Source Test Report for 2023 Compliance Testing FGEWFULLER, FGMOLDCOOLING (Cooling Stacks 1, 2, 3, and 4), FGWDUSTAR, EUShakeout
Metal Technologies
Three Rivers Gray Iron
Three Rivers, Michigan

Prepared For:

Metal Technologies
429 4th Street
Three Rivers, MI 49093

Prepared By:

Montrose Air Quality Services, LLC
1371 Brummel Avenue
Elk Grove Village, IL 60007

For Submission To:

Michigan Department of Environment, Great Lakes, and Energy
525 W. Allegan Street
Lansing, MI 48933

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MONTROSE AIR QUALITY SERVICES

STAC

ACCREDITED TO ASTM D7036 ONLY CERT #3925.01

Review and Certification

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.

Signature:	James Christ	**Date:**	03 / 29 / 2023
Name:	James Christ, QSTI	**Title:**	Client Project Manager

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

Signature:	Henry M. Taylor	**Date:**	03 / 29 / 2023
Name:	Henry M. Taylor, QSTO	**Title:**	Senior Reporting Specialist

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1.0 Introduction

1.1 Summary of Test Program

Metal Technologies (MTI) contracted Montrose Air Quality Services, LLC (Montrose) to perform a compliance emissions test on the sources listed in Table 1-1 at the Three Rivers Gray Iron facility located in Three Rivers, Michigan.

The tests were conducted to meet the requirements of the Michigan Department of Great Lakes, Environment, and Energy (EGLE) Permit No. MI-PT-B2015-2019.

The specific objectives were to:

- Determine the concentration and emission rate of FPM from FGEWFULLER, FGMOLDCOOLING, and FGWDUSTAR
- Determine the concentration and emission rates of FPM, CPM, and TPM as $PM_{2.5/10}$ from EUShakeout
- Conduct the test program with a focus on safety

Montrose performed the tests to measure the emission parameters listed in Table 1-1.

Table 1-1
Summary of Test Program

Test Dates	Unit ID/ Source Name	Activity/Parameters	Test Methods	No. of Runs	Duration (Minutes)
3/7/23	FGEWFULLER	Velocity/Volumetric Flow	EPA 1 & 2	3	84
		Moisture	EPA 4	3	84
		FPM	EPA 5	3	84
3/7/23	FGMOLDCOOLING/	Velocity/Volumetric Flow	EPA 1 & 2	3	96
	Cooling Stack 3	Moisture	EPA 4	3	96
		FPM	EPA 5	3	96
3/7/23	FGMOLDCOOLING/	Velocity/Volumetric Flow	EPA 1 & 2	3	96
	Cooling Stack 4	Moisture	EPA 4	3	96
		FPM	EPA 5	3	96
3/8/23	FGMOLDCOOLING/	Velocity/Volumetric Flow	EPA 1 & 2	3	60
	Cooling Stack 1	Moisture	EPA 4	3	60
		FPM	EPA 5	3	60
3/8/23	FGMOLDCOOLING/	Velocity/Volumetric Flow	EPA 1 & 2	3	60
	Cooling Stack 2	Moisture	EPA 4	3	60
		FPM	EPA 5	3	60
3/8/23	FGWDUSTAR	Velocity/Volumetric Flow	EPA 1 & 2	3	84
		Moisture	EPA 4	3	84
		FPM	EPA 5	3	84
3/9/23	EUShakeout	Velocity/Volumetric Flow	EPA 1 & 2	3	60
		Moisture	EPA 4	3	60
		FPM, CPM, & TPM as $PM_{2.5/10}$	EPA 5 & 202	3	60
		Post-test meter calibration check	EPA ALT-009	--	--

To simplify this report, a list of Units and Abbreviations is included in Appendix D.1. Throughout this report, chemical nomenclature, acronyms, and reporting units are not defined. Please refer to the list for specific details.

