I. INTRODUCTION

Network Environmental, Inc. was retained by Mobex Global of Fruitport, Michigan to perform compliance emission sampling on their #7 Plibrico Aluminum reverberatory furnace Exhaust. The purpose of the sampling was to determine the particulate emissions from the source. The testing was for the following selected compounds:

* Particulates (Total, PM-10 and PM-2.5)

Sampling was conducted on the exhaust by employing the following reference test methods:

* Particulate – U.S. EPA Methods 5 and 202
* Exhaust Gas Parameters (airflow rate, temperature, moisture & density) - U.S. EPA Methods 1-4

The sampling was conducted on February 11, 2021. R. Scott Cargill and Richard D. Eerdmans of Network Environmental, Inc. performed the testing. Mr. Robert Eckheart of Busche Aluminum Technologies was present to coordinate source operations and data recording and collection during the testing. Mr. Matt Karl of the Department of Environment, Great Lakes and Energy (EGLE) Air Quality Division was present to observe the testing and source operation.

II. PRESENTATION OF RESULTS

II.1 TABLE 1
FILTERABLE PARTICULATE EMISSION RESULTS
PLIBRICO #7 FURNACE EXHAUST
MOBEX GLOBAL
FRUITPORT, MICHIGAN
FEBRUARY 11, 2021

Sample #	Time	Air Flow Rate DSCFM(1)	Concentration Lbs/1000Lbs, Dry(2)	Lbs/Hr(3)	Lbs/Ton Charge(4)
1	8:40-9:50	18,279	0.00035	0.029	0.0073
2	11:13-12:24	18,999	0.00040	0.034	0.0119
3	13:29-14:37	18,672	0.00035	0.029	0.0071
Average		**18,650**	**0.00037**	**0.031**	**0.0087**

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

(2) = Pounds of particulate per 1000 pounds of exhaust gas on a dry basis.

(3) = Pounds of particulate per hour

(4) = Pounds per ton of metal charged. These numbers were calculated using data supplied by the operating staff of the facility. Calculations can be seen in Appendix E.

II.2 TABLE 2
TOTAL PM, PM-10 and PM-2.5 EMISSION RESULTS
PLIBRICO #7 FURNACE EXHAUST
MOBEX GLOBAL
FRUITPORT, MICHIGAN
FEBRUARY 11, 2021

Sample #	Time	Air Flow Rate DSCFM(1)	Concentration Lbs/1000Lbs, Dry(2)	Lbs/Hr(3)	Lbs/Ton Charge(4)
1	8:40-9:50	18,279	0.00353	0.290	0.0731
2	11:13-12:24	18,999	0.00504	0.429	0.0510
3	13:29-14:37	18,672	0.00300	0.251	0.0616
Average		**18,650**	**0.00386**	**0.324**	**0.0619**

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

(2) = Pounds of particulate per 1000 pounds of exhaust gas on a dry basis.

(3) = Pounds of particulate per hour

(4) = Pounds per ton of metal charged. These numbers were calculated using data supplied by the operating staff of the facility. Calculations can be seen in Appendix E.

III. DISCUSSION OF RESULTS

The results of the emission testing performed on February 11, 2021 can be found in Section II, Tables II.1 and II.2.

The limits for this source are as follows
PM = 0.188 Lbs/Ton of Metal Charged
PM 10 = 0.188 Lbs/Ton of Metal Charged
PM 2.5 = 0.188 Lbs/Ton of Metal Charged

IV. SOURCE OPERATION

The furnace operating parameters can be found in Appendix B.

V. SAMPLING AND ANALYTICAL PROTOCOL

The determinations were preformed in accordance with the following sampling and analytical protocols. Laboratory data can be found in Appendix C.

V.1 Particulate - The particulate emission sampling was conducted in accordance with U.S. EPA Methods 5 and 202. Method 5 is an out of stack filtration method. Both the probe and filter were heated to 250 °F plus or minus 25 °F. Two (2) samples were collected from the exhaust. Each sample was sixty-four (64) minutes in duration and had minimum sample volumes of thirty (30) dry standard cubic feet. The samples were collected isokinetically and analyzed for Particulate by gravimetric analysis.

In addition to the standard front half analysis, the back half condensable particulate matter was determined in accordance with U.S. EPA Method 202 (Dry Impinger Technique). The back half samples were extracted and analyzed for condensable particulate in accordance with Method 202. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis. The particulate sampling train is shown in Figure 1.

