MONTROSE
AIR QUALITY SERVICES

SOURCE TEST REPORT
2019 COMPLIANCE EMISSION TESTING

MICHIGAN AUTOMOTIVE COMPRESSOR, INC.
PARMA, MICHIGAN

HUB LINE 6 (EUHUBLINE6),
HUB LINES 4 AND 5 (FGNEWHUBLINES), AND
MELT FURNACES 1, 3A, 4, AND 5 (FGFURNACES)

Prepared For:

Michigan Automotive Compressor, Inc.
2400 N. Dearing Road
Parma, MI 49269

For Submittal To:

Michigan Department of Environment, Great Lakes, and Energy
301 East Louis Glick Highway
Jackson, MI 49201-1556

Prepared By:

Montrose Air Quality Services, LLC
4949 Fernlee Avenue
Royal Oak, MI 48073

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STAC
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TO ASTM D7036 ONLY
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1.0 INTRODUCTION

1.1 SUMMARY OF TEST PROGRAM

Michigan Automotive Compressor, Inc. (MACI) contracted Montrose Air Quality Services, LLC (Montrose) to perform a compliance emissions test program on Hub Line 6 (EUHUBLINE6), Hub Lines 4 and 5 (FGNEWHUBLINES), and Aluminum Reverberatory Melt Furnaces (EUFURNACE3A and EUFURNACE4) (FGFURNACES) at the MACI facility located in Parma, Michigan. The tests were conducted to satisfy the emissions testing requirements pursuant to Michigan Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) Renewable Operating Permit (ROP) No. MI-ROP-N1966-2015.

The specific objectives were to:

- Verify the VOC DE of the RTO controlling emissions from EUHUBLINE6
- Verify the VOC DE of the RTO controlling emissions from FGNEWHUBLINES
- Verify the filterable and condensable PM emission rates from a single baghouse exhaust stack serving FGFURNACES
- 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 Date(s)	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
12/18/2019	FGNEWHUBLINES Inlet and Exhaust	Velocity/Volumetric Flow Rate	EPA 1 & 2	3	5
12/18/2019	FGNEWHUBLINES Inlet and Exhaust	O_2, CO_2	EPA 3	3	5-8
12/18/2019	FGNEWHUBLINES Inlet and Exhaust	Moisture wb/db	EPA 4	3	1
12/18/2019	FGNEWHUBLINES Inlet and Exhaust	THC	EPA 25A	3	60
12/19/2019	EUHUBLINE6 Inlet and Exhaust	Velocity/Volumetric Flow Rate	EPA 1 & 2	3	5
12/19/2019	EUHUBLINE6 Inlet and Exhaust	O_2, CO_2	EPA 3	3	5-7

TABLE 1-1
SUMMARY OF TEST PROGRAM CONTINUED

Test Date(s)	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
12/19/2019	EUHUBLINE6 Inlet and Exhaust	Moisture wb/db	EPA 4	3	1
12/19/2019	EUHUBLINE6 Inlet and Exhaust	THC	EPA 25A	3	60
12/18/2019	FGFURNACES Exhaust	Velocity/Volumetric Flow Rate	EPA 1 & 2	3	120
12/18/2019	FGFURNACES Exhaust	O_2, CO_2	EPA 3	3	10
12/18/2019	FGFURNACES Exhaust	Moisture	EPA 4	3	120
12/18/2019	FGFURNACES Exhaust	TPM	EPA 5/202	3	120

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 1-4. Detailed results for individual test runs can be found in Section 4.0. All supporting data can be found in the appendices.

The testing was conducted by the Montrose personnel listed in Table 1-5. The tests were conducted according to the test plan (protocol) dated December 10, 2019 that was submitted to and approved by the EGLE.