This report presents the test results and supporting data, descriptions of the testing procedures, descriptions of the facility and sampling locations, and a summary of the quality assurance procedures used by Montrose. The average emission test results are summarized and compared to their respective permit limits in Tables 1-2 through 1-8. Detailed results for individual test runs can be found in Section 4.0. All supporting data can be found in the appendices.

The tests were conducted according to Test Plan No. MW023AS-023653-PP-558 dated January 17, 2023.

Table 1-2
Summary of Average Compliance Results – FGEWFULLER

March 7, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/hr	10.1	15.8
lb/1,000 lb exhaust gas	0.027	0.04

Table 1-3
Summary of Average Compliance Results – FGMOLDCOOLING (Cooling Stack 3)

March 7, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/1,000 lb of exhaust gas	0.008	0.10

Table 1-4
Summary of Average Compliance Results – FGMOLDCOOLING (Cooling Stack 4)

March 7, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/1,000 lb of exhaust gas	0.005	0.10

Table 1-5
Summary of Average Compliance Results – FGMOLDCOOLING (Cooling Stack 1)

March 8, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/1,000 lb of exhaust gas	0.007	0.10

Table 1-6
Summary of Average Compliance Results – FGMOLDCOOLING (Cooling Stack 2)

March 8, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/1,000 lb of exhaust gas	0.011	0.10

Table 1-7
Summary of Average Compliance Results – FGWDUSTAR

March 8, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/hr	1.17	13.5
lb/1,000 lb exhaust gas	0.002	0.02

Table 1-8
Summary of Average Compliance Results – EUShakeout

March 9, 2023

Parameter/Units	Average Results	Emission Limits
Filterable Particulate Matter (FPM)		
lb/hr	0.84	11.9
lb/1,000 lb exhaust gas	0.003	0.04
Total Particulate Matter (TPM) as $PM_{2.5/10}$		
lb/hr	2.73	11.9
lb/1,000 lb exhaust gas	0.008	0.04

1.2 Key Personnel

A list of project participants is included below:

Facility Information

Source Location:	Metal Technologies Three Rivers Gray Iron 429 4th Street Three Rivers, MI 49093
Project Contact:	Dan Plant
Role:	Director of Environmental Engineering
Telephone:	260-920-2137
Email:	dplant@metals-technologies.com

Agency Information

Regulatory Agency:	Michigan Department of Environment, Great Lakes, and Energy
Agency Contact:	Amanda Chapel

Testing Company Information

Testing Firm:	Montrose Air Quality Services, LLC
Contact:	James Christ
Title:	Client Project Manager
Telephone:	630-860-4740
Email:	jchrist@montrose-env.com

Laboratory Information

Laboratory:	Montrose Air Quality Services, LLC
City, State:	Wauconda, Illinois
Method:	5 and 202

Test personnel and observers are summarized in Table 1-9.

Table 1-9
Test Personnel and Observers

Name	Affiliation	Role/Responsibility
James Christ	Montrose	Client Project Manager/Field Team Leader/QSTI/Sample Recovery
Carlos Sandoval	Montrose	Shop Manager/Sample Train Operator
John Ziber, Chris Ziber, Roy Zimmer, Shane Rabideau	Montrose	Field Technician/Sample Train Operator
Jacob Cartee	Montrose	Report Preparation
Trevor Drost/Amanda Cross	Michigan DEGE	Observers
Dan Plant	MTI	Client Liaison/Test Coordinator

2.0 Plant and Sampling Location Descriptions

2.1 Process Description, Operation, and Control Equipment

Shakeout machine and associated equipment that separate iron castings to casting transfer, sand to the sand system, and sprue to the scrap bay. Controlled by the 2014 North Dustar Baghouse (PTI No. 137-14).

Mold cooling lines. Emission Units: EUMOLDCOOLING1, EUMOLDCOOLING2, EUMOLDCOOLING3, EUMOLDCOOLING4.

