

Compliance Emissions Test Report

Ajax Materials Corporation
Plant 4 Genesee Township
Hot Mix Plant Baghouse Exhaust-
EUHMAPLANT
5088 Energy Drive
Flint, Michigan 48505
Project No. M242411
August 20 and 21, 2024





Compliance Emissions Test Audit Protocol

**Ajax Materials Corporation
Plant 4 Genesee Township
Hot Mix Plant Baghouse - EUHMAPLANT
Flint, Michigan
August 20 and 21, 2024**

**Report Submittal Date
October 18, 2024**

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Project No. M242411

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1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a compliance emissions test program for Ajax Materials Corporation - Plant 4 located in Genesee Township, Michigan on August 20 and 21, 2024. This report summarized the results of the test program and test methods used in accordance with Mostardi Platt Protocol No. P242411 dated May 29, 2024; approved by Michigan EGLE Air Quality Department July 29, 2024.

The test dates, test location and test parameters are summarized below.

TEST INFORMATION			
Test Locations	Test Date	Test Parameters	Test Method
EUHMAPLANT	August 20, 2024	Particulate Matter (PM)	USEPA Method 5, 40CFR60, Appendix A
		Condensable Particulate Matter (PM _{2.5})	USEPA Method 202, 40CFR51, Appendix M
		Total Particulate Matter (PM ₁₀)	USEPA Method 202, 40CFR51, Appendix M
		Carbon (CO)	USEPA Method 10 40CFR60, Appendix A
		Sulfur Dioxide (SO ₂)	USEPA Method 6C 40CFR60, Appendix A
		Nitrous Oxide (NO _x)	USEPA Method 7E 40CFR60, Appendix A
		Volatile Organic Compounds (VOC)	USEPA Method 25A 40CFR60, Appendix A
		Formaldehyde	USEPA Method 320 40CFR63, Appendix A
	August 21, 2024	Benzene, Toluene, Ethylbenzene, and Xylenes-meta, ortho, para (BTEX)	USEPA Method 18 40CFR60, Appendix A
		Arsenic (As), Nickel (Ni), Manganese (Mn)	USEPA Method 29 40CFR60, Appendix A
		Lead (Pb)	USEPA Method 29 40CFR60, Appendix A

The purpose of this test program was to demonstrate the compliance in accordance with Title 40, *Code of Federal Regulations*, Part 60 (40CFR60), and EGLE Air Permit to Install No. 90-21.

Test Location	Date	Parameter	Emission Limit	Actual Result
EUHMAPLANT	8/20/24	PM	0.04 gr/dscf	0.0031 gr/dscf
			0.036 lb/ton	0.002 lb/ton
		PM _{2.5}	0.05 lb/ton	0.002 lb/ton
		PM ₁₀	0.05 lb/ton	0.004 lb/ton
		Opacity	20% (6-minute average)	0%
		CO	0.2 lb/ ton	0.007 lb/ton
		SO ₂	0.089 lb/ton	0.008 lb/ton
		NO _x	0.07 lb/ton	0.026 lb/ton
		VOC	0.06 lb/ton	0.003 lb/ton
		Formaldehyde	0.0054 lb/ton	0.0001 lb/ton
	8/21/24	Benzene	0.00075 lb/ton	1.50E-04 lb/ton ¹
		Toluene	0.003 lb/ton	5.60E-05 lb/ton
		Ethylbenzene	0.001 lb/ton	6.59E-06 lb/ton
		Xylene (m,p,o)	0.001 lb/ton	2.07E-05 lb/ton
		Pb	0.0000100 lb/ton	4.66E-07 lb/ton
		As	0.0000020 lb/ton	1.22E-07 lb/ton
		Ni	0.000076lb/ ton	8.89E-07 lb/ton
		Mn	0.000035 lb/ton	8.03E-06 lb/ton

¹ Average of runs 2 and 3

The identification of individuals associated with this test program is summarized below.

Title	Address	Contact Information
Test Coordinators	Ajax Materials Corporation 5088 Energy Drive Flint, Michigan 48505	Kathleen Anderson Environmental Manager 810-845-3925 kanderson@ajaxpaving.com
	Fishbeck 39500 MacKenzie Dr. #100 Novi, MI 48377	Stephanie Jarrett Senior Environmental Engineer 248-417-9425 sajarrett@fishbeck.com
Test Company Representative	Mostardi Platt 888 North Industrial Dr. Elmhurst, Illinois 60126	Stuart Sands AET Lead - Elmhurst (630) 993-2100 ssands@mp-mail.com
State Observer	Address	Contact Information
EGLE AQD Thermal Process Unit	Air Quality Division, First Floor Southwest P.O. Box 30242 Lansing, MI 48909	Jeremy Howe, Supervisor 231-878-6687 Howej1@michigan.gov
EGLE AQD Lansing District Office		Daniel McGeen Cell phone: 517-648-7547 mcgeend@michigan.gov

The test crew consisted of A. Meza, I. Rajani, J. Carsello, L. Huisenga, and S. Sands of Mostardi Platt.

2.0 TEST METHODOLOGY

Emission testing was conducted following the United States Environmental Protection Agency (USEPA) methods specified in 40CFR60 and 40CFR63, Appendix A, and 40CFR51, Appendix M in addition to the Mostardi Platt Quality Manual and the site-specific test plan approved by Michigan EGLE AQD. Schematics of the test section diagrams and sampling trains are included in Appendix B and C, respectively.

The following methodologies were used during the test program:

2.1 Method 1 Sample and Velocity Traverse Determination

Test measurement points were selected in accordance with Method 1, 40CFR60, Appendix A. The characteristic of the measurement location is summarized below.

Sample Point Selection

Test Location	Stack Diameter	Upstream Diameters	Downstream Diameters	Test Parameter	Number of Sampling Points
Baghouse Exhaust	68"	12	4	SO ₂ , NO _x , CO, VOC, HCHO	12 (Stratification) 3 (Test Runs)
				TPM, As, Mn, Ni, Pb	24
				BTEX	1

2.2 Method 2 Volumetric Flow Rate Determination

For 5/202 and 29 testing, gas velocity was measured following Method 2, 40CFR60, Appendix A, for purposes of calculating stack gas volumetric flow rate and emission rates on a lb/ton basis. An S-type pitot tube, as a component of the isokinetic sampling trains, differential pressure gauge, thermocouple, and temperature readout are used to determine gas velocity at each sample point. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

2.3 Method 3A Oxygen (O₂) Determination

Flue gas O₂ concentrations were determined in accordance with USEPA Method 3A. A BrandGaus 4710 analyzer was used to determine the O₂ wet concentrations during HCHO testing by connecting the analyzer to the outlet of the Fourier transform infrared analyzer. The O₂ instrument operates in the nominal range of 0% to 25% with the specific range determined by the high-level calibration gas. High and mid-range calibrations were performed using USEPA Protocol gas. Zero nitrogen (a low ppm pollutant in balance nitrogen calibration gases) was introduced during other instrument calibrations to check instrument zero. Zero and mid-range calibrations were performed using USEPA Protocol gas after each test run.

2.4 Method 3A Carbon Dioxide (CO₂) and Oxygen (O₂) Determination

The stack gas CO₂ and oxygen (O₂) content was determined in accordance with Method 3A. ECOM analyzers were used for Method 29 and Method 5/202 to determine stack gas CO₂ and O₂. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H and copies of the gas cylinder certifications are found in Appendix I.

2.5 Method 4 H₂O Determination

Stack gas moisture content was determined using a Method 4 sampling train as a component of the Method 5/202 and 29 sampling system. In this technique, stack gas is drawn through a series of impingers as detailed in EPA Method 5/202 and 29. The entire impinger train is measured or weighed before and after each test run to determine the mass of moisture condensed.

During testing, the sample train was be operated in the manner specified in USEPA Method 4. All of the data specified in Method 4 (gas volume, delta H, impinger outlet well temperature, etc.) will be recorded on field data sheets.

All of the equipment used is calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

2.6 Method 5 Filterable Particulate Matter Determination

Stack gas filterable particulate matter concentrations and emission rates were determined in accordance with Method 5. The probe and filter housing were maintained at a temperature of 248°F +/- 25°. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate. The total sample time for each run was 60 minutes, with twelve sample points being utilized (12 points per port, 2 total ports). A minimum of 0.9 dry standard cubic meter was sampled for each run.