TABLE 1-2
SUMMARY OF AVERAGE COMPLIANCE RESULTS - FGFURNACES
DECEMBER 18, 2020

Parameter	Average Results	Emission Limits
Total Particulate Matter (PM)		
gr/dscf	0.0023	0.006 (PM)
lb/hr	2.0	3 (PM_{10}), 2 ($PM_{2.5}$)

TABLE 1-3
SUMMARY OF AVERAGE COMPLIANCE RESULTS - FGNEWHUBLINES
DECEMBER 18, 2020

Parameter	Average Results	Emission Limits
Total Hydrocarbons, as Propane (VOC) at SV-RTO Inlet Duct		
ppmvd	29.0	-
lb/hr	1.84	-
Total Hydrocarbons, as Propane (VOC) at SV-RTO Exhaust Stack		
ppmvd	0.43	-
lb/hr	0.029	0.6
VOC Destruction Efficiency		
%	98.4	95

TABLE 1-4
SUMMARY OF AVERAGE COMPLIANCE RESULTS - EUHUBLINE6
DECEMBER 19, 2020

Parameter	Average Results	Emission Limits
Total Hydrocarbons, as Propane (VOC) at SV-HUB6RTO Inlet Duct		
ppmvd	25.2	-
lb/hr	1.14	-
Total Hydrocarbons, as Propane (VOC) at SV-HUB6RTO Exhaust Stack		
ppmvd	0.25	-
lb/hr	0.012	-
VOC Destruction Efficiency		
%	99.0	95

1.2 KEY PERSONNEL

A list of project participants is included below:

Facility Information

Source Location:	Michigan Automotive Compressor, Inc. 2400 North Dearing Road Parma, MI 49269	
Project Contact:	Jill Yoxheimer	
Role:	Supervisor, Environmental Engineering	
Company:	MACI	
Telephone:	517-796-3257	
Email:	yoxheimj@michauto.com	

Agency Information

Regulatory Agency:	Michigan Department of Environment, Great Lakes, and Energy	
Agency Contact:	Gina Agellotti	Stephanie Weems
Telephone:	517-416-3351	517-416-3351
Email:	angellottiR1@michigan.gov	weemss@michigan.gov

Testing Company Information

Testing Firm:	Montrose Air Quality Services, LLC (Montrose)	
Contact:	Matthew Young	Jacob Young
Title:	Client Project Manager	Field Project Manager
Telephone:	248-548-7980	248-548-7980
Email:	myoung@montrose-env.com	jyoung@montrose-env.com

Laboratory Information

Laboratory:	Bureau Veritas Laboratories
City, State:	Mississauga, Ontario
Method:	EPA Method 202

In-House Laboratory Information

Laboratory:	Montrose
City, State:	Royal Oak, Michigan
Method:	EPA Method 5

TABLE 1-5
TEST PERSONNEL AND OBSERVERS

Name	Affiliation	Role/Responsibility
Randal Tysar	Montrose	District Manager
Matthew Young	Montrose	Client Project Manager, QI
Jacob Young	Montrose	Field Project Manager, QI
Benjamin Durham	Montrose	Field Technician

2.0 PLANT AND SAMPLING LOCATION DESCRIPTIONS

2.1 PROCESS DESCRIPTION, OPERATION, AND CONTROL EQUIPMENT

2.1.1 FGFURNACES

Four natural gas-fired aluminum reverberatory melt furnaces (EUFURNACE1, EUFURNACE3A, EUFURNACE4, and EUFURNACE5) melt virgin aluminum ingots with particulate emissions controlled by two baghouse dust collectors. Exhaust from the two baghouses is routed to a single exhaust stack (SV-Baghouse).

EUFURNACE1 and EUFURNACE3A have maximum melt capacities of 2,200 pounds per hour and holding capacities of approximately 8,300 pounds of molten aluminum. EUFURNACE4 has a maximum melt capacity of 6,600 pounds per hour with a holding capacity of 27,720 pounds of molten aluminum. EUFURNACE5 has a maximum melt capacity of 3,300 pounds per hour and a holding capacity of 28,000 pounds of molten aluminum.

Each furnace is equipped with a continuous feed flux addition system with a maximum flux feed rate of thirteen pounds per hour. The injection fluxing system (Model FIM5 manufactured by Pyrotek) utilizes a wand to deliver flux in the furnace below the molten metal line. The flux reacts with the molten metal, removing impurities, thereby reducing metal oxide buildup on the interior of the oven.