Casting accumulator, transfer, shot sand reclaim drum magnet, sand screens and separators. Emission Units: EUSAND1, EUCASTTRANSFER1

Sand system conveyors, mullers, didion and flat deck, and vibratory shakeout unit for sand separation. Emission Units: EUSAND2, EUCASTTRANSFER2

Iron castings are cleaned in shotblast machines.

Emission Units: EUBLAST1, EUBLAST2, EUBLAST3, EUBLAST4

2.2 Flue Gas Sampling Locations

Information regarding the sampling locations is presented in Table 2-1.

Table 2-1
Sampling Locations

Sampling Locations	Stack Inside Diameter (in.)	Distance from Nearest Disturbance		Number of Traverse Points
		Downstream EPA "B" (in./dia.)	Upstream EPA "A" (in./dia.)	
FGEWFULLER	78	156/2	96/1.23	Isokinetic: 24 (12/port)
FGMOLDCOOLING (Cooling Stacks 1-4)	27	61/2.3	>27/>1.0	Isokinetic: 24 (12/port)
FGWDUSTAR	78	156/2	96/1.23	Isokinetic: 24 (12/port)
EUShakeout	60	840/14.0	360/6.0	Isokinetic: 24 (12/port)

The sample locations were verified in the field to conform to EPA Method 1. Absence of cyclonic flow conditions was confirmed following EPA Method 1, Section 11.4. See Appendix A.1 for more information.

2.3 Operating Conditions and Process Data

The emission tests were performed while the units and air pollution control devices were operating at the conditions required by the permit.

Plant personnel were responsible for establishing the test conditions and collecting all applicable unit-operating data. The process data that was provided is presented in Appendix B.

3.0 Sampling and Analytical Procedures

3.1 Test Methods

The test methods for this test program have been presented in Table 1-1. Additional information regarding specific applications or modifications to standard procedures is presented below.

3.1.1 EPA Method 1, Sample and Velocity Traverses for Stationary Sources

EPA Method 1 is used to assure that representative measurements of volumetric flow rate are obtained by dividing the cross-section of the stack or duct into equal areas, and then locating a traverse point within each of the equal areas. Acceptable sample locations must be located at least two stack or duct equivalent diameters downstream from a flow disturbance and one-half equivalent diameter upstream from a flow disturbance.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - None
- Method Exceptions:
  - None

The sample port and traverse point locations are detailed in Appendix A.

3.1.2 EPA Method 2, Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

EPA Method 2 is used to measure the gas velocity using an S-type pitot tube connected to a pressure measurement device, and to measure the gas temperature using a calibrated thermocouple connected to a thermocouple indicator. Typically, Type S (Stausscheibe) pitot tubes conforming to the geometric specifications in the test method are used, along with an inclined manometer. The measurements are made at traverse points specified by EPA Method 1. The molecular weight of the gas stream is determined from independent measurements of O_2, CO_2, and moisture. The stack gas volumetric flow rate is calculated using the measured average velocity head, the area of the duct at the measurement plane, the measured average temperature, the measured duct static pressure, the molecular weight of the gas stream, and the measured moisture.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - S-type pitot tube coefficient is 0.84
  - A dry molecular weight of 29.0 lb/lb-mol is utilized in flow rate calculations for processes that emit essentially air and no combustion sources were tested

- Method Exceptions:
  - None

The typical sampling system is detailed in Figure 3-1.

3.1.3 EPA Method 4, Determination of Moisture Content in Stack Gas

EPA Method 4 is a manual, non-isokinetic method used to measure the moisture content of gas streams. Gas is sampled at a constant sampling rate through a probe and impinger train. Moisture is removed using a series of pre-weighed impingers containing methodology-specific liquids and silica gel immersed in an ice water bath. The impingers are weighed after each run to determine the percent moisture.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - Moisture sampling is performed as part of the pollutant sample trains
  - Since it is theoretically impossible for measured moisture to be higher than psychrometric moisture, the psychrometric moisture is also calculated, and the lower moisture value is used in the calculations
  - Montrose used knockout jars with flexible gum rubber tubing in place of the Greenburg-Smith impinger train per 40 CFR Part 60, Appendix 60, Method 5 §6.1.1.8.
- Method Exceptions:
  - None
- Target and/or Minimum Required Sample Volume: 60 dscf

The typical sampling system is detailed in Figure 3-1.