Particulate matter in the sample probe was recovered utilizing acetone; a minimum of three passes of the probe brush through the entire probe was performed, followed by a visual inspection of the acetone exiting the probe. If the acetone solution exiting the probe was clear, the wash was considered complete, if not, another pass of the brush through the probe was made and inspected until the solution was clear. The nozzle was then removed from the probe and cleaned in a similar manner, utilizing an appropriately sized nozzle brush. The filter and filter housing were washed a minimum of three times with acetone and inspected for cleanliness, and the filter was placed in its corresponding petri dish. The acetone wash and the filter were labeled and marked. Sample analyses was performed off site by Mostardi Platt personnel in accordance with Method 5.

2.7 Method 202 Condensable Particulate Matter Determination

Stack gas condensable particulate concentrations and emission rates were determined in accordance with the Method 202, in conjunction with Method 5 filterable particulate sampling. Condensable particulate matter was collected in the impinger portion of the Method 5 sampling trains.

The condensable particulate matter (CPM) was collected in impingers, after filterable particulate material was collected, using Method 5. The organic and aqueous fractions were then taken to dryness and weighed. The total of all fractions represents the CPM. A schematic of the sampling train is found in Appendix C.

CPM was collected in the water dropout, modified Greenburg Smith impinger and ambient filter portion of the sampling train as described in this Method. The impinger contents were purged with nitrogen (N₂) immediately after sample collection to remove dissolved sulfur dioxide (SO₂) gases from the impingers. The impinger solution was then extracted with DI water, acetone, and hexane. The organic and aqueous fractions were dried and the residues weighed. The total of the aqueous, organic, and ambient filter fractions represents the CPM. Laboratory analysis data are found in Appendix E. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

2.8 Method 18 BTEX Determination

Stack gas BTEX concentrations and emission rates were determined in accordance with Method 18. Paired traps were sampled through 1/4" stainless steel probes, an empty knockout mini-impinger, and collected on carbon sorbent traps.

The "A" traps were the unspiked two section traps, while the "B" traps were the two section traps spiked with BTEX at a nominal 50ng concentration. The flue gas was sampled simultaneously into the two sample trains. Upon completion of the test run, post-test leak checks were performed and traps were capped and kept on ice for storage. The adsorbents from the two sample trains were analyzed utilizing identical analytical procedure. All laboratory analysis data are found in Appendix E.

The Method 18 average three run spike recovery for benzene performed on 8/21/24 did not meet the QA criteria of the method as described in Section 8.4.3.1. However, runs 2 and 3 average spike recovery passed the QA criteria and were corrected for the spike recovery percent as required in Section 12.10 of the method. Sampling was performed with two identical sample trains. Pre and post-test leak checks were performed and passed all criteria. Sorbent traps were stored prior to and after sampling, and through sample analysis. Samples were handled according to laboratory specifications. Train A was designated as the unspiked train while train B was spiked with the compounds of interest (benzene, toluene, ethylbenzenes, and xylenes). All other

compounds with the exception of benzene met the spike recovery criteria for all runs performed. No other deviations, additions, or exclusions from the site-specific test plan, test methods, the Mostardi Platt Quality Manual, or the ASTM D8036-12 occurred. The actual stack emission sampling for benzene was not affected by the Method 18 benzene spike recovery sampling. Benzene emissions were corrected based on the spike recovery percent and emissions meet permit limits.

2.9 Method 29 Trace Metals Determination

Stack gas metals concentrations and emission rates were determined in accordance with Method 29. An Environmental Supply Company sampling train was used to sample stack gas, in the manner specified in the Method. Analyses of the samples collected will be analyzed by a certified laboratory. Samples will be analyzed for arsenic, manganese, nickel, and lead.

2.10 Method 25A THC Determination

The Method 25A sampling and measurement system meets the requirements for stack sampling of THC set forth by the USEPA. In particular, it meets the requirements of USEPA Reference Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer," 40CFR60, Appendix A. This method applies to the measurement of total gaseous organic concentration of hydrocarbons. With this method, the gas sample is extracted from the sample location through a heated Teflon sample line to the analyzer.

The flame ionization detector (FID) to be used during this program is a highly sensitive FID that provides a direct reading of organic vapor concentrations with linear ranges of 0-10, 100, 1000, and 10,000 ppm by volume. The instrument is calibrated using ultra-zero air and propane in air EPA Protocol standards for the total hydrocarbon (THC) determination. The calibrations are performed before and after sampling with calibration checks performed between each test run. Sample times and locations are logged simultaneously on data loggers.

The calibration data and copies of the calibration gas cylinder certifications are found in Appendix H and I, respectively.

2.11 Method 320 SO₂, NO_x, CO, and HCHO Determination

The sampling procedures for SO₂, NO_x, CO, and HCHO were performed in accordance with USEPA Methods 320 (FTIR) in lieu of 40CFR63, Appendix A. Data was continuously recorded with a data logging system.

All sampling system components are heated to 375°F +/- 25°F, including: stainless steel sample probe, stainless steel calibration tee, in line glass fiber particulate filter, Teflon® sample line, FTIR detector cell, and hydrocarbon analyzer. The sample pump distributes the gas sample to each instrument at a steady sample flow rate (+/- 10%). All components of the sampling system are constructed of stainless steel, glass, or Teflon®.

Analyzer calibration error tests are performed on each instrument prior to the first run and again after any failed system bias or drift test. Low-level (0-20% of calibration span, mid-level (40-60% of calibration span, and high-level (span) gases are used. Pre-test and post-test system calibrations are performed to demonstrate bias and drift requirements are met for each run or series of runs as well as to correct final gas readings for calibration bias. System bias/drift calibrations are performed through the entire gas system, with calibration gas introduced upstream of all sample conditioning components.

FTIR technology works on the principle that most gases absorb infrared light. This is true for all compounds with the exception of homonuclear diatomic molecules and noble gases such as: N₂, O₂, H₂, He, Ne, and Ar. Vibrations, stretches, bends, and rotations within the bonds of a molecule determine the infrared absorption distinctiveness. The absorption creates a "fingerprint" which is unique to each given compound. The quantity of infrared light absorbed is proportional to the gas concentration. Most compounds have absorbencies at different infrared frequencies, thus allowing the simultaneous analysis of multiple compounds at one time. The FTIR software compares each sample spectrum to a user-selected list of calibration references and concentration data is generated.

FTIR data will be collected using an MKS MultiGas 2030 FTIR spectrometer. Data will be generated at 0.5 cm⁻¹. Each Spectra will be derived from the coaddition of 64 scans with a new data point generated approximately every minute. Analyte spiking will assure the ability of the system to recover the spike in the stack matrix.

To validate the data, reference spectra will be manually fit to that of the sample spectra to determine a concentration. Sample pressure and temperature corrections will then be applied to compute the final sample concentration. The manually calculated results will then be compared to the software generated result to ensure accuracy of the generated data. If there is a difference of $\pm 20\%$ the spectra are reviewed for possible spectra interferences or any other possible causes leading to mis-quantified data.

FTIR QA/QC Procedures						
QA/QC Specification	Purpose	Calibration Gas Analyte	Delivery	Frequency	Acceptance Criteria	Result
M320: Zero	Verify that the FTIR is free of contaminants & zero the FTIR	Nitrogen (zero)	Direct to FTIR	pre/post test	< MDL or Noise	Pass
M320: Calibration Transfer Standard (CTS) Direct	Verify FTIR stability, confirm optical path length	Ethylene	Direct to FTIR	Pretest/post test	+/- 5% cert. value	Pass
M320: CTS Response	Verify system stability, recovery, response time	Ethylene	Sampling System	pretest	+/- 5% of Direct Measurement	Pass
M320: Zero Response	Verify system is free of contaminants, system bias	Zero Nitrogen	Sampling System	pretest	Bias correct data	Pass
M320: Analyte Spike	Verify system ability to deliver and quantify analyte of interest in the presence of other effluent gases	Formaldehyde	Dynamic Addition to Sampling System, ~1:10 effluent	pretest and minimum 3 times throughout testing	+/- 30% theoretical recovery	Pass

Analyte Spiking

Spiking was performed prior to testing to verify the ability of the sampling system to quantitatively deliver a sample containing acetaldehyde and methanol from the base of the probe to the FTIR. Analyte spiking assures the ability of the FTIR sampling system to recover acid gases in the presence of effluent gas.

As part of the spiking procedure, samples were measured to determine native acetaldehyde and methanol concentrations to be used in the spike recovery calculations. The analyte spiking gases contained a low concentration of sulfur hexafluoride (SF_6). The determined SF_6 concentration in the spiked sample was used to calculate the dilution factor of the spike and thus used to calculate the concentration of the spiked Acetaldehyde. The spike target dilution ratio was 1:10 or less. Spike recovery as calculated per Section 9.2.3 (3) of Method 320.