2.1.2 EUHUBLINE6

Hub spray adhesive and rubber vulcanization process line No. 6 (EUHUBLINE6) consists of the robotic application of a primer, adhesive, flexible rubber spray, and protective resin coating onto a magnetic clutch hub. The coating application areas are controlled by a permanent total enclosure (PTE) and a regenerative thermal oxidizer (RTO) (SV-HUB6RTO).

The basic hub line process sequence is as follows:

- Stage 1: The exterior of the inner hub and interior of the hub plate are spray-coated with Chemlok 205HC primer and conveyed through a drying oven.
- Stage 2: The inner hub and hub plate are spray-coated with Chemlok 6125 adhesive and conveyed through a drying oven.
- Stage 3: The two hub pieces are staged together on a jig, preheated and injected with rubber. There is no external exhaust from this booth.
- Stage 4: The sub-assembly is loaded into the rubber spray coat booth and sprayed with rubber coating.
- Stage 5: The rubber spray-coated parts are transported by conveyor to the 2nd vulcanizer, where the rubber is process through a curing oven.

Stages 1, 2, 4, and 5 are exhausted to the SV-HUB6RTO.

Coatings are thinned and equipment cleaned using either xylene or n-butyl acetate. Equipment cleaning is performed manually by wiping the applicators with solvent. The cleaning operation is performed infrequently.

2.1.3 FGNEWHUBLINES

Hub spray adhesive and rubber vulcanization process lines No. 4 (EUHUBLINE4) and No. 5 (EUHUBLINE5) consists of the robotic application of a primer, adhesive, and rubber spray onto a hub. The coating application areas are controlled by a permanent total enclosure (PTE) and a regenerative thermal oxidizer (RTO) (SV-RTO).

The basic hub line process sequence is as follows:

- Stage 1: The exterior of the inner hub and interior of the hub plate are spray-coated with Chemlok 205HC primer and conveyed through a drying oven.
- Stage 2: The inner hub and hub plate are spray-coated with Chemlok 6125 adhesive and conveyed through a drying oven.
- Stage 3: The two hub pieces are staged together on a jig, preheated and injected with rubber. There is no external exhaust from this booth.
- Stage 4: The sub-assembly is loaded into the rubber spray coat booth and sprayed with rubber coating.
- Stage 5: The rubber spray-coated parts are transported by conveyor to the 2nd vulcanizer, where the rubber is process through a curing oven.

Stages 1, 2, 4, and 5 are exhausted to the SV-RTO.

Coatings are thinned and equipment cleaned using either xylene or n-butyl acetate. Equipment cleaning is performed manually by wiping the applicators with solvent. The cleaning operation is performed infrequently.

2.2 FLUE GAS SAMPLING LOCATIONS

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

TABLE 2-1
SAMPLING LOCATIONS

Sampling Location	Stack Inside Diameter (in.)	Distance from Nearest Disturbance Downstream EPA "B" (in./dia.)	Upstream EPA "A" (in./dia.)	Number of Traverse Points
SV-BAGHOUSE Exhaust Stack	69	480.0 / 7.0	168.0 / 2.4	Isokinetic: 24 (12/port); Flow: 24 (12/port)
SV-HUB6RTO Inlet Duct	29.5	468.0 / 15.9	132.0 / 4.5	Flow: 16 (8/port); Gaseous: 1
SV-HUB6RTO Exhaust Stack	33.5	96.0 / 2.9	20.0 / 0.6	Flow: 16 (8/port); Gaseous: 1
SV-RTO Inlet Duct	29.5	144.0 / 4.9	48.0 / 1.6	Flow: 16 (8/port); Gaseous: 1
SV-RTO Exhaust Stack	33.5	96.0 / 2.9	20.0 / 0.6	Flow: 16 (8/port); Gaseous: 1

Sample locations were verified in the field to conform to EPA Method 1. Acceptable cyclonic flow conditions were confirmed prior to testing using EPA Method 1, Section 11.4. See Appendix A for more information.

