

RECEIVED

AUG 07 2014

AIR QUALITY DIV.

Report of...

Emission Testing

performed for...

Fryman Recycling #1, Inc.
Dowagiac, Michigan

on the

PVC Shredder Baghouse Exhaust

July 15, 2014

301.01

Network Environmental, Inc.
Grand Rapids, MI

II. PRESENTATION OF RESULTS

**II.1 TABLE 1
TOTAL PARTICULATE EMISSION RESULTS
FRYMAN'S RECYCLING #1, INC.
PVC SHREDDER BAGHOUSE EXHAUST
DOWAGIAC, MICHIGAN**

Source	Sample	Date	Time	Air Flow Rate DSCFM	Lbs/1000Lbs Dry	Lbs/Hr
Baghouse Exhaust	1	7/15/14	08:09 – 09:12	9,410	0.0042	0.177
	2	7/15/14	09:33 – 10:39	9,330	0.0056	0.232
	3	7/15/14	10:54 – 11:59	9,413	0.0046	0.194
	Average			9,384	0.0048	0.201

(1) DSCFM = Dry standard cubic feet per minute @ 68° F & 29.92" Hg.

**II.2 TABLE 2
VOC EMISSION RESULTS
FRYMAN'S RECYCLING #1, INC.
PVC SHREDDER BAGHOUSE EXHAUST
DOWAGIAC, MICHIGAN**

Source	Sample	Date	Time	Air Flow Rate SCFM ⁽¹⁾	PPMV	Lbs/Hr
Baghouse Exhaust	1	7/15/14	08:02 – 09:02	9,553	11.9	0.77
	2	7/15/14	09:31 – 10:31	9,462	12.7	0.82
	3	7/15/14	10:52 – 11:52	9,546	12.8	0.83
	Average			9,521	12.5	0.81

(1) SCFM = Standard cubic feet per minute @ 68° F & 29.92" Hg.

**II.3 TABLE 3
VINYL CHLORIDE EMISSION RESULTS
FRYMAN'S RECYCLING #1, INC.
PVC SHREDDER BAGHOUSE EXHAUST
DOWAGIAC, MICHIGAN**

Source	Sample	Date	Time	Air Flow Rate SCFM ⁽¹⁾	PPMV	Lbs/Hr
Baghouse Exhaust	1	7/15/14	08:03 – 09:03	9,410	Nd ⁽²⁾	-
	2	7/15/14	09:31 – 10:31	9,330	Nd	-
	3	7/15/14	10:52 – 11:52	9,413	Nd	-
	Average			9,384	-	-

(1) SCFM = Standard cubic feet per minute @ 68° F & 29.92" Hg.

(2) Nd = non detected at a level of detection of 0.110 PPMV

III. DISCUSSION OF RESULTS

The results of the testing are summarized in Tables 1 through 3 (Sections II.1 through II.3).

Table II.1 consists of the following test information:

- Sample Dates & Times
- Air Flow Rates in terms of Dry Standard Cubic Feet Per Minute (DSCFM) (STP = 68° F & 29.92 in. Hg)
- Particulate Concentrations in terms of Pounds per Thousand Pounds of exhaust gas (Lbs/1000 lbs)
- Particulate Mass Emission Rates in terms of Pounds Per Hour (Lbs/Hr)

A more detailed breakdown of each individual sample can be found in Appendix A.

Table II.2 consists of the following test information:

- Sample Dates & Times
- Air Flow Rates in terms of Standard Cubic Feet Per Minute (SCFM) (STP = 68° F & 29.92 in. Hg)
- VOC Concentrations in terms of parts per million by volume on a wet basis (PPMV)
- VOC Mass Emission Rates in terms of Pounds Per Hour (Lbs/Hr)

Table II.3 consists of the following test information:

- Sample Dates & Times
- Air Flow Rates in terms of Standard Cubic Feet Per Minute (SCFM) (STP = 68° F & 29.92 in. Hg)
- Vinyl Chloride Concentrations in terms of parts per million on dry basis (PPMV)
- Vinyl Chloride Mass Emission Rates in terms of Pounds Per Hour (Lbs/Hr)

PVC Shredders 1, 2 and 3 were operated at an average of 4,400 pounds per hour during the testing. A more detailed breakdown of each individual sample can be found in Appendix B.