QA/QC data are found in Appendix K. Copies of gas cylinder certifications are found in Appendix I. All concentration data were recorded on a wet, volume basis. The sample and data collection followed the procedures outlined in Method 320.

2.12 Method 9 Visible Emission Determination

Visible emissions were determined in accordance with Method 9. The observer stood at a distance providing a clear view of the emissions with the sun oriented in the 140° sector to his back. As much as possible, the line of vision was approximately perpendicular to the plume direction.

Opacity observations were made at the point of greatest opacity in the portion of the plume. Observations were made at 15-second intervals for the duration of the test run.

Visible emissions observations were conducted and recorded by Mr. Ishaan Rajani, who is a certified visual emissions observer. Visible emissions data and the reader certification are found in Appendix J.

3.0 TEST RESULT SUMMARIES

Client: Ajax Materials Corporation
 Facility: Genesee Township Facility
 Test Location: Baghouse Exhaust
 Test Method: 5/202

	Source Condition	Normal	Normal	Normal	
	Date	8/20/24	8/20/24	8/20/24	
	Start Time	7:45	11:05	14:00	
	End Time	10:10	12:36	15:35	
	Run 1	Run 2	Run 3	Average	
Stack Conditions					
Average Gas Temperature, °F	245.0	251.6	252.1	249.6	
Flue Gas Moisture, percent by volume	39.5%	41.1%	43.1%	41.2%	
Average Flue Pressure, in. Hg	29.39	29.39	29.39	29.39	
Gas Sample Volume, dscf	41.709	47.883	44.599	44.730	
Average Gas Velocity, ft/sec	45.410	49.683	46.847	47.313	
Gas Volumetric Flow Rate, acfm	68,722	75,189	70,898	71,603	
Gas Volumetric Flow Rate, dscfm	30,600	32,266	29,363	30,743	
Gas Volumetric Flow Rate, scfm	50,552	54,791	51,628	52,324	
Average %CO ₂ by volume, dry basis	8.4	8.4	8.3	8.4	
Average %O ₂ by volume, dry basis	8.1	8.1	8.4	8.2	
Isokinetic Variance	94.8	103.2	105.6	101.2	
Asphalt Production Rate, ton/hr	463.0	496.0	497.0	485.3	
Filterable Particulate Matter (Method 5)					
grams collected	0.00685	0.01085	0.00997	0.00922	
grains/dscf	0.0025	0.0035	0.0034	0.0031	
lb/hr	0.665	0.967	0.868	0.833	
lb/ton of asphalt	0.001	0.002	0.002	0.002	
Condensable Particulate Matter (Method 202)					
grams collected	0.00885	0.01749	0.01271	0.01302	
grains/dscf	0.0033	0.0056	0.0044	0.0044	
lb/hr	0.859	1.559	1.107	1.175	
lb/ton of asphalt	0.002	0.003	0.002	0.002	
Total Particulate Matter (5/202)					
grams collected	0.01570	0.02834	0.02268	0.02224	
grains/dscf	0.0058	0.0091	0.0078	0.0076	
lb/hr	1.524	2.526	1.975	2.008	
lb/ton of asphalt	0.003	0.005	0.004	0.004	

Ajax Materials Corporation Genesee Township Facility EUHMAPLANT Reference Method Test Data																				
Test No.	Date	Start Time	End Time	NOx ppmvw	SO2 ppmvw	CO ppmvw	CO2 % (wet)	O2 % (wet)	VOC ppmw as propane	Moisture %	Flow, SCFH	NOx lb/hr	SO2 lb/hr	CO lb/hr	VOC lb/hr	NOx lb/ton	SO2 lb/ton	CO lb/ton	VOC lb/ton	Formaldehyde lb/ton
1	8/20/2024	8:15	10:09	33.4	5.7	16.1	4.5	4.3	4.6	43.68%	3,033,120	12.09	2.85	3.54	1.58	0.027	0.006	0.008	0.003	0.0001
2	8/20/2024	11:05	12:36	33.9	7.1	14.1	4.4	4.7	4.4	41.87%	3,284,820	13.29	3.89	3.37	1.65	0.027	0.008	0.007	0.003	0.0001
3	8/20/2024	14:00	15:34	34.4	8.2	13.2	4.4	4.8	4.6	42.36%	3,097,680	12.71	4.23	2.97	1.64	0.026	0.009	0.006	0.003	0.0001
Average				33.9	7.0	14.5	4.4	4.6	4.5	42.63%	3,138,540.0	12.70	3.66	3.29	1.62	0.026	0.008	0.007	0.003	0.0001

Organic HAP Results Summary
Ajax Materials Corporation
Genesee Township Hot Mix Plant
EUHMAPLANT
Normal

Run No.	*1	2	3	Average
Date	8/21/2024	8/21/2024	8/21/2024	
Start Time	5:35	9:15	12:20	
End Time	7:15	11:10	13:58	
Gas Volumetric Flow Rate, dscfm	36,670	38,616	39,442	38,243
Asphalt Production Rate, ton/hr	493	490	492	492
*Benzene ppmvd	0.15	0.15	0.16	0.15
*Benzene lb/hr	0.07	0.07	0.07	0.07
*Benzene lb/ton of asphalt	1.37E-04	1.47E-04	1.52E-04	1.50E-04
Ethylbenzene ppmvd	≤ 0.005	≤ 0.01	≤ 0.01	≤ 0.01
Ethylbenzene lb/hr	≤ 3.04E-03	≤ 3.27E-03	≤ 3.41E-03	≤ 3.24E-03
Ethylbenzene lb/ton of asphalt	≤ 6.16E-06	≤ 6.68E-06	≤ 6.92E-06	≤ 6.59E-06
m-Xylene ppmvd	≤ 0.005	≤ 0.01	≤ 0.005	≤ 0.01
o-Xylene ppmvd	≤ 0.01	≤ 0.01	≤ 0.01	≤ 0.01
p-Xylene ppmvd	≤ 0.01	≤ 0.01	≤ 0.01	≤ 0.01
Total Xylene lb/hr	≤ 9.53E-03	≤ 1.03E-02	≤ 1.07E-02	≤ 1.02E-02
Total Xylene lb/ton of asphalt	≤ 1.93E-05	≤ 2.10E-05	≤ 2.17E-05	≤ 2.07E-05
Toluene ppmvd	≤ 0.05	≤ 0.05	≤ 0.05	≤ 0.05
Toluene lb/hr	≤ 0.03	0.03	0.03	≤ 0.03
Toluene lb/ton of asphalt	≤ 5.80E-05	5.41E-05	5.60E-05	≤ 5.60E-05

* Run 1 is not included in the average for Benzene measurements. Benzene measurements for Runs 2 and 3 were corrected using a 25.2% adjustment factor

Client: Ajax Materials Corporation
 Facility: Genesee Township Facility
 Test Location: Baghouse Exhaust
 Test Method: 29

