

Report of...

Compliance Emission Sampling

performed for...

Metal Technologies

Three Rivers, Michigan

on

RECEIVED

OCT 11 2018

AIR QUALITY DIVISION

Various Sources

September 5-11, 2018

187.04

Network Environmental, Inc.
Grand Rapids, MI

I. INTRODUCTION

Network Environmental, Inc. was retained by Metal Technologies Corporation of Auburn Indiana to conduct an emission study at their facility. The purpose of the study was to meet the emission testing requirements of Renewable Operating Permit MI-ROP-B2015-2013c. The following is a list of the sources sampled and the compounds sampled for:

Source	Parameter(s) Tested
EU Shakeout	Particulate
Mold Cooling Exhaust #1	Particulate
Mold Cooling Exhaust #2	Particulate
Mold Cooling Exhaust #3	Particulate
Mold Cooling Exhaust #4	Particulate
FG Cleaning Exhaust	Particulate
FG East West Fuller Exhaust	Particulate

The following reference test methods were employed to conduct the emission sampling:

- Particulate – U.S. EPA Method 17 (MDEQ Method 5B)
- Exhaust Gas Parameters (air flow rate, temperature, moisture & density) – U.S. EPA Methods 1 - 4.

The sampling was performed over the period of September 5-11, 2018 by Stephan K. Byrd, R. Scott Cargill, and Richard D. Eerdmans of Network Environmental, Inc. Assisting with the study was Mr. Dan Plant of Metal Technologies. Mr. Dave Patterson and Mr. Rex Lane of the Michigan Department of Environmental Quality (MDEQ) – Air Quality Division were present to observe portions of the sampling and source operation.

RECEIVED

OCT 11 2018

II. PRESENTATION OF RESULTS

AIR QUALITY DIVISION

**II.1 TABLE 1
PARTICULATE EMISSION RESULTS
EU SHAKEOUT EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 5, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
EU Shakeout	1	8:55-10:11	47,773	0.0359	7.673
	2	10:29-11:44	48,992	0.0423	9.249
	3	12:44-14:00	49,344	0.0383	8.456
	Average		48,680	0.0388	8.459

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).
(2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis
(3) Lbs/Hr = Pounds of Particulate Per Hour

**II.2 TABLE 2
PARTICULATE EMISSION RESULTS
MOLD COOLING #1 EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 11, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
Mold Cooling #1	1	8:32-9:58	8,596	0.0069	0.264
	2	10:12-11:26	8,490	0.0086	0.325
	3	12:24-13:39	8,592	0.0116	0.448
	Average		8,559	0.0090	0.346

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).

(2) Lbs/1000Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis

(3) Lbs/Hr = Pounds of Particulate Per Hour

**II.3 TABLE 3
PARTICULATE EMISSION RESULTS
MOLD COOLING #2 EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 7, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
Mold Cooling #2	1	8:23-9:28	5,043	0.0138	0.312
	2	9:54-11:01	5,023	0.0138	0.309
	3	11:16-12:19	4,986	0.0146	0.324
	Average		5,017	0.0140	0.315

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).

(2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis

(3) Lbs/Hr = Pounds of Particulate Per Hour

**II.4 TABLE 4
 PARTICULATE EMISSION RESULTS
 MOLD COOLING #3 EXHAUST
 METAL TECHNOLOGIES
 THREE RIVERS, MICHIGAN
 SEPTEMBER 6, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
Mold Cooling #3	1	9:55-11:14	2,155	0.0057	0.055
	2	11:43-13:00	2,103	0.0066	0.062
	3	13:59-15:16	2,081	0.0075	0.069
	Average		2,113	0.0066	0.062

- (1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).
- (2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis
- (3) Lbs/Hr = Pounds of Particulate Per Hour

**II.5 TABLE 5
PARTICULATE EMISSION RESULTS
MOLD COOLING #4 EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 5, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
Mold Cooling #4	1	8:58-10:02	3,600	0.0066	0.106
	2	10.21-11:25	3,576	0.0064	0.102
	3	11:44-12:49	3,571	0.0073	0.117
	Average		3,582	0.0068	0.109

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).