2.3 OPERATING CONDITIONS AND PROCESS DATA

Emission tests were performed while the source/units and air pollution control devices were operating at the conditions required by the permit. The hub processes operated at full normal capacity throughout the emissions test program.

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. Data collected includes the following parameters:

- Aluminum melted, pounds per hour
- Baghouse pressure drop, inches H_2O
- RTO temperatures, °F

3.0 SAMPLING AND ANALYTICAL PROCEDURES

3.1 TEST METHODS

The test methods for this test program were presented previously 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.

EPA Method 1 traverse point diagrams are included 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.

3.1.3 EPA Method 3, Gas Analysis for the Determination of Dry Molecular Weight

EPA Method 3 is used to calculate the molecular weight of the stack gas based on percent level measurements of the concentration of O_2 and CO_2. A gas sample is extracted from a stack by one of the following methods: (1) single-point, grab sampling; (2) single-point, integrated sampling; or (3) multi-point, integrated sampling. The gas sample is analyzed for percent CO_2 and percent O_2. For dry molecular weight determination, either an Orsat or a Fyrite analyzer may be used for the analysis.

3.1.4 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.

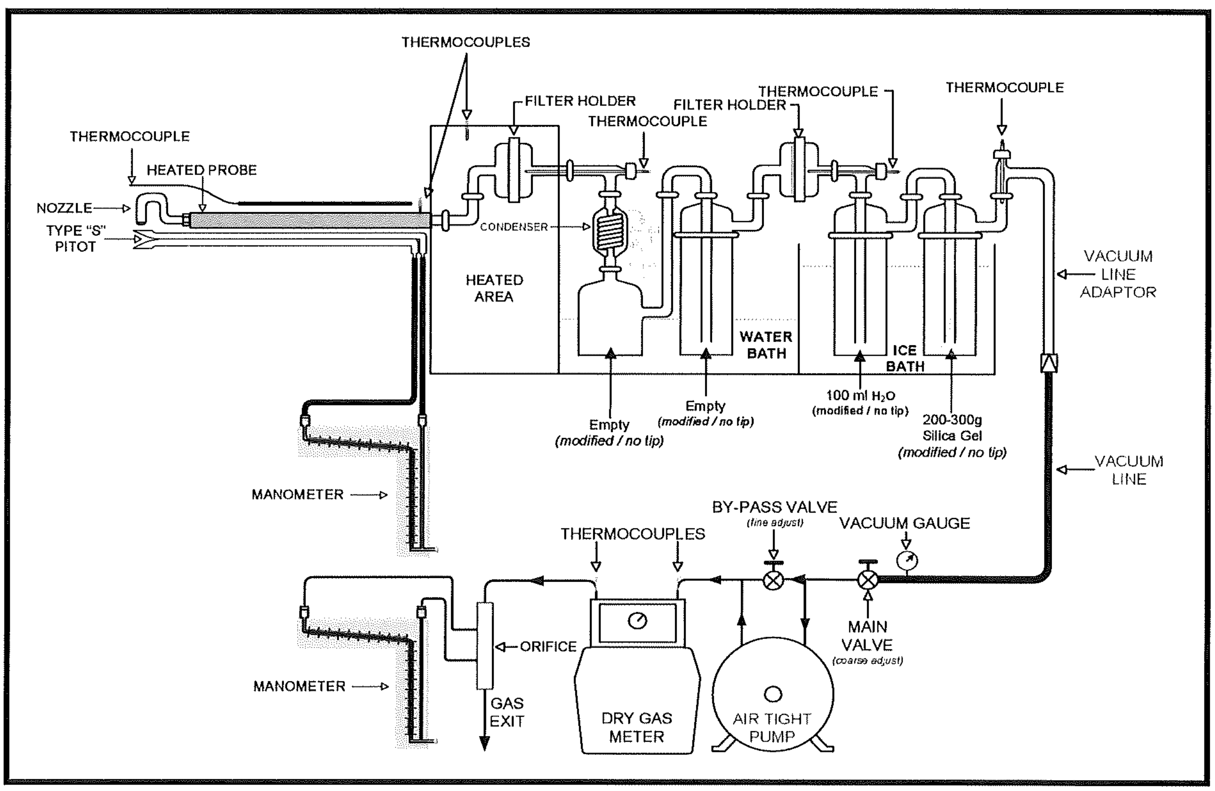
Given the expected low moisture content (<3%) of the stack gas, the wet-bulb/dry-bulb approximation method (Method 4) was utilized at the HUBLINE6 AND NEWHUBLLINES RTOs to determine the stack gas moisture content. It is the opinion of Montrose that the use of the wet-bulb/dry-bulb approximation method had little to no affect on the overall results of this test event.