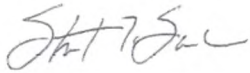
Source Condition	Normal	Normal	Normal	
Date	8/21/24	8/21/24	8/21/24	
Start Time	5:35	9:15	12:20	
End Time	7:41	11:28	14:48	
	Run 1	Run 2	Run 3	Average
Stack Conditions				
Average Gas Temperature, °F	249.3	259.1	255.9	254.8
Flue Gas Moisture, percent by volume	36.0%	36.3%	35.4%	35.9%
Average Flue Pressure, in. Hg	29.45	29.45	29.45	29.45
Gas Sample Volume, dscf	98.907	107.685	108.751	105.114
Average Gas Velocity, ft/sec	51.669	55.427	55.566	54.221
Gas Volumetric Flow Rate, acfm	78,195	83,882	84,093	82,057
Gas Volumetric Flow Rate, dscfm	36,670	38,616	39,442	38,243
Gas Volumetric Flow Rate, scfm	57,286	60,616	61,036	59,646
Average %CO ₂ by volume, dry basis	7.7	6.8	7.0	7.2
Average %O ₂ by volume, dry basis	8.5	9.5	9.4	9.1
Isokinetic Variance	93.4	96.6	95.5	95.2
Asphalt Production Rate, ton/hr	493.0	491.0	491.0	491.7
Arsenic (As) Emissions				
ug of sample collected	≤ 0.90	≤ 2.01	≤ 0.85	1.25
ppm	≤ 1.03E-04	≤ 2.11E-04	≤ 8.86E-05	0.00
mg/dscm	≤ 3.21E-04	≤ 6.58E-04	≤ 2.76E-04	0.00
lb/hr	≤ 4.40E-05	≤ 9.52E-05	≤ 4.08E-05	0.0001
lb/ton of asphalt	≤ 8.93E-08	≤ 1.94E-07	≤ 8.31E-08	1.22E-07
Lead (Pb) Emissions				
ug of sample collected	9.07	2.14	2.94	4.72
ppm	3.76E-04	8.15E-05	1.11E-04	0.00
mg/dscm	3.24E-03	7.02E-04	9.55E-04	0.00
lb/hr	4.45E-04	1.02E-04	0.0001	0.0002
lb/ton of asphalt	9.02E-07	2.07E-07	2.87E-07	4.66E-07
Manganese (Mn) Emissions				
ug of sample collected	143.12	45.61	55.62	81.45
ppm	2.24E-02	6.54E-03	7.90E-03	0.01
mg/dscm	5.11E-02	1.50E-02	1.81E-02	0.03
lb/hr	7.02E-03	2.16E-03	2.67E-03	0.0039
lb/ton of asphalt	1.42E-05	4.41E-06	5.43E-06	8.03E-06
Nickel (Ni) Emissions				
ug of sample collected	9.37	6.42	11.42	9.07
ppm	1.37E-03	8.62E-04	1.52E-03	0.00
mg/dscm	3.34E-03	2.10E-03	3.71E-03	0.00
lb/hr	4.59E-04	3.04E-04	5.48E-04	0.0004
lb/ton of asphalt	9.32E-07	6.20E-07	1.12E-06	8.89E-07

4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Ajax Materials Corporation. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

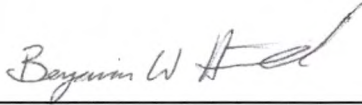
As the program manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results. The test program was performed in accordance with the site-specific test plan, test methods, and the Mostardi Platt Quality Manual, as applicable.

MOSTARDI PLATT



Stuart T. Sands

Program Manager



Benjamin W. Hendricks

Quality Assurance

APPENDIX

Appendix A - Plant Operating Data

Facility Name: Ajax Materials Corporation
 Location: Plant 4
 5088 Energy Dr.
 Flint, MI 48505

SRN: P1171
 PTI: 90-21

Test Dates: August 20-21, 2024

Type of Fuel Used: Natural Gas used for all tests (Note: No other permitted fuels were used)

Control Device: Baghouse Filter

Operator: Scott Maxwell, Plant Operator

Data Collection: Kathleen Anderson, Environmental Manager



The Future is Riding on Ajax.™

Data Collection:			Kathleen Anderson, Environmental Manager				Virgin Aggregate Processed (TPH)	RAP Processed (TPH)	AC Processed (TPH)	Total HMA Produced (TPH)	HMA Discharge Temp (deg F)	Baghouse Inlet Temp	Baghouse Pressure Drop (in H2O)	Fan Variable Frequency Drive (%)	Burner Position (% Open)		Fuel Use (Thousand cubic ft, MCF)	Fuel Use (cubic feet/hr, CFH)	COMMENTS
Tuesday, August 20, 2024																			
Test No. 1																			Testing For: SO2/Nox/CO/VOC/HCHO/TPM
Mix Design:		4EMH	Start Time:	8:15 AM	0 min	326	122	17.5	460	270	280	5.0	66	55					
% RAP:		28%		8:30 AM	15 min	325	107	17.5	456	281	284	4.8	66	55					
RAP Moisture %:		4.5		8:45 AM	30 min	324	113	17.7	459	277	284	4.5	66	55					port change: 8:42-9:40 (TPM)
Asphalt Cement Grade:		PG 58-28		9:40 AM	85 min	330	120	18	466	275	282	4.4	66	55					port change: 8:44-9:40 (FTIR)
Virgin Agg Moisture %:		4.4		9:55 AM	100 min	326	115	17.7	464	283	282	4.5	66	55					
Baghouse Pulse Frequency:		Every 45 seconds	Stop Time:	10:10 AM	115 min	329	117	17.9	468	280	281	4.4	66	55					
			Averages (Both):			327	116	18	463	278	282	4.6	66	55	Fuel Total:		174	90,783	
Test No. 2																			Testing: SO2/Nox/CO/VOC/HCHO/TPM
Mix Design:		4EMH	Start Time:	11:05 AM	0 min	357	126	19.4	500	271	287	5.4	70	62					
% RAP:		28%		11:20 AM	15 min	354	124	19.5	500	273	288	5.2	70	62					
RAP Moisture %:		4.5		11:35 AM	30 min	355	123	19.5	494	274	288	5.2	70	62					port change: 11:35-12:06 (TPM)
Asphalt Cement Grade:		PG 58-28		11:50 AM	45 min	356	122	19.3	493	284	286	5.4	70	62					port change: 11:34-12:07 (FTIR)
Virgin Agg Moisture %:		4.4		12:05 PM	60 min	361	125	19.6	496	273	286	5.1	70	62					
Baghouse Pulse Frequency:		Every 45 seconds		12:20 PM	75 min	355	121	19.4	494	278	287	5.3	70	62					
			Stop Time:	12:36 PM	91 min	353	127	19.3	491	277	288	5.3	70	62					
			Averages (TPM):			355	124	19	496	275	288	5.3	70	62					
			Averages (FTIR):			355	125	19	496	275	288	5.3	70	62	Fuel Total:		174	114,725	
Test No. 3																			Testing: SO2/Nox/CO/VOC/HCHO/TPM
Mix Design:		4EMH	Start Time:	2:00 PM	0 min	349	126	19.1	495	273	288	5	70	62					
% RAP:		28%		2:15 PM	15 min	351	124	19.1	500	282	285	5.3	70	62					
RAP Moisture %:		4.5		2:30 PM	30 min	352	124	19.4	500	267	283	5.3	70	62					port change: 14:30-15:05 (TPM)
Asphalt Cement Grade:		PG 58-28		2:45 PM	45 min	352	124	19.3	497	276	284	5.1	70	62					port change: 14:29-15:05 (FTIR)
Virgin Agg Moisture %:		4.4		3:00 PM	60 min	354	119	19.3	493	288	286	5.4	70	62					
Baghouse Pulse Frequency:		Every 45 seconds		3:15 PM	75 min	353	127	19.4	495	283	285	5.3	70	62					
				3:30 PM	90 min	358	127	19.6	499	280	284	5.2	70	62					
			Stop Time:	3:35 PM	95 min	355	124	19.4	500	277	282	5.3	70	62					
			Averages (TPM):			353	124	19	497	279	285	5.3	70	62					
			Averages (FTIR):			353	126	19	498	279	285	5.2	70	62	Fuel Total:		146	92,211	