(2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis

(3) Lbs/Hr = Pounds of Particulate Per Hour

**II.6 TABLE 6
PARTICULATE EMISSION RESULTS
FG CLEANING EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 6-7, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
FG Cleaning	1	16:02-17:17	114,412	0.0019	0.963
	2	7:52-9:07	118,113	0.0016	0.852
	3	9:24-10:39	117,881	0.0021	1.095
	Average		116,802	0.0019	0.970

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).

(2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis

(3) Lbs/Hr = Pounds of Particulate Per Hour

**II.7 TABLE 7
PARTICULATE EMISSION RESULTS
FG EAST WEST FULLER EXHAUST
METAL TECHNOLOGIES
THREE RIVERS, MICHIGAN
SEPTEMBER 5, 2018**

Source	Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	Particulate Concentration Lbs/1000 Lbs, Dry ⁽²⁾	Particulate Mass Rate Lbs/Hr ⁽³⁾
FG East West Fuller	1	10:05-11:23	74,109	0.0065	2.150
	2	11:39-12:55	72,323	0.0081	2.629
	3	13:59-15:14	72,217	0.0081	2.621
	Average		72,883	0.0076	2.467

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg).

(2) Lbs/1000 Lbs, Dry = Pounds of Particulate per 1000 Pounds of Exhaust Gas on a Dry Basis

(3) Lbs/Hr = Pounds of Particulate Per Hour

III. DISCUSSION OF RESULTS

The results of the emission sampling are summarized in Tables 1 through 7 (Sections II.1 through II.7).

The results are presented as follows:

III.1 Particulate Emission Results

Tables 1-7 summarize the particulate emission results as follows:

- Sample
- Time
- Air Flow Rate (DSCFM) – Dry Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg)
- Particulate Concentration (Lbs/1000 Lbs, Dry) – Pounds of Particulate Per 1000 Pounds of Exhaust Gas on a Dry basis
- Particulate Mass Emission Rate (Lbs/Hr) – Pounds of Particulate Per Hour

III.2 Emission Limits

Source	MI-ROP-B2015-2013c Emission Limit(s)
EU Shakeout	0.04 Lbs/1000 Lbs, Dry and 11.9 Lbs/Hr
Mold Cooling #1	0.10 Lbs/1000 Lbs, Dry
Mold Cooling #2	0.10 Lbs/1000 Lbs, Dry
Mold Cooling #3	0.10 Lbs/1000 Lbs, Dry
Mold Cooling #4	0.10 Lbs/1000 Lbs, Dry
FG Cleaning	0.02 Lbs/1000 Lbs, Dry
FG East West Fuller	0.04 Lbs/1000 Lbs, Dry and 15.8 Lbs/Hr

Operating data for the sources during the testing can be found in Appendix B.


IV. SAMPLING AND ANALYTICAL PROTOCOL

IV.1 Particulate (All Sources)— The particulate emission sampling was conducted in accordance with U.S. EPA Reference Method 17. Method 17 is an in-stack filtration method. Three (3) samples were collected from each of the sources sampled. Each sample was a minimum of sixty (60) minutes in duration, and had a minimum sample volume of thirty (30) dry standard cubic feet. The samples were collected isokinetically and analyzed for total particulate by gravimetric analysis. All the quality assurance and quality control procedures listed in the method were incorporated in the sampling and analysis. The particulate sampling train is shown in Figure 1.


The testing locations met the minimum requirements of U.S. EPA Reference Method 1. Twenty-four (24) sampling points were used for all sources. These point locations can be seen in Appendix F.