3.1.5 EPA Method 5, Determination of Particulate Matter 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. FPM results are reported in emission concentration and emission rate units.

This method was paired with EPA Method 202. The typical sampling system is detailed in Figure 3-1.

FIGURE 3-1
EPA METHOD 5/202 SAMPLING TRAIN

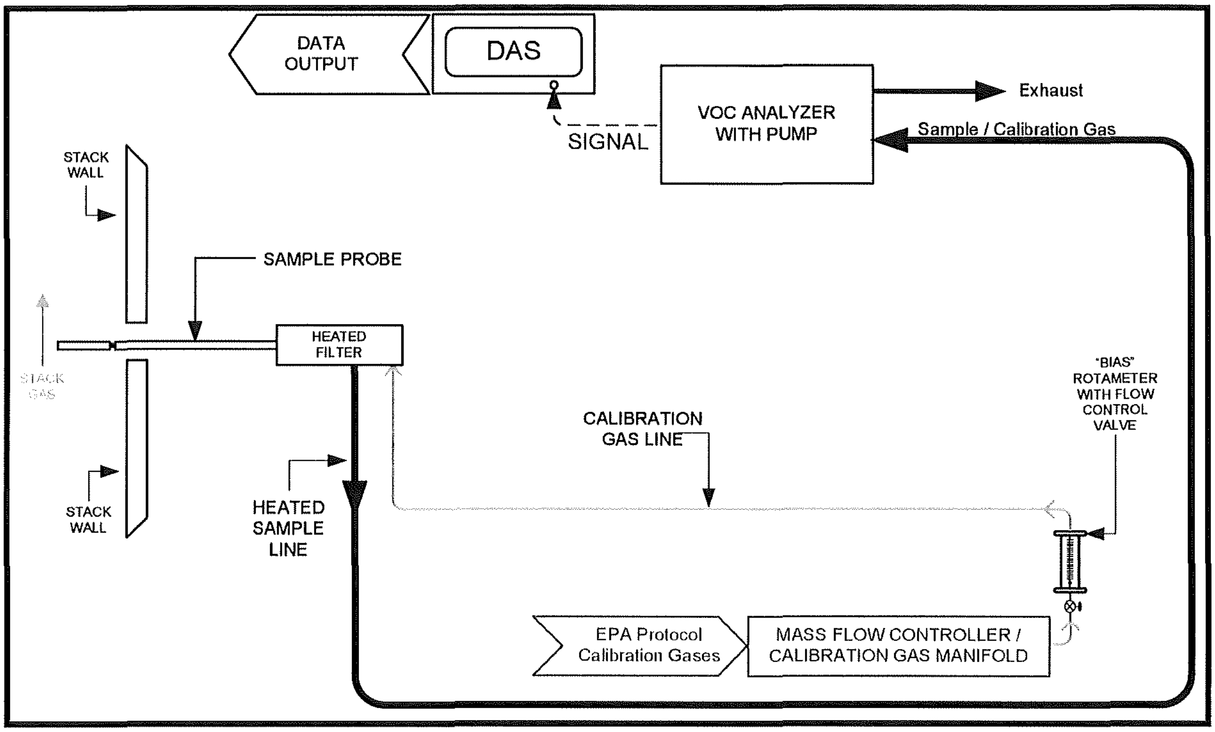


3.1.6 EPA Method 25A, Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer

A gas sample is extracted from the source through a heated sample line and glass fiber filter to a flame ionization analyzer (FIA). Results are reported as volume concentration equivalents of the calibration gas or as carbon equivalents.