3.1.4 EPA Method 5, Determination of Particulate Matter Emissions from Stationary Sources

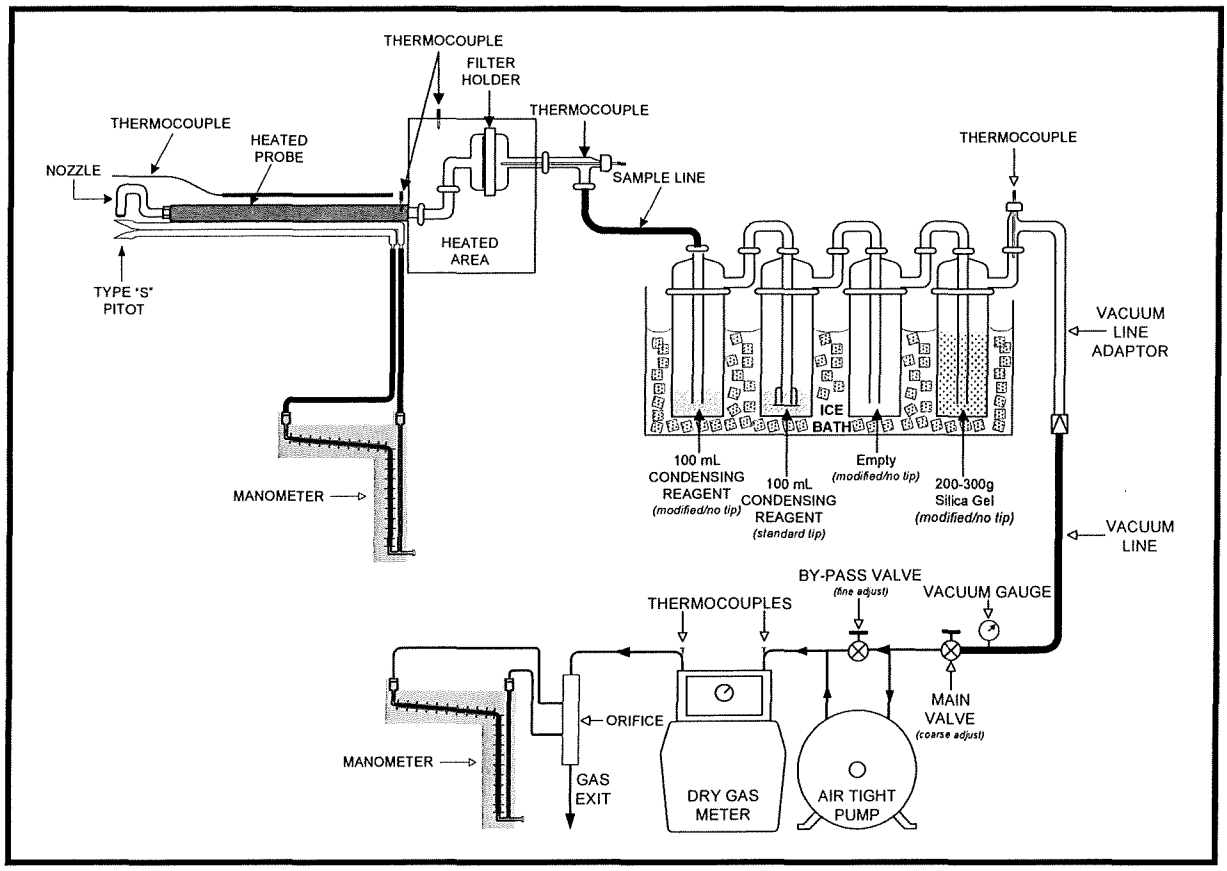
EPA Method 5 is a manual, isokinetic method used to measure FPM emissions. The samples are analyzed gravimetrically. This method is performed in conjunction with EPA Methods 1 through 4. The stack gas is sampled through a nozzle, probe, filter, and impinger train.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - Glass sample nozzles and probe liners are used
- Method Exceptions:
  - None
- Target and/or Minimum Required Sample Volume: 60 dscf
- Analytical Laboratory: Montrose, Wauconda, Illinois