Wednesday, August 21, 2024																	Testing: Metals & BTEX
Test No. 4																	
Mix Design:	SEMH	Start Time:	5:35 AM	0 min	320	149	22	493	274	279	4.7	72	54				
% RAP:	34%		5:50 AM	15 min	322	146	22	491	269	278	4.6	72	56				
RAP Moisture %:	4.5		6:05 AM	30 min	320	152	21.6	485	281	280	4.6	72	56				port change: 6:23-6:45 (Metals)
Asphalt Cement Grade:	PG 58-28		6:20 AM	45 min	325	155	21.7	493	274	281	4.6	72	56				port change: 6:05-6:45 (BTEX)
Virgin Agg Moisture %:	4.4		6:45 AM	70 min	322	150	22.2	497	271	278	4.8	72	56				pause: 6:57-7:05 (Metals)
Baghouse Pulse Frequency:	Every 20 seconds		7:00 AM	85 min	322	150	22.2	496	272	280	4.9	72	56				
			7:15 AM	100 min	321	147	22.2	496	280	281	4.8	72	56				End 7:15 (BTEX)
			7:30 AM	115 min	322	149	22.2	492	268	281	4.8	72	56				
		Stop Time:	7:43 AM	128 min	320	152	22.2	493	270	281	4.6	72	56				
		Averages (Metals):			322	149	22	493	273	280	4.7	72	56				
		Averages (BTEX):			321	149	22	493	275	279	4.7	72	56	Fuel Total:	247	115,781	
Test No. 5																	Testing: Metals & BTEX
Mix Design:	SEMH	Start Time:	9:15 AM	0 min	316	149	22	493	276	292	4.4	76	56				
% RAP:	34%		9:30 AM	15 min	320	147	21.9	485	282	286	4.8	76	56				
RAP Moisture %:	4.5		9:40 AM	25 min	319	146	21.6	487	276	285	4.7	75	56				pause: 9:27-9:40 (Metals)
Asphalt Cement Grade:	PG 58-28		9:55 AM	40 min	319	151	21.9	491	267	284	4.5	76	56				port change: 10:16-10:40 (Metals)
Virgin Agg Moisture %:	4.4		10:10 AM	55 min	318	148	21.9	490	274	287	4.6	76	56				port change: 9:45-10:40 (BTEX)
Baghouse Pulse Frequency:	Every 20 seconds		10:20 AM	65 min	318	145	21.9	489	276	288	4.6	76	56				
			10:35 AM	80 min	316	146	22	495	271	281	4.7	76	56				
			10:50 AM	95 min	323	148	22.2	493	264	284	4.6	76	56				
			11:05 AM	105 min	320	147	21.9	491	270	283	4.7	76	56				End 11:10 (BTEX)
			11:20 AM	120 min	327	144	22	492	278	285	4.5	76	56				
		Stop Time:	11:28 AM	128 min	328	141	22.2	491	276	282	4.5	76	56				
		Averages (Metals):			321	147	22	491	273	285	4.6	76	56				
		Averages (BTEX):			320	147	22	490	274	286	4.6	76	56	Fuel Total:	235	110,156	
Test No. 6																	Testing: Metals & BTEX
Mix Design:	SEMH	Start Time:	12:20 PM	0 min	323	145	22.5	498	266	279	4.5	76	56				
% RAP:	34%		12:35 PM	15 min	325	145	22.4	492	268	282	4.6	76	56				
RAP Moisture %:	4.5		12:50 PM	30 min	323	140	22	489	280	281	4.6	76	56				
Asphalt Cement Grade:	PG 58-28		1:05 PM	45 min	322	145	22.2	492	271	281	4.5	76	56				port change: 13:08-13:28 (Metals)
Virgin Agg Moisture %:	4.4		1:20 PM	60 min	325	143	22.7	495	272	279	4.7	76	56				pause: 13:44-14:16 (Metals)
Baghouse Pulse Frequency:	Every 25 seconds		1:35 PM	75 min	324	141	22	490	269	281	4.5	76	56				port change: 12:50-13:33 (BTEX)
			1:50 PM	90 min	322	144	22.2	492	269	282	4.7	76	56				
			2:05 PM	105 min	323	145	22	492	265	280	4.6	76	56				End 14:03 (BTEX)
			2:20 PM	120 min	325	143	22	490	272	280	4.7	76	56				
			2:35 PM	135 min	322	146	22.3	490	271	281	4.6	76	56				
		Stop Time:	2:48 PM	148 min	326	144	22.3	490	279	282	4.6	76	56				
		Averages (Metals):			324	144	22	491	272	281	4.6	76	56				
		Averages (BTEX):			323	143	22	492	270	281	4.6	76	56	Fuel Total:	260	105,405	



Weighing Solutions Since 1976

SCALE SERVICE REPORT

Business:	Ajax Paving	Date:	4/1/2024	Due Date:	4/1/2025
Address:	5088 Energy Dr., Flint, MI 48505	Reason for Service:	Spring Testing		
Contact:	Scott Maxwell	Scale ID/Location:	RAP		
Indicator		Weigh Platform		Inspector:	Chris Boni
Make:	Customer PLC	Make:	Systems	Inspectors Cert#:	101500
Model:		Model:		Standards Used:	Certified Truck Scale
Serial:		Serial:		Standards Cert. #'s:	
NTEP COC:		NTEP COC:			
Scale Class:	n/a	Recording Element:	PC	Commercial Scale:	n/a
Scale Capacity:	500 tph	Calibrated Units:	TPH	Type of Seal:	n/a
Division Size (d):	1 tph	# of Scale Idlers:	1	Audit Trail:	n/a
Idler Spacing:	48"	Belt Size:	30"	Tolerance Used:	0.50%
Belt Speed:		Belt Length:	n/a	Conveyor Angle:	n/a

Test Type	Indicator Displayed Weight	Actual Weight	Error	Results	Notes
Zero				Pass	Counts 41379
203 tph test	8.618	8.688	0.81%	Fail	Counts 15076
204 tph test	8.681	8.687	0.73%	Fail	Counts 15076
201 tph test	8.580	8.555	-0.29%	Pass	Counts 15076
202 tph test	8.620	8.602	-0.20%	Pass	Counts 15076
137 tph test	8.552	8.598	0.540	Fail	Counts 9922
136 tph test	8.577	8.531	-0.53%	Fail	Counts 9922
134 tph test	8.580	8.570	-0.11%	Pass	Counts 9922
133 tph test	8.560	8.549	-0.13%	Pass	Counts 9922
89.4 tph test	8.604	8.651	0.55%	Fail	Counts 6449
89.5 tph test	8.625	8.669	0.51%	Fail	Counts 6449
89.2 tph test	8.570	8.581	0.13%	Pass	Counts 6449
89.6 tph test	8.610	8.619	0.11%	Pass	Counts 6449

Notes: Inspected, & calibrated RAP belt scale.

Inspector:

Customer:

All standards used are traceable to a ISO/IEC 17025:2005 A2LA accredited laboratory. Standards certifications are available upon request. Boni-Hutchinson Company and technician certifications are available upon request. Legal for trade calibrations are performed following NIST Handbook 44 requirements and procedures.

BONI-HUTCHINSON COMPANY

51424 Pontiac Trail, Wixom, MI 48381

734-591-0818

bonihutchinson.com



Weighing Solutions Since 1976

SCALE SERVICE REPORT

Business:	Ajax Paving	Date:	4/1/2024	Due Date:	4/1/2025
Address:	5088 Energy Dr., Flint, MI 48505	Reason for Service:	Spring Testing		
Contact:	Scott Maxwell	Scale ID/Location:	Virgin Belt Scale		
Indicator		Weigh Platform		Inspector:	Chris Boni
Make:	Customer PLC	Make:	Systems	Inspectors Cert#:	101500
Model:		Model:		Standards Used:	Certified Truck Scale
Serial:		Serial:		Standards Cert. #'s:	
NTEP COC:		NTEP COC:			
Scale Class:	n/a	Recording Element:	PC	Commercial Scale:	n/a
Scale Capacity:	500 tph	Calibrated Units:	TPH	Type of Seal:	n/a
Division Size (d):	1 tph	# of Scale Idlers:	1	Audit Trail:	n/a
Idler Spacing:	48"	Belt Size:	36"	Tolerance Used:	0.50%
Belt Speed:		Belt Length:	n/a	Conveyor Angle:	n/a

Test Type	Indicator Displayed Weight	Actual Weight	Error	Results	Notes
Zero				Pass	Counts 40425
386 tph test	7.390	7.389	-0.02%	Pass	Counts 15880
383 tph test	7.350	7.351	0.02%	Pass	Counts 15880
293 tph test	7.580	7.560	-0.26%	Pass	Counts 12039
293 tph test	7.570	7.564	-0.08%	Pass	Counts 12039
197 tph test	7.600	7.615	0.20%	Pass	Counts 8009
161 tph test	7.610	7.622	0.16%	Pass	Counts 8009

Notes: Inspected & tested virgin belt scale.

Inspector:

Customer:

All standards used are traceable to a ISO/IEC 17025:2005 A2LA accredited laboratory. Standards certifications are available upon request. Boni-Hutchinson Company and technician certifications are available upon request. Legal for trade calibrations are performed following NIST Handbook 44 requirements and procedures.