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

FIGURE 3-2
EPA METHOD 25A SAMPLING TRAIN



3.1.7 EPA Method 202 , Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources

The CPM is collected in dry impingers after filterable PM has been collected on a filter maintained as specified in either Method 5 of Appendix A-3 to 40 CFR 60, Method 17 of Appendix A-6 to 40 CFR 60, or Method 201A of Appendix M to 40 CFR 51. 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. Compared to the version of Method 202 that was promulgated on December 17, 1991, this method eliminates the use of water as the collection media in impingers and includes the addition of a condenser followed by a water dropout impinger immediately after the final in-stack or heated filter. This method also includes the addition of one modified Greenburg Smith impinger (backup impinger) and a CPM filter following the water dropout impinger.

CPM is collected in the water dropout impinger, the modified Greenburg Smith impinger, and the CPM filter of the sampling train as described in this method. The impinger contents are purged with nitrogen immediately after sample collection to remove dissolved SO_2 gases from the impinger. The CPM filter is extracted with water and hexane. The impinger solution is then extracted with hexane. The organic and aqueous fractions are dried and the residues are weighed. The total of the aqueous and organic fractions represents the CPM.

The potential artifacts from SO_2 are reduced using a condenser and water dropout impinger to separate CPM from reactive gases. No water is added to the impingers prior to the start of sampling. To improve the collection efficiency of CPM, an additional filter (the "CPM filter") is placed between the second and third impingers

This method was paired with EPA Method 5. The typical sampling system is detailed in Figure 3-1.

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 RESULTS AND DISCUSSION

4.1 FIELD TEST DEVIATIONS AND EXCEPTIONS

During Run 1 at the SV-Baghouse Exhaust Stack, the sampling train probe broke. Run 1 was voided, and an additional run (Run 4) was performed. Run 1 results are not included in this report.

4.2 PRESENTATION OF RESULTS

The average results are compared to the permit limits in Tables 1-2 through 1-4. The results of individual compliance test runs performed are presented in Tables 4-1 through 4-5. 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
PM EMISSIONS RESULTS -
FGFURNACES

Run Number	2	3	4	Average
Date	12/18/2019	12/19/2019	12/19/2019	--
Time	13:50-15:55	7:20-10:18	10:50-12:58	--
Process Data				
Aluminum Melted, lbs	6607	7818	5211	6546
Flue Gas Parameters				
O_2, % volume dry	20.90	20.90	20.90	20.90
CO_2, % volume dry	0.00	0.00	0.00	0.00
flue gas temperature, °F	107	114	118	113
moisture content, % volume	0.54	0.95	0.96	0.82
volumetric flow rate, dscfm	101,346	93,905	103,016	99,422
Filterable Particulate Matter (PM)				
gr/dscf	0.00026	0.00013	0.00015	0.00018
lb/hr	0.22	0.11	0.13	0.15
Condensable PM				
gr/dscf	0.0059	0.00034	0.00024	0.0022
lb/hr	5.10	0.28	0.21	1.86
Total PM				
gr/dscf	0.0061	0.00047	0.00038	0.0023
lb/hr	5.33	0.38	0.34	2.02

TABLE 4-2
VOC EMISSIONS RESULTS -
EUHUBLINE6 - SV-HUB6RTO INLET DUCT

Run Number	1	2	3	Average
Date	12/19/2019	12/19/2019	12/19/2019	--
Time	8:15-9:15	10:00-11:00	11:30-12:30	--
Flue Gas Parameters				
O_2, % volume dry	20.90	20.90	20.90	20.90
CO_2, % volume dry	0.00	0.00	0.00	0.00
flue gas temperature, °F	77	79	79	78
moisture content, % volume	2.00	2.00	2.00	2.00
volumetric flow rate, scfm	7,164	5,880	6,770	6,605
Total Hydrocarbons, as Propane (VOC)				
ppmvw	24.0	25.1	26.6	25.2
lb/hr	1.18	1.01	1.24	1.14