The typical sampling system is detailed in Figure 3-1.

FIGURE 3-1
EPA METHOD 5 (DETACHED) SAMPLING TRAIN



3.1.5 EPA Methods 5 and 202, Determination of Particulate Matter Emissions from Stationary Sources and Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources

EPA Methods 5 and 202 are manual, isokinetic methods used to measure FPM and CPM emissions. FPM is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at a temperature of 120 ± 14 °C (248 ± 25 °F) or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application. The FPM mass, which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after the removal of uncombined water.

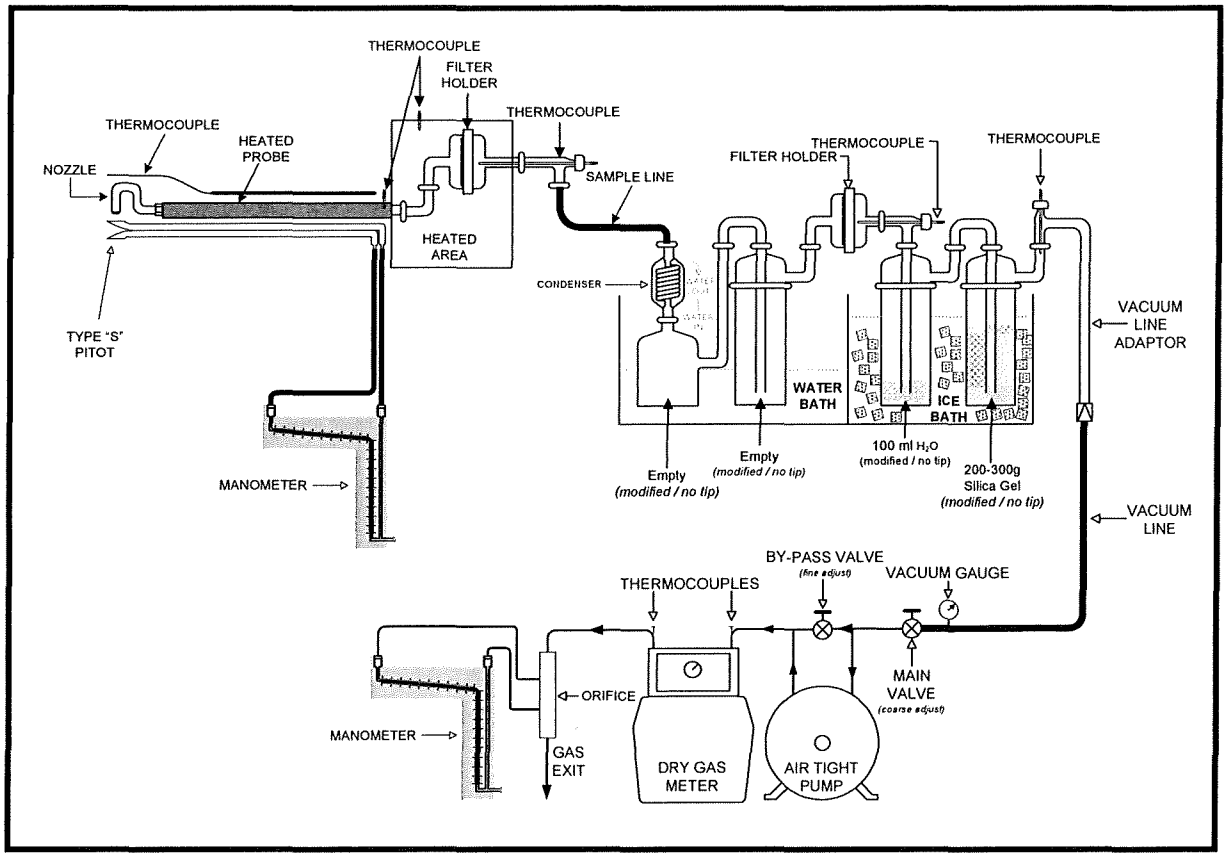
CPM is collected in dry impingers after filterable PM has been collected on a filter maintained as specified in Method 5. The organic and aqueous fractions of the impingers and an out-of-stack CPM filter are then taken to dryness and weighed. The total of the impinger fractions and the CPM filter represents the CPM.

