

Report of...

# Compliance Emission Testing

performed for...

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JUL 03 2017

AIR QUALITY DIV.

## Betz Industries

Grand Rapids, Michigan

on the

# EU Induction Baghouse Exhaust

June 1 and 2, 2017

281.06

Network Environmental, Inc.  
Grand Rapids, MI

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**AIR QUALITY DIV.**

**I. INTRODUCTION**

Network Environmental, Inc. was retained by Betz Industries of Grand Rapids, Michigan to perform compliance emission testing on their Foundry Induction Furnace Baghouse Exhaust. The purpose of the sampling was to comply with their Air Permit to Install # 278-98D and the Federal Iron and Steel Foundry Area Source Standards. Visible Emissions were also required on this source. The visible emissions were performed on March 16, 2017 and are not included in this report. The testing was for the following selected compound:

- \* Particulates

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

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

The sampling was conducted on June 1 and 2, 2017. R. Scott Cargill and Richard D. Eerdmans of Network Environmental, Inc. performed the testing. Mr. Mark Kraak of Betz Industries was present to coordinate source operations and data recording and collection during the testing. Mr. Jeremy Howe and Mr. Eric Grinstern of the Michigan Department of Environmental Quality (MDEQ), Air Quality Division, were present to observe the testing and source operation.

## II. PRESENTATION OF RESULTS

**II.1 TABLE 1  
PARTICULATE EMISSION RESULTS  
EU INDUCTION FURNACE EXHAUST  
BETZ INDUSTRIES  
GRAND RAPIDS, MICHIGAN  
JUNE 1-2, 2017**

Sample #	Time	Air Flow Rate DSCFM <sup>(1)</sup>	Concentration Lbs/1000Lbs, Dry <sup>(2)</sup>	Lbs/Hr <sup>(3)</sup>	Lbs/Ton Charge <sup>(4)</sup>
1	22:16-23:58	60,947	0.00066	0.180	0.0092
2	00:34-02:07	61,632	0.00073	0.200	0.0100
3	02:32-04:06	61,203	0.00056	0.153	0.0077
<b>Average</b>		<b>61,261</b>	<b>0.00065</b>	<b>0.178</b>	<b>0.0090</b>

(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

### **III. DISCUSSION OF RESULTS**

The results of the emission testing performed on June 1 and 2, 2017 can be found in Section II, Table II.1.

The Area Source limit is 0.8 pounds of particulate per ton of metal charged or 0.06 pounds of total metal HAP per 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 performed 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 Method 5. Figure 1 is a schematic diagram of the Method 5 sampling train. Each sample was ninety (90) minutes in duration and had a minimum sample volume of sixty (60) dry standard cubic feet. Method 5 is an out of stack filtration method where the probe and filter are kept at 250°F plus or minus 25°F. The samples were collected isokinetically.


The samples were recovered and refrigerated until they were analyzed. The filters and nozzle/probe rinses (front half) were analyzed gravimetrically for weight gain for the particulate analysis. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

**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 optimum location criteria of U.S. EPA Method 1. A twelve point (six points per port) traverse was used to perform the sampling. The stack was 80 inches in diameter. The sampling points were as follows:


Point #	Point Location (Inches)
1	3.52
2	11.68
3	23.68
4	56.32
5	68.32
6	76.48

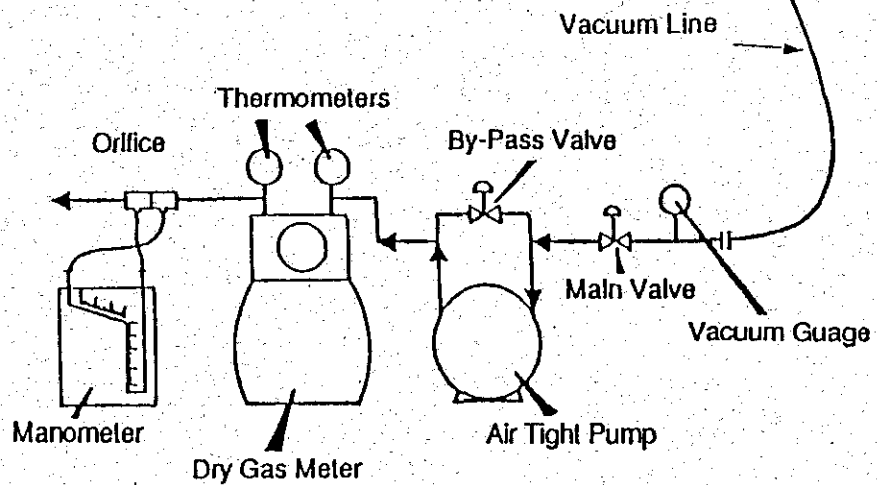
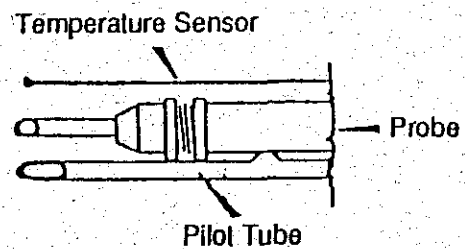
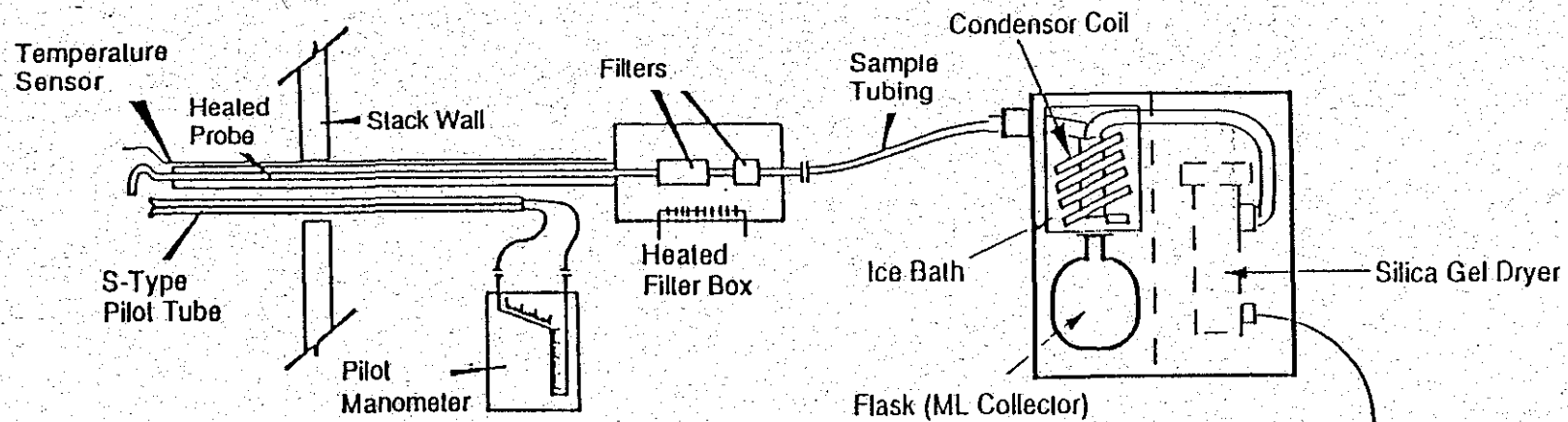
O<sub>2</sub> and CO<sub>2</sub> content were determined by Orsat Method. The moisture was determined from the isokinetic sampling trains. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:

  
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Particulate Sampling Train

FIGURE 1