BONI-HUTCHINSON COMPANY

51424 Pontiac Trail, Wixom, MI 48381

734-591-0818

bonihutchinson.com
Form 082818-BB

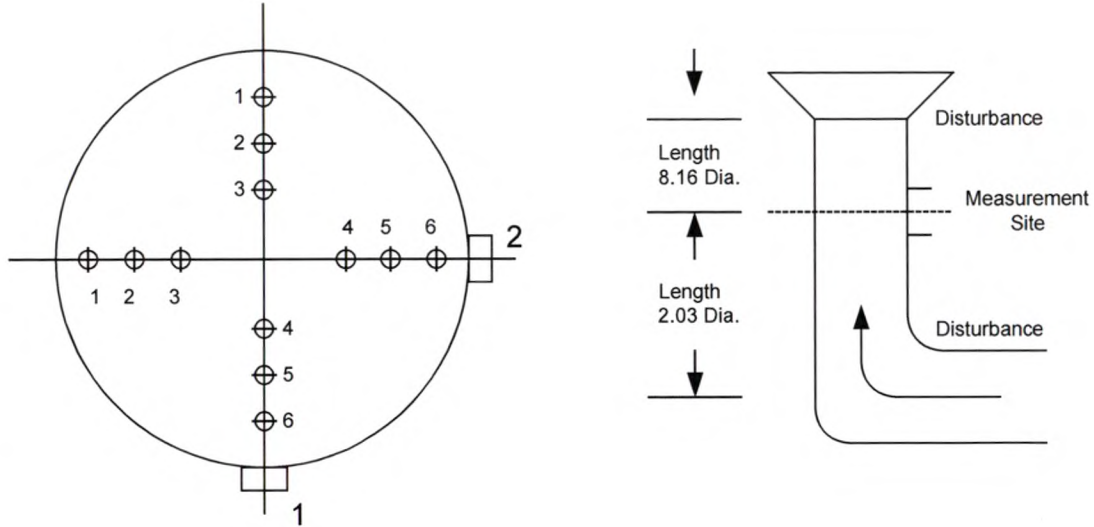
Project No. M242411
Hot Mix Plant Baghouse Exhaust - EUHMAPLANT

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Appendix B - Test Section Diagram

GASEOUS AREA TRAVERSE FOR ROUND DUCTS (Stratification)



Job: Ajax Materials Corporation
Genesee Township Hot Mix Plant

Date: August 20, 2024

Test Location: EUHMAPLANT

Duct Diameter: 5.67 Feet

Duct Area: 25.22 Square Feet

No. Points Across Diameter: 6

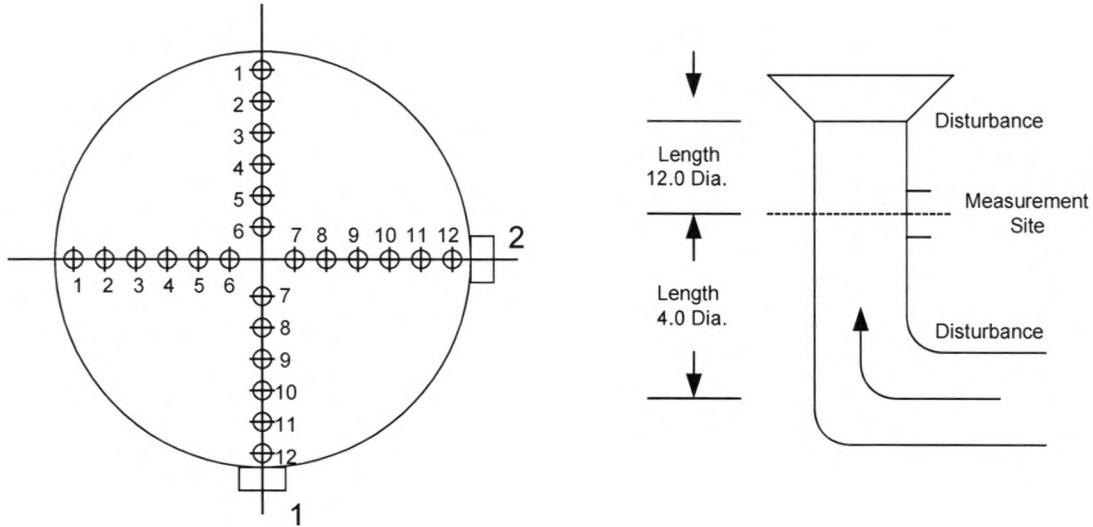
No. of Ports: 2

Port Length: 3.5 Inches

Distance from Inside Wall To Traverse Point
(Inches)

1	6.492
2	13.428
3	23.628
4	51.372
5	61.572
6	68.508

EQUAL AREA TRAVERSE FOR ROUND DUCTS (M5/202 and M29 Sampling)



Job: Ajax Materials Corporation
Genesee Township Hot Mix Plant

Date: August 20 and 21, 2024

Test Location: EUHMAPLANT

Duct Diameter: 5.67 Feet

Duct Area: 25.22 Square Feet

No. Points Across Diameter: 24

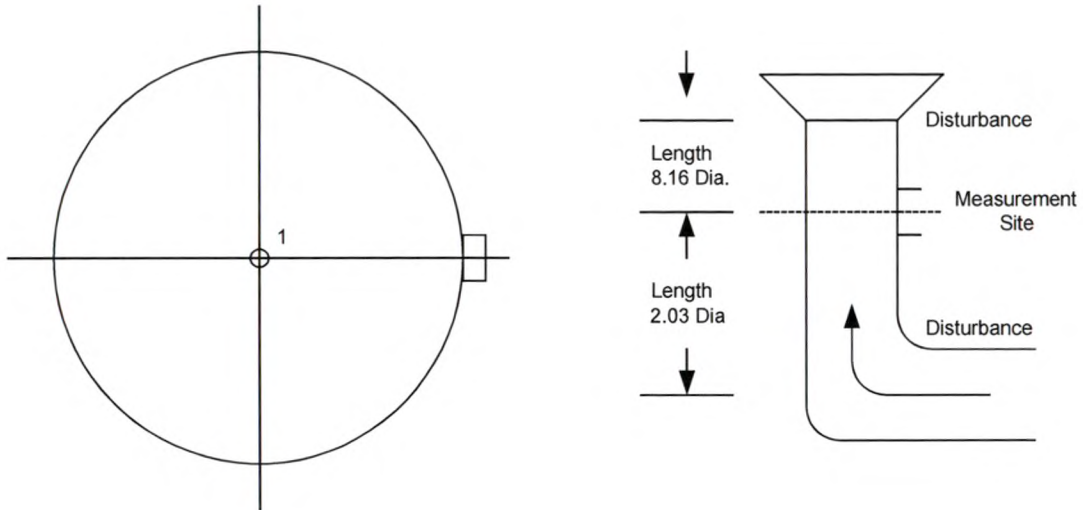
No. of Ports: 2

Port Length: 2.5 Inches

Distance from Inside Wall To Traverse Point
(Inches)

1	3.93
2	7.06
3	10.52
4	14.54
5	19.50
6	26.71
7	46.29
8	53.50
9	58.47
10	62.48
11	65.95
12	69.08

BTEX TRAVERSE FOR ROUND DUCTS (M18 Sampling and Gaseous)



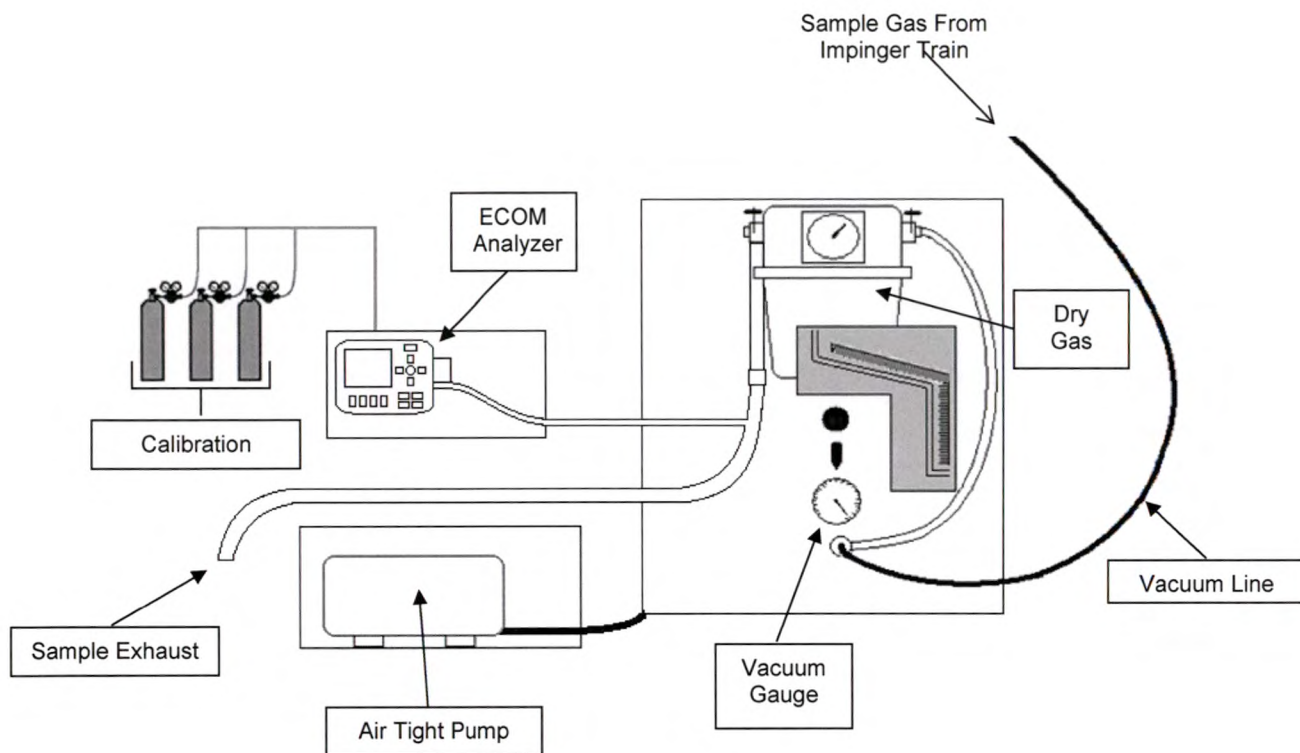
Job: Ajax Materials Corporation
Genesee Township Hot Mix Plant