V.2 Exhaust Gas Parameters –The exhaust gas parameters (airflow rate, temperature, moisture, and density) were determined in conjunction with the other sampling by employing U.S. EPA Reference Methods 1 through 4. All the sampling was conducted on the exhaust stack. There were two sampling ports on the exhaust located at 90 degrees from each other and on the same plane. The test port location met the location criteria of U.S. EPA Reference Method 1. A sixteen point (eight points per port) traverse was used to perform the sampling. The stack was 48 inches in diameter. The sampling points were as follows:

Point #	Point Location (Inches)
1	1.53
2	5.04
3	9.31
4	15.50
5	32.49
6	38.68
7	42.96
8	46.46

O_2 and CO_2 content were determined by Orsat. The moisture was determined from the isokinetic sampling trains. 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

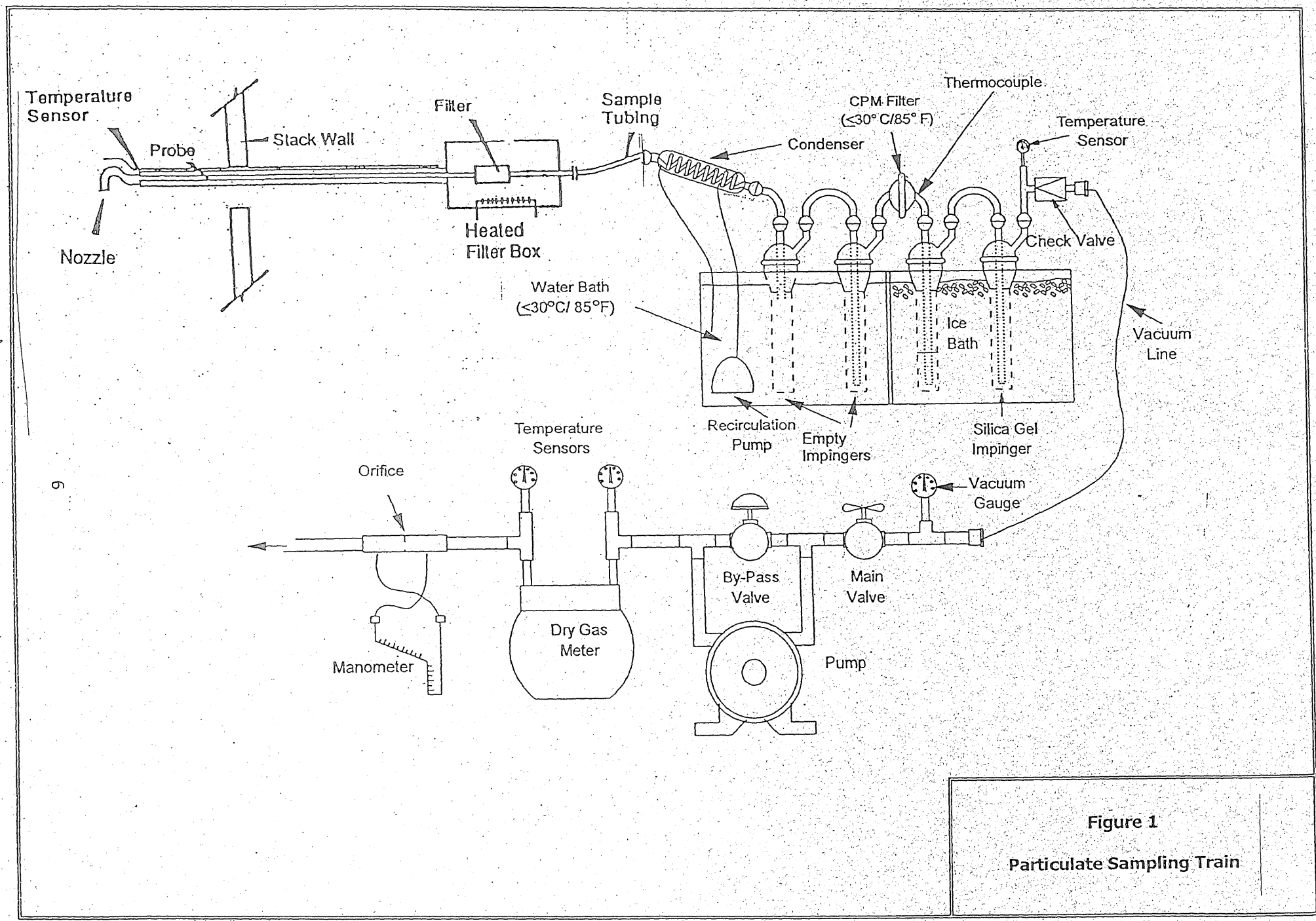

Figure 1

Particulate Sampling Train