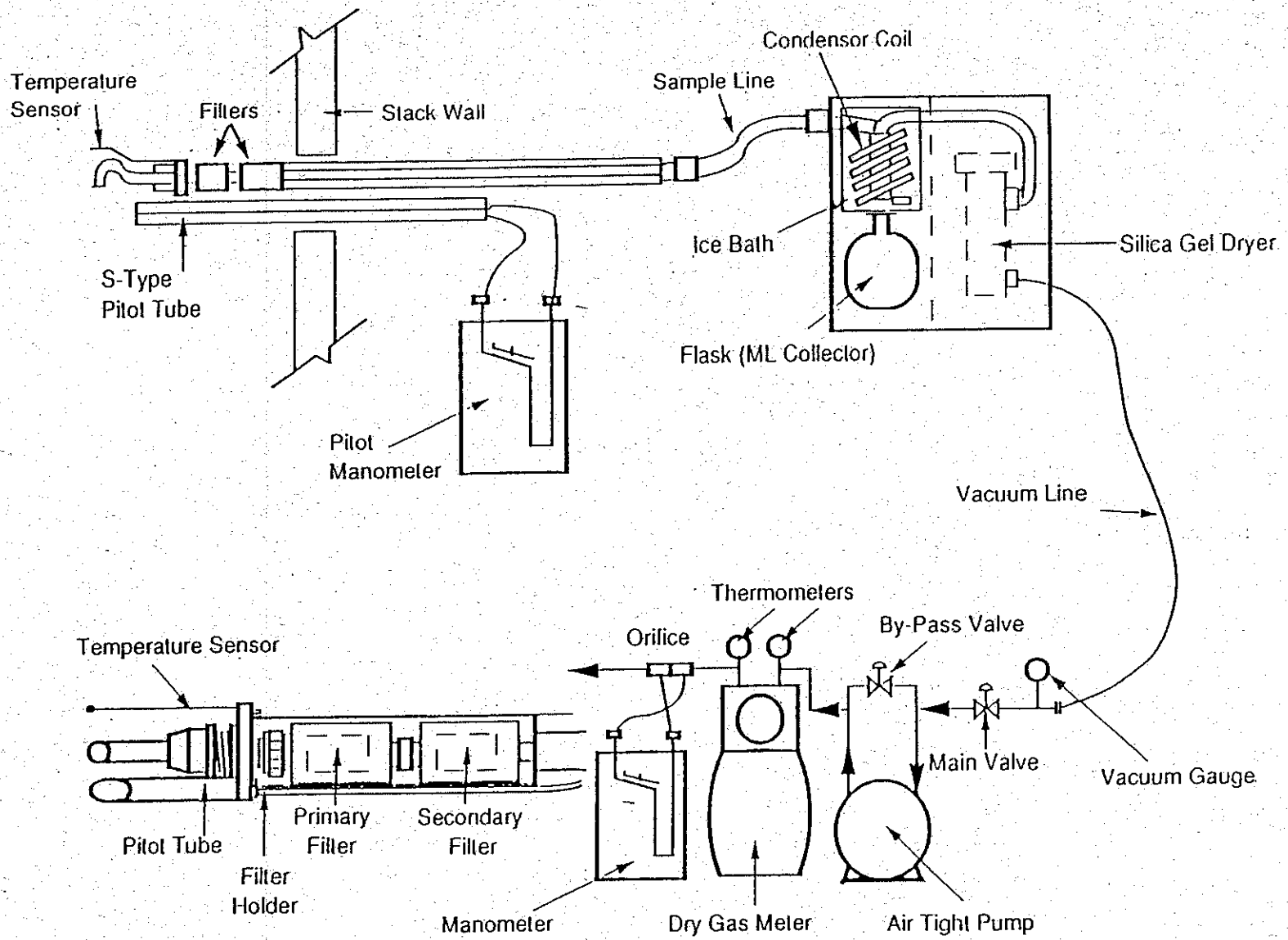
IV.2 Exhaust Gas Parameters — The exhaust gas parameters (air flow rate, temperature, moisture and density) were determined in conjunction with the other sampling by employing U.S. EPA Methods 1 through 4. Air flow rates, temperatures and moistures were determined using the Method 17 sampling train. Bag samples were collected from the Method 17 sampling trains and analyzed for oxygen and carbon dioxide by Orsat. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:


R. Scott Cargill
Project Manager

This report was reviewed by:


David D. Engelhardt
Vice President



11

Figure 1
Particulate Sampling Train