Date: August 20 and 21, 2024

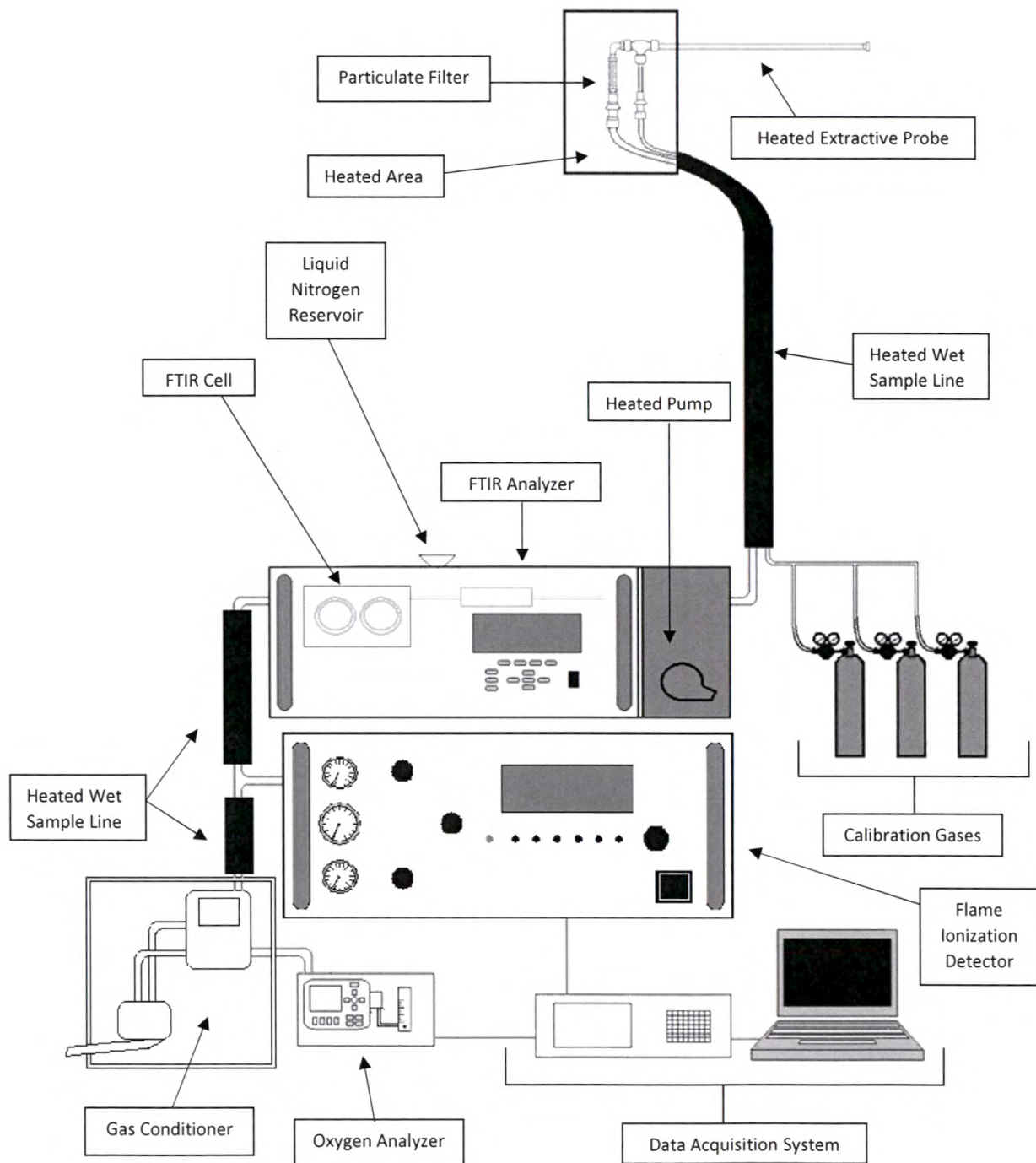
Test Location: EUHMAPLANT
Duct Diameter: 5.67 Feet
Duct Area: 25.22 Square Feet
No. of Points : 1
No. of Ports: 1

Appendix C - Sample Train Diagrams

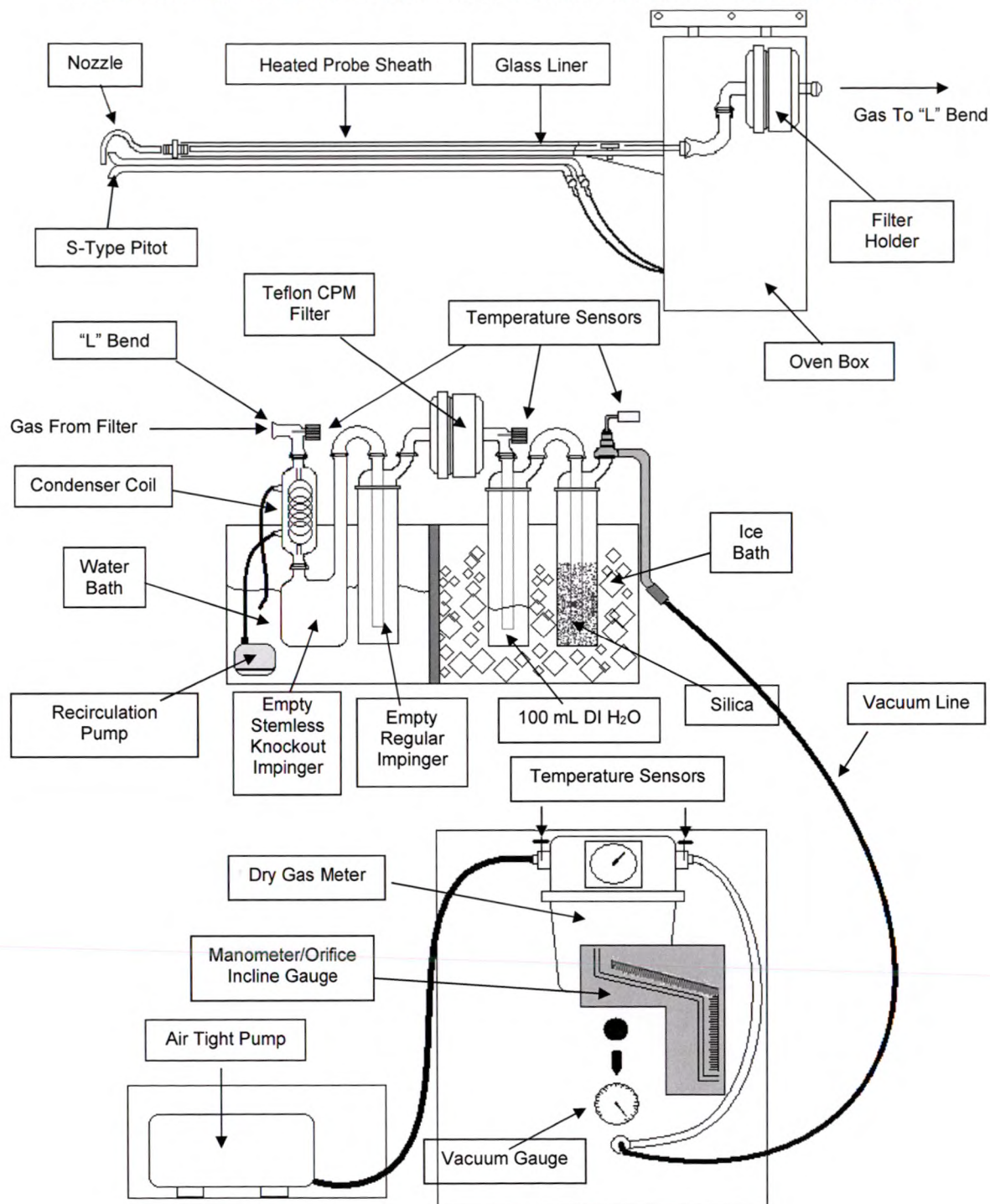
USEPA Method 3A - Integrated Oxygen/Carbon Dioxide Sample Train Diagram Utilizing ECOM To Measure from Sample Exhaust