TABLE 4-3
VOC DE AND VOC EMISSIONS RESULTS -
EUHUBLINE 6 - SV-HUB6RTO EXHAUST STACK

Run Number	1	2	3	Average
Date	12/19/2019	12/19/2019	12/19/2019	--
Time	8:15-9:15	10:00-11:00	11:30-12:30	--
Process Data				
RTO Temperature (°F)	1559	1558	1557	1559
Flue Gas Parameters				
O_2, % volume dry	20.90	20.90	20.90	20.90
CO_2, % volume dry	0.00	0.00	0.00	0.00
flue gas temperature, °F	159	170	169	166
moisture content, % volume	2.00	2.00	2.00	2.00
volumetric flow rate, scfm	6,870	6,666	7,085	6,874
Total Hydrocarbons, as Propane (VOC)				
ppmvd	0.26	0.26	0.22	0.25
lb/hr	0.012	0.012	0.011	0.012
VOC Destruction Efficiency				
%	99.0	98.8	99.1	99.0

TABLE 4-4
VOC EMISSIONS RESULTS -
FGNEWHUBLINES - SV-RTO INLET DUCT

Run Number	1	2	3	Average
Date	12/19/2019	12/19/2019	12/19/2019	--
Time	7:31-8:31	9:00-10:00	11:20-12:20	--
Flue Gas Parameters				
O_2, % volume dry	20.90	20.90	20.90	20.90
CO_2, % volume dry	0.00	0.00	0.00	0.00
flue gas temperature, °F	74	77	78	76
moisture content, % volume	2.00	2.00	2.00	2.00
volumetric flow rate, scfm	9,876	9,454	8,489	9,273
Total Hydrocarbons, as Propane (VOC)				
ppmvd	28.2	28.3	30.5	29.0
lb/hr	1.91	1.84	1.78	1.84

TABLE 4-5
VOC DE AND VOC EMISSIONS RESULTS -
FGNEWHUBLINES - SV-RTO EXHAUST STACK

Run Number	1	2	3	Average
Date	12/19/2019	12/19/2019	12/19/2019	--
Time	7:31-8:31	9:00-10:00	11:20-12:20	--
Process Data				
RTO Temperature (°F)	1589	1590	1585	1587
Flue Gas Parameters				
O_2, % volume dry	20.90	20.90	20.90	20.90
CO_2, % volume dry	0.00	0.00	0.00	0.00
flue gas temperature, °F	165	165	166	165
moisture content, % volume	2.00	2.00	2.00	2.00
volumetric flow rate, scfm	10,178	9,845	9,778	9,934
Total Hydrocarbons, as Propane (VOC)				
ppmvd	0.41	0.43	0.44	0.43
lb/hr	0.029	0.029	0.029	0.029
VOC Destruction Efficiency				
%	98.5	98.4	98.3	98.4

5.0 INTERNAL QA/QC ACTIVITIES

5.1 QA/QC AUDITS

The EPA Method 5/202 meter box and sampling train used during sampling performed within the requirements of their respective methods. All post-test leak checks, minimum metered volumes, and percent isokinetics met the applicable QA/QC criteria. See Appendix D.2.

Fyrite analyzer audits were performed during this test in accordance with EPA Method 3, Section 10.1 requirements. The results were within ± 0.5% of the respective audit gas concentrations. See Appendix D.2.

EPA Method 25A FIA calibration audits were within the measurement system performance specifications for the calibration drift checks and calibration error checks. See Appendix D.3.

An EPA Method 205 field evaluation of the calibration gas dilution system was conducted. The dilution accuracy and precision QA specifications were met. See Appendix D.3.

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 blank. 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). For this project, the FTRB had a mass of 2.4 mg, and 2.0 mg was subtracted.

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 Qualified Individual (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).