Pertinent information regarding the performance of the method is presented below:

- Method Options:
  - Glass sample nozzles and probe liners are used
  - The post-test nitrogen purge is performed by passing nitrogen through the train under pressure
- Method Exceptions:
  - None
- Target and/or Minimum Required Sample Volume: 60 dscf
- Analytical Laboratory: Montrose, Wauconda, Illinois

The typical sampling system is detailed in Figure 3-2.

FIGURE 3-2
EPA METHODS 5/202 (DETACHED) SAMPLING TRAIN



3.1.6 EPA Method ALT-009, Alternative Method 5 Post-Test Calibration

EPA Approved Alternative Method 009 (ALT-009) is used as an alternative to a two-point post-test meter box calibration. This procedure uses a calculation to check the meter box calibration factor rather than requiring a physical post-test meter box calibration using a standard dry gas meter. The average calculated meter box percent (%) error must result in a percent error within ±5% of Y. If not, a full calibration is performed, and the results are presented using the Y factor that yields the highest emissions.

3.2 Process Test Methods

The test plan did not require that process samples be collected during this test program; therefore, no process sample data are presented in this test report.

4.0 Test Discussion and Results

4.1 Field Test Deviations and Exceptions

No field deviations or exceptions from the test plan or test methods occurred during this test program.

4.2 Presentation of Results

The average results are compared to the permit limits in Tables 1-2 through 1-8. The results of individual compliance test runs performed are presented in Tables 4-1 through 4-7. Emissions are reported in units consistent with those in the applicable regulations or requirements. Additional information is included in the appendices as presented in the Table of Contents.

Table 4-1
FPM Emissions Results -
FGEWFULLER

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/7/2023	3/7/2023	3/7/2023	--
Time	07:47-09:20	10:05-11:45	12:53-14:20	--
Sampling & Flue Gas Parameters				
sample duration, minutes	84	84	84	--
sample volume, dscf	62.44	60.53	62.89	--
isokinetic rate, %	101.0	101.0	99.4	--
flue gas temperature, °F	156	158	136	150
moisture content, % volume	1.62	1.71	1.67	1.66
volumetric flow rate, acfm	98,137	95,654	97,244	97,012
volumetric flow rate, scfm	83,094	80,692	85,150	82,979
volumetric flow rate, dscfm	81,781	79,346	83,764	81,631
Filterable Particulate Matter (FPM)				
mg	72.79	70.31	31.85	--
gr/dscf	0.018	0.018	0.008	0.015
lb/hr	12.6	12.2	5.6	10.1
lb/1,000 lb of exhaust gas	0.034	0.033	0.015	0.027

Table 4-2
FPM Emissions Results -
FGMOLDCOOLING (Cooling Stack 3)