USEPA Methods 3A, 25A, and 320 – Sample Train Diagram



USEPA Method 5/202- Filterable/Condensable Particulate Matter

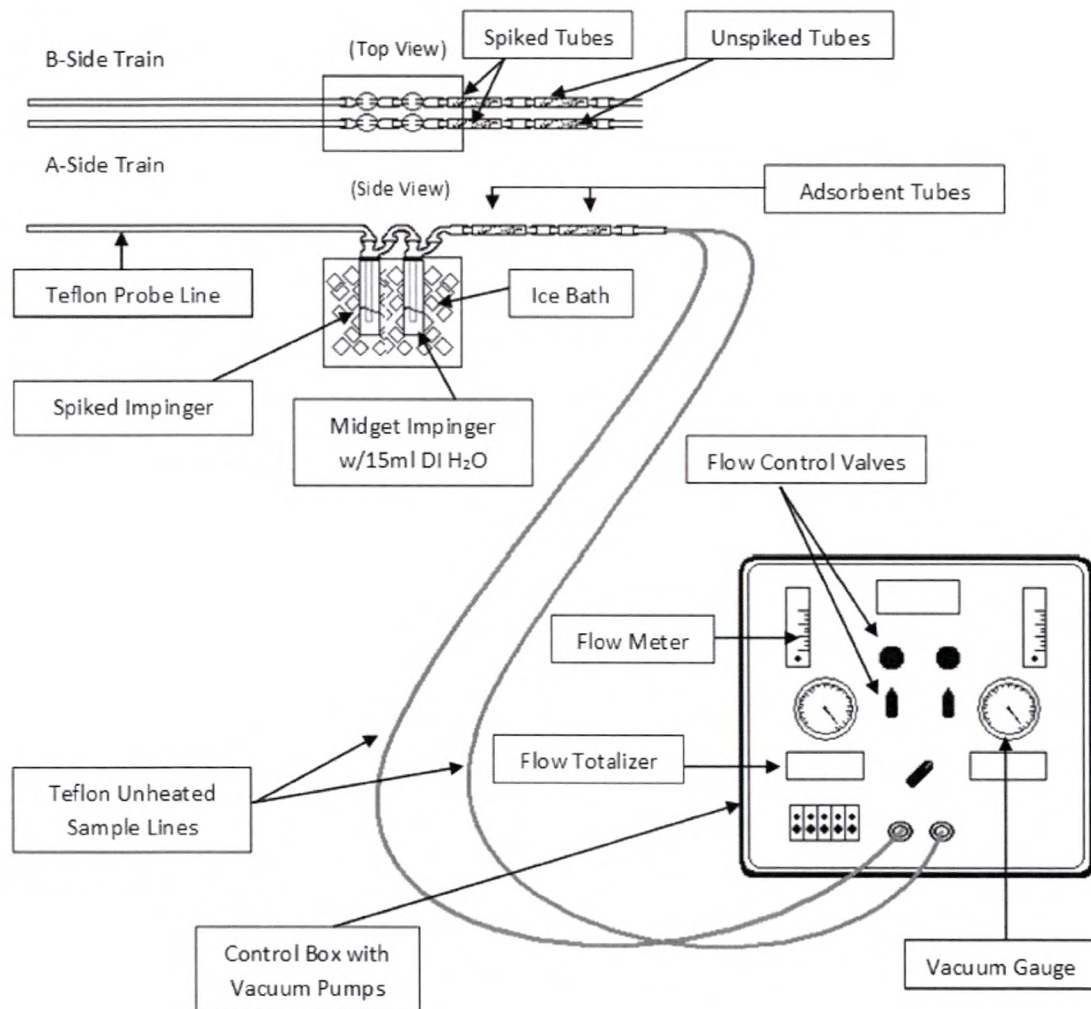


ATD-042 USEPA Method 5/202

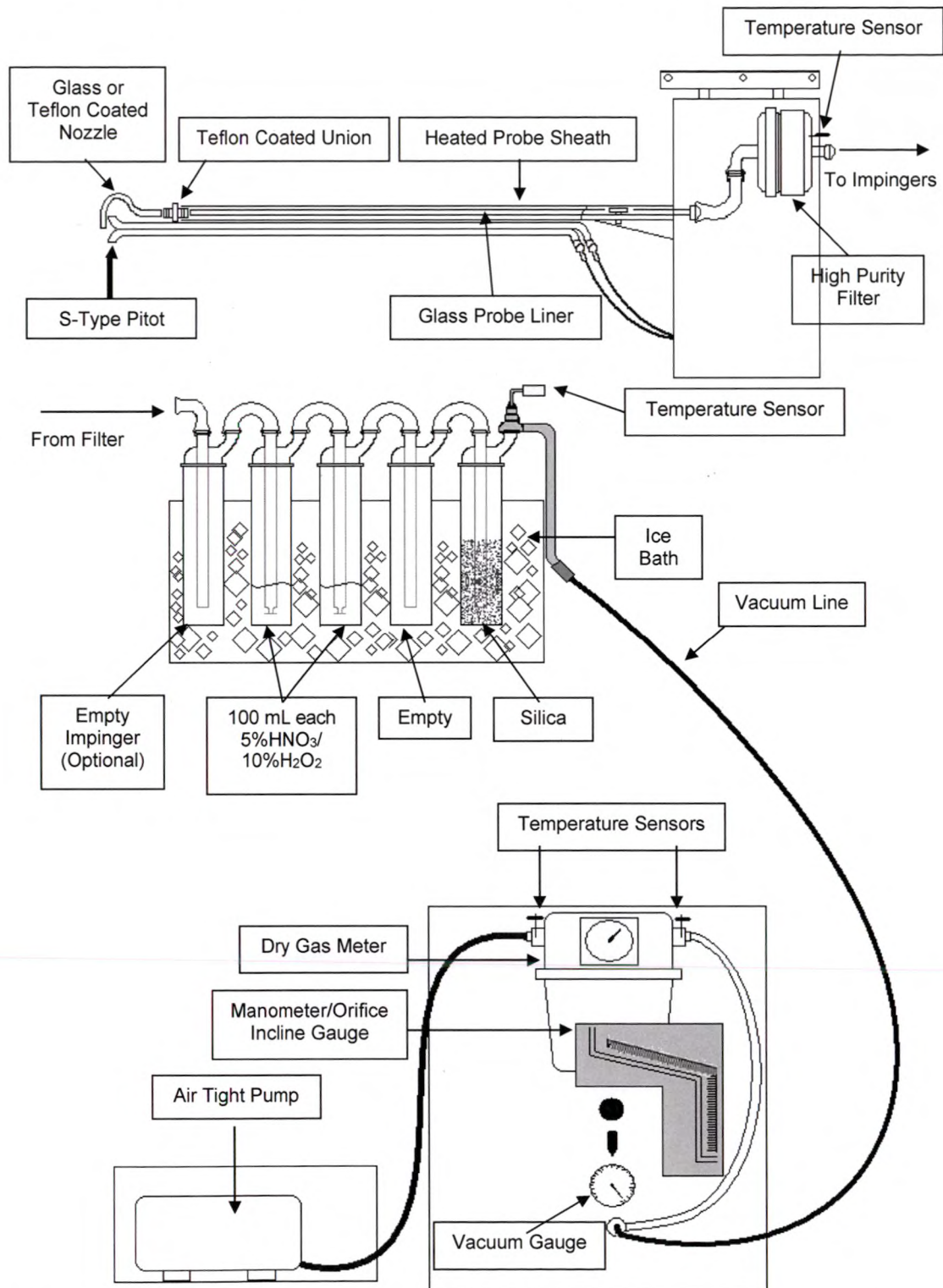
Rev. 1.3

1/1/2021

USEPA Method 18 – Midget Impinger and Adsorbent Tube Sampling for BTEX



USEPA Method 29- Metals Sample Train Diagram (No Hg)



ATD-069 USEPA Method 29 (no Hg)

Rev. 1.2

1/1/2021