

I. INTRODUCTION

Network Environmental, Inc. was retained by Molon Asphalt to perform compliance emission testing on the Asphalt Plant Baghouse Exhaust at their Plant located in Interlochen, Michigan. The purpose of the sampling was to document compliance with Michigan Department of Environment, Great Lakes and Energy (EGLE), Air Quality Division (AQD) Permit to Install 19-11B. The testing was for the following compounds:

- * Particulate
- * Carbon Monoxide

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

- * Particulate – U.S. EPA Method 5
- * Carbon Monoxide - U.S. EPA Method 10
- * Exhaust Gas Parameters (airflow rate, temperature, moisture & density) - U.S. EPA Methods 1-4

The sampling was conducted on May 25, 2021 by R. Scott Cargill, Richard D. Eerdmans and David D. Engelhardt of Network Environmental, Inc.. Mr. Mike Foster of Molon Asphalt was present to coordinate source operations and data collection. Mr. Jeremy Howe and Ms. Caryn Owens of EGLE were present to observe the testing and source operation.

II. PRESENTATION OF RESULTS

**II.1 TABLE 1
PARTICULATE EMISSION RESULTS
MOLON ASPHALT
ASPHALT PLANT BAGHOUSE EXHAUST
INTERLOCHEN, MICHIGAN
MAY 25, 2021**

Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	gr/dscf ⁽²⁾	Lbs/ton ⁽³⁾
1	9:12-10:20	15,757	0.0012	0.0012
2	10:54-12:03	15,789	0.0013	0.0013
3	12:38-13:46	15,700	0.0009	0.0010
Average		15,749	0.0011	0.0012

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

2 = Grains Per Dry Standard Cubic Foot

3 = Pounds per Ton based on 136.3 Tons for sample 1, 136.5 Tons for sample 2 and 129.0 Tons for sample 3.

**II.2 TABLE 2
 CARBON MONOXIDE EMISSION RESULTS
 MOLON ASPHALT
 ASPHALT PLANT BAGHOUSE EXHAUST
 INTERLOCHEN, MICHIGAN
 MAY 25, 2021**

Sample	Time	Air Flow Rate DSCFM ⁽¹⁾	PPM ⁽²⁾	Lbs/Hr ⁽³⁾	Lbs/ton ⁽⁴⁾
1	9:12-10:20	15,757	164.1	11.24	0.08
2	10:54-12:03	15,789	118.4	8.13	0.06
3	12:38-13:46	15,700	114.0	7.78	0.06
Average		15,749	132.2	9.05	0.07

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

2 = Parts Per Million

3 = Lbs/Hr = Pounds Per Hour

4 = Lbs Per Ton based on 136.3 Tons for sample 1, 136.5 Tons for sample 2 and 129.0 Tons for sample 3.

III. DISCUSSION OF RESULTS

The results of the emission testing can be found in Section II, Tables II.1. and II.2. The results of the testing are expressed in terms of grains per dry standard cubic foot (gr/DSCF) and pounds per ton (lbs/ton) for particulates and pounds per ton (lbs/ton) for carbon monoxide.

The emission limits for the source are:

Particulate - 0.04 gr/dscf and 0.04 lb/ton

Carbon Monoxide - 0.20 lb/ton

IV. SOURCE OPERATION

The asphalt plant was operated at approximately 135 tons per hour during all testing. The burner was fired with natural gas during the testing. Source operating data can be found in Appendix B.

V. SAMPLING AND ANALYTICAL PROTOCOL

The determinations were performed in accordance with the following sampling and analytical protocols.

V.1 Particulate - The particulate emission sampling was conducted in accordance with U.S. EPA Method 5. The filters were heated at 250°F (plus or minus 25°F). Three (3) samples were collected from the exhaust stack. Each sample was sixty (60) minutes in duration and had a minimum sample volume of 31.8 dry standard cubic feet. The samples were collected isokinetically.

The filters and nozzle/probe rinses 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. The particulate sampling train is shown in Figure 2.

V.2 CO – The CO determination was conducted in accordance with U.S. EPA Method 10. A Thermo Environmental Model 48C portable stack gas analyzer was used to monitor the CO emissions. The sample gases were extracted from the stack through a heated Teflon sample line which led to a VIA MAK 2 sample gas conditioner (to remove moisture and reduce temperature) and then to the analyzer. The analyzer produces instantaneous readouts of the CO concentrations (PPM).