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/7/2023	3/7/2023	3/7/2023	--
Time	08:19-09:57	10:47-12:27	12:58-15:13	--
Sampling & Flue Gas Parameters				
sample duration, minutes	96	96	96	--
sample volume, dscf	75.18	75.19	65.31	--
isokinetic rate, %	104.0	102.1	101.4	--
flue gas temperature, °F	96	91	80	89
moisture content, % volume	1.85	1.67	1.60	1.71
volumetric flow rate, acfm	12,436	12,542	10,729	11,902
volumetric flow rate, scfm	11,670	11,863	10,364	11,299
volumetric flow rate, dscfm	11,458	11,669	10,202	11,110
Filterable Particulate Matter (FPM)				
mg	19.62	18.20	20.72	--
gr/dscf	0.004	0.004	0.005	0.004
lb/hr	0.40	0.37	0.43	0.40
lb/1,000 lb of exhaust gas	0.008	0.007	0.008	0.008

Table 4-3
FPM Emissions Results -
FGMOLDCOOLING (Cooling Stack 4)

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/7/2023	3/7/2023	3/7/2023	--
Time	08:19-09:57	10:47-12:27	12:58-15:12	--
Sampling & Flue Gas Parameters				
sample duration, minutes	96	96	96	--
sample volume, dscf	64.88	58.67	58.62	--
isokinetic rate, %	96.9	107.1	104.4	--
flue gas temperature, °F	105	107	110	107
moisture content, % volume	1.90	2.87	1.68	2.15
volumetric flow rate, acfm	5,766	6,022	6,137	5,975
volumetric flow rate, scfm	5,325	5,540	5,611	5,492
volumetric flow rate, dscfm	5,226	5,383	5,519	5,376
Filterable Particulate Matter (FPM)				
mg	5.73	10.48	12.04	--
gr/dscf	0.001	0.003	0.003	0.002
lb/hr	0.06	0.13	0.15	0.11
lb/1,000 lb of exhaust gas	0.003	0.005	0.006	0.005

Table 4-4
FPM Emissions Results -
FGMOLDCOOLING (Cooling Stack 1)

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/8/2023	3/8/2023	3/8/2023	--
Time	08:35-09:41	10:16-11:20	12:05-13:07	--
Sampling & Flue Gas Parameters				
sample duration, minutes	60	60	60	--
sample volume, dscf	45.97	46.41	43.45	--
isokinetic rate, %	104.5	103.7	103.3	--
flue gas temperature, °F	97.7	97.9	104	100
moisture content, % volume	1.72	1.61	2.76	2.03
volumetric flow rate, acfm	5,953	6,051	5,826	5,943
volumetric flow rate, scfm	5,586	5,675	5,403	5,555
volumetric flow rate, dscfm	5,492	5,586	5,255	5,444
Filterable Particulate Matter (FPM)				
mg	10.76	11.42	12.40	--
gr/dscf	0.004	0.004	0.004	0.004
lb/hr	0.17	0.18	0.20	0.18
lb/1,000 lb of exhaust gas	0.007	0.007	0.008	0.007

Table 4-5
FPM Emissions Results -
FGMOLDCOOLING (Cooling Stack 2)

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/8/2023	3/8/2023	3/8/2023	--
Time	08:35-09:41	10:16-11:20	12:05-13:07	--
Sampling & Flue Gas Parameters				
sample duration, minutes	60	60	60	--
sample volume, dscf	43.51	43.25	44.89	--
isokinetic rate, %	95.5	96.8	95.4	--
flue gas temperature, °F	101	112	111	108
moisture content, % volume	1.40	1.86	2.04	1.77
volumetric flow rate, acfm	8,196	8,235	8,672	8,368
volumetric flow rate, scfm	7,643	7,536	7,950	7,709
volumetric flow rate, dscfm	7,539	7,398	7,791	7,576
Filterable Particulate Matter (FPM)				
mg	13.04	22.50	12.45	--
gr/dscf	0.005	0.008	0.004	0.006
lb/hr	0.30	0.51	0.29	0.36
lb/1,000 lb of exhaust gas	0.009	0.015	0.008	0.011

