIONS

Site Number 4720-N006
Taney County, Section 20, Township 22N, Range 21W

1. This facility shall produce no more than 760,000 tons of asphaltic concrete during any consecutive 12-month period.

2. Monthly production logs shall be kept on-site at all times and will include data from the previous 24-month period. The annual total production shall be shown with the last month of the year that the facility operates. This information shall be made immediately available for inspection to the Department of Natural Resources' personnel upon verbal request.

3. The source shall report to the Air Pollution Control Enforcement Section, no later than 10 (ten) days after the end of each month, if the 12-month cumulative total (Condition Number 2) records show that the source exceeded the limitation of Condition Number 1 (760,000 tons).

4. This facility may operate at this site for a period no longer than 24 (twenty four) consecutive months from the date of startup.