The analyzer was calibrated by direct injection prior to the testing. A span gas of 998.0 PPM was used to establish the initial instrument calibration. Calibration gases of 498.0 PPM, 251.0 PPM and 168.0 PPM were used to determine the calibration error of the instrument. The sampling system (from back of the stack probe to the analyzer) was injected with the 251.0 PPM calibration gas to determine system bias. After each sample, a system zero and system injection of 251.0 PPM were performed to establish system drift and system bias during each test period. All calibration gases were EPA Protocol 1 Certified.

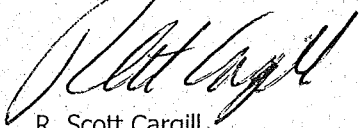
The analyzer was calibrated to the output of the data acquisition system (DAS) used to collect the data. Each sample was sixty minutes in duration. All the quality assurance and quality control requirements specified in the methods were incorporated in the sampling and analysis. The CO sampling train is shown in Figure 1.

V.3 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. The exhaust measured 29x39 inches (rectangular). There were three (3) sampling ports on the exhaust. The test port location was approximately six (6) equivalent diameters downstream from the nearest disturbance and two (2) equivalent diameters from the exit. A twenty-four (24) point traverse was used to perform the sampling. The sampling points are as follows:

Point	Location (Inches)
1	2.44
2	7.31
3	12.19
4	17.06
5	21.94
6	26.81
7	31.69
8	36.56

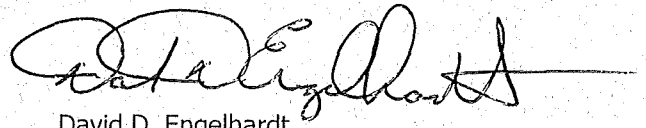
The moisture was determined from the isokinetic sampling trains. O₂ and CO₂ were determined by Method 3A in conjunction with the CO sampling. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:



R. Scott Cargill
Project Manager

This report was reviewed by:



David D. Engelhardt
Vice President

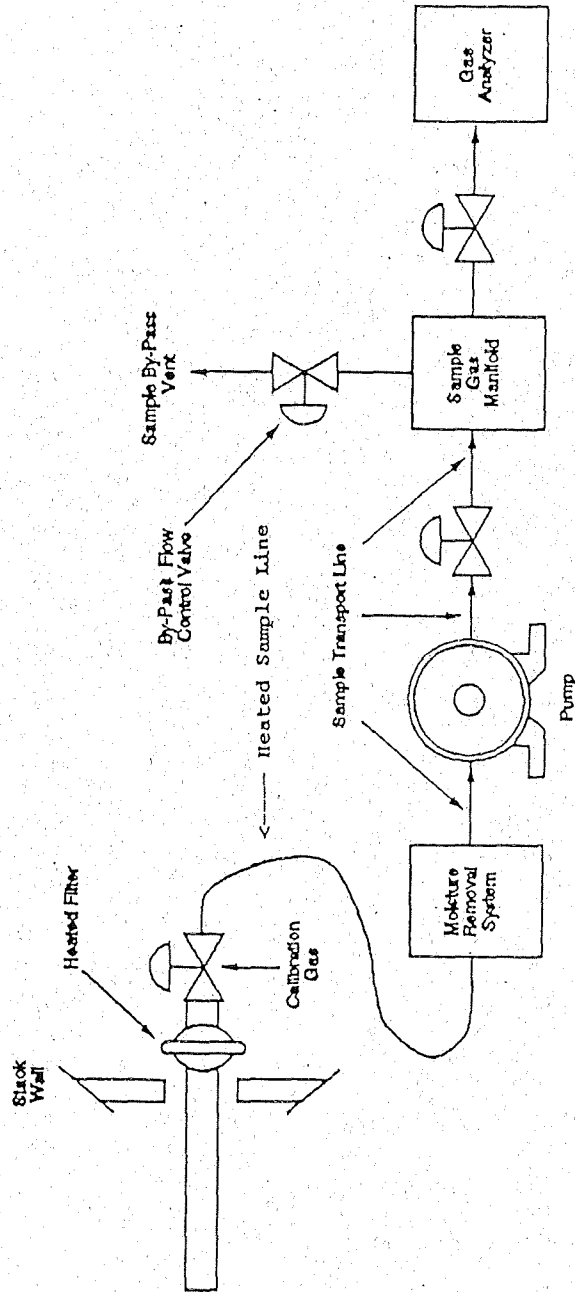


Figure 1

CO, O₂ & CO₂ Sampling Train

RECEIVED

JUL 06 2021

AIR QUALITY DIVISION

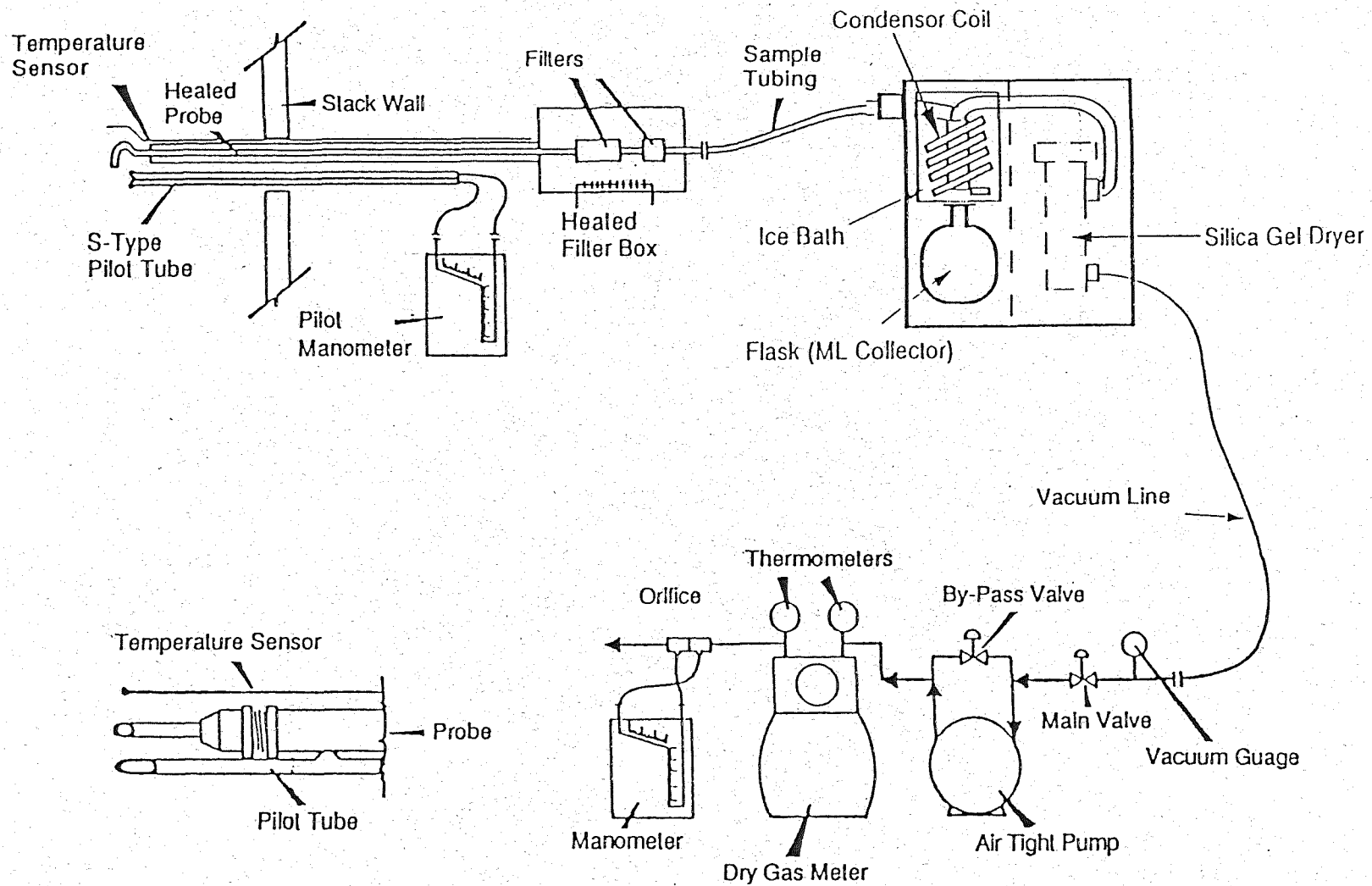


FIGURE 2
EPA METHOD 5
PARTICULATE SAMPLING TRAIN