Table 4-6
FPM Emissions Results -
FGWDUSTAR

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/8/2023	3/8/2023	3/8/2023	--
Time	08:30-10:02	11:04-12:39	13:15-14:47	--
Sampling & Flue Gas Parameters				
sample duration, minutes	84	84	84	--
sample volume, dscf	57.92	59.02	59.62	--
isokinetic rate, %	100.0	101.7	99.5	--
flue gas temperature, °F	123	146	127	132
moisture content, % volume	0.83	1.30	0.53	0.89
volumetric flow rate, acfm	130,777	136,813	135,660	134,416
volumetric flow rate, scfm	117,229	118,029	120,916	118,725
volumetric flow rate, dscfm	116,301	116,540	120,327	117,723
Filterable Particulate Matter (FPM)				
mg	3.62	5.27	4.36	--
gr/dscf	0.001	0.001	0.001	0.001
lb/hr	0.96	1.38	1.16	1.17
lb/1,000 lb of exhaust gas	0.002	0.003	0.002	0.002

Table 4-7
FPM, CPM, and TPM Emissions Results -
EUShakeout

Parameter/Units	Run 1	Run 2	Run 3	Average
Date	3/9/2023	3/9/2023	3/9/2023	--
Time	08:55-10:45	11:10-12:14	12:34-13:38	--
Sampling & Flue Gas Parameters				
sample duration, minutes	60	60	60	--
sample volume, dscf	45.84	47.37	47.19	--
isokinetic rate, %	101.8	101.8	101.0	--
flue gas temperature, °F	114	113	112	113
moisture content, % volume	1.66	2.25	2.50	2.14
volumetric flow rate, acfm	80,302	83,347	83,737	82,462
volumetric flow rate, scfm	73,030	75,937	76,376	75,115
volumetric flow rate, dscfm	71,848	74,260	74,523	73,544
Filterable Particulate Matter (FPM)				
mg	3.11	2.94	6.08	--
gr/dscf	0.001	0.001	0.002	0.001
lb/hr	0.64	0.61	1.27	0.84
lb/1,000 lb of exhaust gas	0.002	0.002	0.004	0.003
Condensable Particulate Matter (CPM)				
mg	13.90	7.10	6.25	--
gr/dscf	0.005	0.002	0.002	0.003
lb/hr	2.88	1.47	1.31	1.89
lb/1,000 lb of exhaust gas	0.009	0.005	0.004	0.006
Total Particulate Matter (TPM) as $PM_{2.5/10}$				
mg	17.01	10.04	12.33	--
gr/dscf	0.006	0.003	0.004	0.004
lb/hr	3.53	2.08	2.58	2.73
lb/1,000 lb of exhaust gas	0.011	0.006	0.008	0.008

5.0 Internal QA/QC Activities

5.1 QA/QC Audits

The meter boxes and sampling trains used during sampling performed within the requirements of their respective methods. All post-test leak checks, minimum metered volumes, minimum sample durations, and percent isokinetics met the applicable QA/QC criteria.

EPA Method 5 analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met. An EPA Method 5 reagent blank was analyzed. The maximum allowable amount that can be subtracted is 0.001% of the weight of the acetone used. The blank did not exceed the maximum residue allowed.

EPA Method 202 analytical QA/QC results are included in the laboratory report. The method QA/QC criteria were met. An EPA Method 202 Field Train Recovery Blank (FTRB) was performed for each source category. The maximum allowable amount that can be subtracted is 0.002 g (2.0 mg).

5.2 QA/QC Discussion

All QA/QC criteria were met during this test program.

5.3 Quality Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one QI as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is included in the report appendices. The content of this report is modeled after the EPA Emission Measurement Center Guideline Document (GD-043).

Appendix A
Field Data and Calculations