IV. SAMPLING AND ANALYTICAL PROTOCOL

IV.1 Total Particulate – The sampling was performed in accordance with U.S. EPA Reference Method 17. Three (3) samples, each sixty (60) minutes in duration, were collected from the source sampled.

The samples were recovered and transported to the laboratory where the particulate was determined from the front half (filter and nozzle wash) by gravimetric analysis. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis. A diagram of the sampling train is shown in Figure 1.

IV.2 VOC - The total hydrocarbon (VOC) sampling was conducted in accordance with U.S. EPA Reference Method 25A. The sample gas was extracted from the source through a heated Teflon sample line which led to a J.U.M Model 3-500 portable flame ionization detector (FID). This analyzer produces instantaneous readouts of the total hydrocarbon concentrations (PPM). Three (3) samples were collected from the baghouse exhaust. Each sample was sixty (60) minutes in duration.

A systems (from the back of the stack probe to the analyzer) calibration was conducted for the analyzer prior to the testing. A span gas of 85.78 PPM propane was used to establish the initial instrument calibration for the analyzer. Propane calibration gases of 30.37 PPM and 50.19 PPM were used to determine the calibration error of the analyzer. After each sample (60 minute sample period), a system zero and system injection of 30.37 PPM propane were performed to establish system drift of the analyzer during the test period. All calibration gases used were EPA Protocol 1 Certified. All the results were calibration corrected using Equation 7E-1 from U.S. EPA Method 7E.

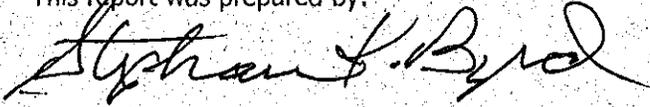
The analyzer was calibrated to the output of the data acquisition system (DAS) used to collect the data from the dryer. All quality assurance and quality control requirements specified in the method were incorporated in the performance of this determination. A diagram of the sampling train is shown in Figure 2.

IV.3 Vinyl chloride – The vinyl chloride determinations were performed in accordance with U.S. EPA Method 106. Samples were extracted through a Teflon probe using a bag sampler. Samples were collected in Tedlar bags. The bag sampler was evacuated at approximately 100 cc/min over a sixty minute period, for each sample. Three samples were collected from the exhaust of the baghouse.

The sample bags were shipped overnight, to the lab. The samples were analyzed by GC/FID for vinyl chloride. All quality assurance and quality control requirements specified in the method were incorporated in the performance of this determination. A diagram of the sampling train is shown in Figure 3.

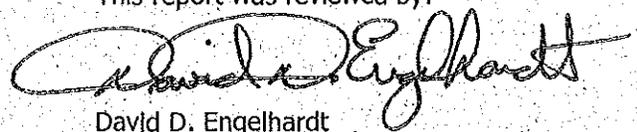
IV.4 Exhaust Gas Parameters – The exhaust gas parameters (air flow rate, temperature, moisture and density) were determined in conjunction with the other sampling by employing U.S. EPA Reference Methods 1 through 4. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:



Stephan K. Byrd
President

This report was reviewed by:



David D. Engelhardt
Vice President

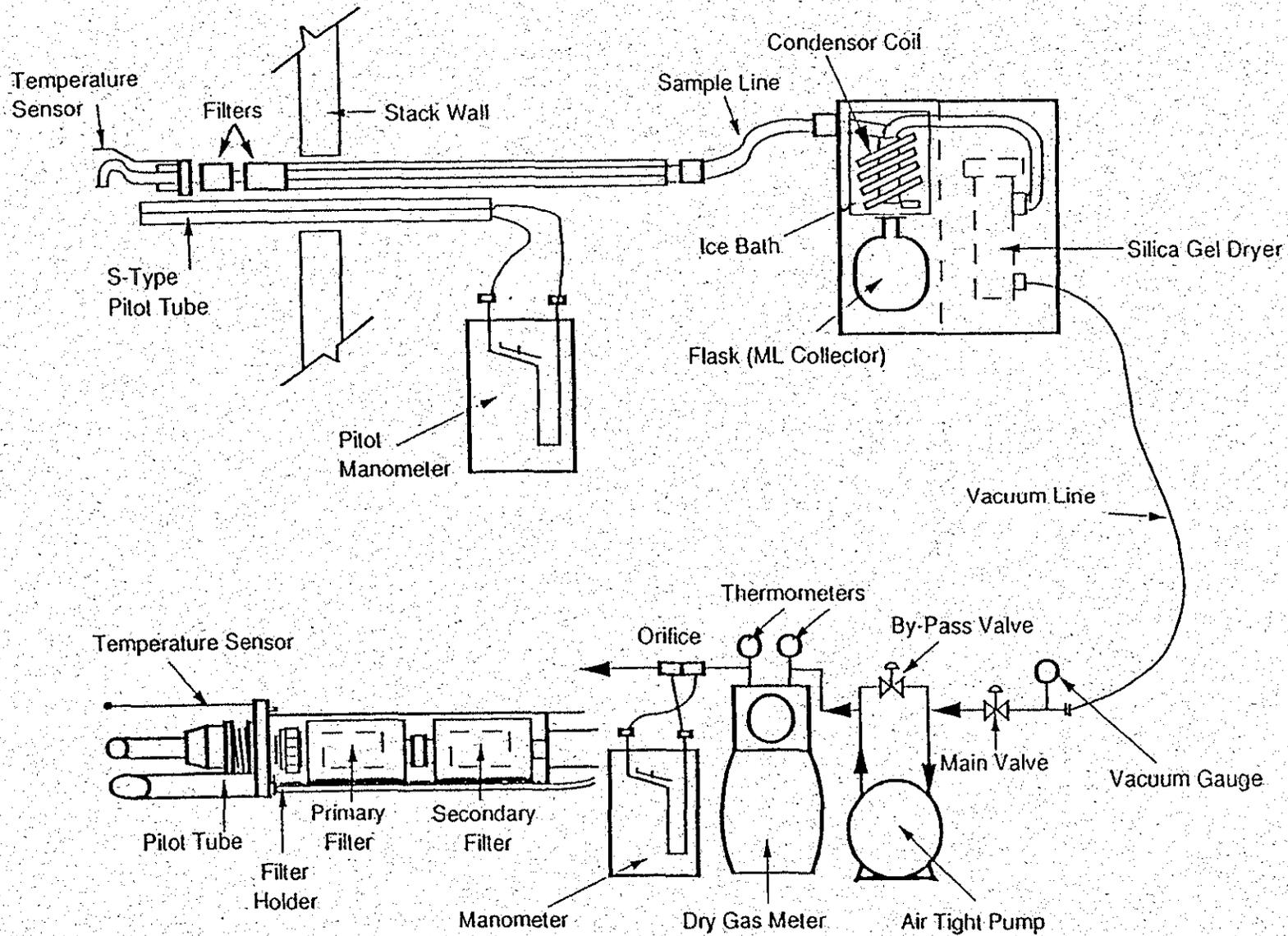


Figure 1
Particulate Sampling Train

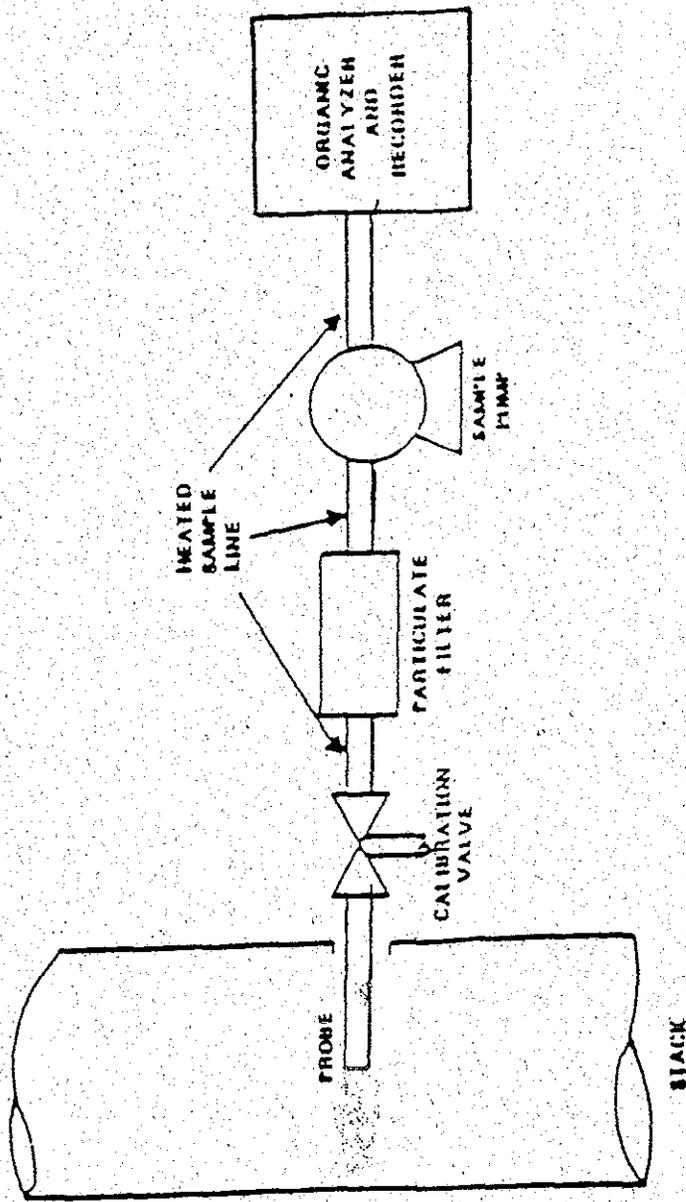


Figure 2
VOC Sampling Train

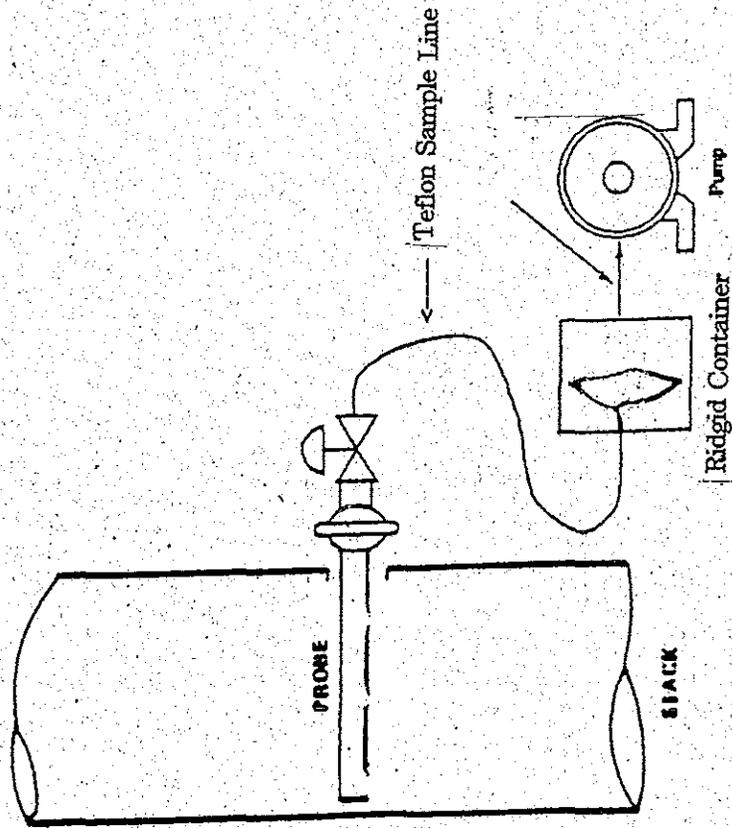


Figure 3

Vinyl Chloride Sampling Train

Performed For:

**Fryman's Recycling #1, Inc.
300 East Railroad
Dowagiac, MI 49047
Contact: Jerry Fryman
Phone: (269) 782-0959
e-mail: jerry@frymansrecycling.com**

Performed by:

**Network Environmental, Inc.
2629 Remico, Suite B
Grand Rapids, MI 49519
Contact: Stephan K. Byrd
Phone: (616) 530-6330
e-mail: netenviro@aol.com**

RECEIVED

AUG 07 2014

AIR QUALITY DIV.

I. INTRODUCTION

Network Environmental, Inc. was retained by Fryman's Recycling #1, Inc., to perform emission testing at their facility in Dowagiac, Michigan. The purpose of the testing was to determine emissions of particulate matter, Total Volatile Organics (VOC) and Vinyl Chloride from the PVC Shredder's Baghouse exhaust.

The emission testing was performed on July 15, 2014. Stephan K. Byrd, R. Scott Cargill, and Richard D. Eerdmans of Network Environmental, Inc. performed the testing. Assisting with the on-site coordination of source operation was Mr. Jerry Fryman. Mr. Dennis Dunlap and Mr. Dave Patterson of the MDEQ Air Quality Division were present to observe the testing and source operation.