Report of...

Compliance Emission Testing

performed for...

Lacks Enterprises, Inc.
Barden Street Plant

Kentwood, Michigan

on

Multiple Sources

June 2, 2015

021.26

Network Environmental, Inc.
Grand Rapids, MI

I. INTRODUCTION

Network Environmental, Inc. was retained by Lacks Enterprises to perform Total Chromium (Cr) compliance emission sampling on the Chrome Plating scrubber exhaust (EUCHROME 1,2,3/SVK-8) and the Chrome Etch (EUCHROMEETCH 1,2,3/SVK-2) exhaust located at their Barden Street facility in Kentwood, Michigan. The purpose of the study was to quantify the Cr emissions from the two exhausts to demonstrate compliance with Renewable Operating Permit MI-ROP-N2079-2012.

The sampling was performed by Stephan K. Byrd, R. Scott Cargill, Richard D. Eerdmans and David D. Engelhardt of Network Environmental, Inc. on June 2, 2015 by employing U.S. EPA Method 306. Assisting in the study was Ms. Karen Baweja of Lacks Industries. Mr. David L. Morgan and Mr. Jeremy Howe of the Michigan Department of Environmental Quality, Air Quality Division were present to observe the testing and source operation.

II. PRESENTATION OF RESULTS

II.1 TABLE 1
CHROMIUM (Cr) EMISSION RESULTS
CHROME ETCH EXHAUST
LACKS ENTERPRISES
BARDEN STREET
KENTWOOD, MICHIGAN
JUNE 2, 2015

Sample	Time	Air Flow Rate DSCFM(1)	Concentration Mg/M^3(2)	Mass Emission Rate Lbs/Hr(3)
1	8:14-10:17	52,436	0.0010	0.00020
2	10:29-12:33	51,622	0.0008	0.00016
3	12:46-14:48	51,762	0.0012	0.00022
Average		**51,940**	**0.0010**	**0.00019**

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68°F & 29.92 in. Hg)
(2) Mg/M^3 = Milligrams Per Dry Standard Cubic Meter
(3) Lbs/Hr = Pounds Per Hour

II.2 TABLE 2
CHROMIUM (Cr) EMISSION RESULTS
CHROME PLATING EXHAUST
LACKS ENTERPRISES
BARDEN STREET
KENTWOOD, MICHIGAN
JUNE 2, 2015

Sample	Time	Air Flow Rate DSCFM(1)	Concentration $Mg/M^{3(2)}$	Mass Emission Rate Lbs/Hr(3)
4	8:24-10:27	39,121	0.0012	0.00018
5	10:42-12:44	38,281	0.0011	0.00016
6	12:58-15:00	38,386	0.0008	0.00012
Average		**38,596**	**0.0010**	**0.00015**

(1) DSCFM = Dry Standard Cubic Feet Per Minute (STP = 68°F & 29.92 in. Hg)
(2) Mg/M^3 = Milligrams Per Dry Standard Cubic Meter
(3) Lbs/Hr = Pounds Per Hour

III. DISCUSSION OF RESULTS

The Cr emission results are presented in Table 1 and 2 (Section II.1 and II.2).

The Total Chromium emission limits for these sources are:
Chrome Etch = 0.0025 Lbs/Hr and 0.012 Mg/DSCM
Chrome Plater = 0.0006 Lbs/Hr and 0.005 Mg/DSCM

IV. SAMPLING AND ANALYTICAL PROTOCOL

The sampling location for the Chrome Etch was on the sixty (60) inch I.D. exhaust stack at a location which met the minimum test location requirements of U.S. EPA Reference Method 1. Twelve (12) sampling points per port were used for the testing (24 points total). The points are as follows:

Point #	Point Location (Inches)
1	1.26
2	4.02
3	7.08
4	10.62
5	15.00
6	21.36
7	38.64
8	45.00
9	49.38
10	52.92
11	55.98
12	58.74

The sampling location for the Chrome Plating Exhaust was on the fifty two (52) inch I.D. exhaust stack at a location which met the minimum test location requirements of U.S. EPA Reference Method 1. Twelve (12) sampling points per port were used for the testing (24 points total). The points are as follows:

Point #	Point Location (Inches)
1	1.09
2	3.48
3	6.14
4	9.20
5	13.00
6	18.51
7	33.49
8	39.00
9	42.80
10	45.86
11	48.52
12	50.91

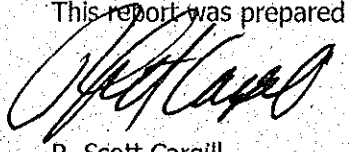
IV.1 Chromium (Cr) - The sampling was performed in accordance with U.S. EPA Reference Method 306. Three (3) samples, each 120 minutes in duration, were collected from the exhaust. The samples were collected isokinetically in a 0.1N Sodium Bicarbonate solution as outlined in the method. The samples were analyzed for total chromium (Cr) by ICP - MS. All the quality assurance and quality control procedures listed in the method were incorporated in the sampling and analysis.

A diagram of the sampling train can be seen in Figure 1.

IV.2 Exhaust Gas Parameters - In addition to the Cr sampling, the exhaust gas parameters (air flow

rate, temperature, moisture, and density) were determined by employing U.S. EPA Reference Methods 1 through 4. All the quality control and quality assurance requirements listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:



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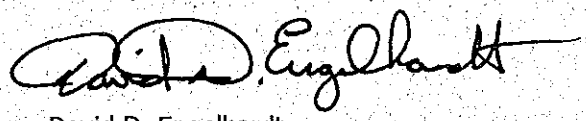

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Vice President

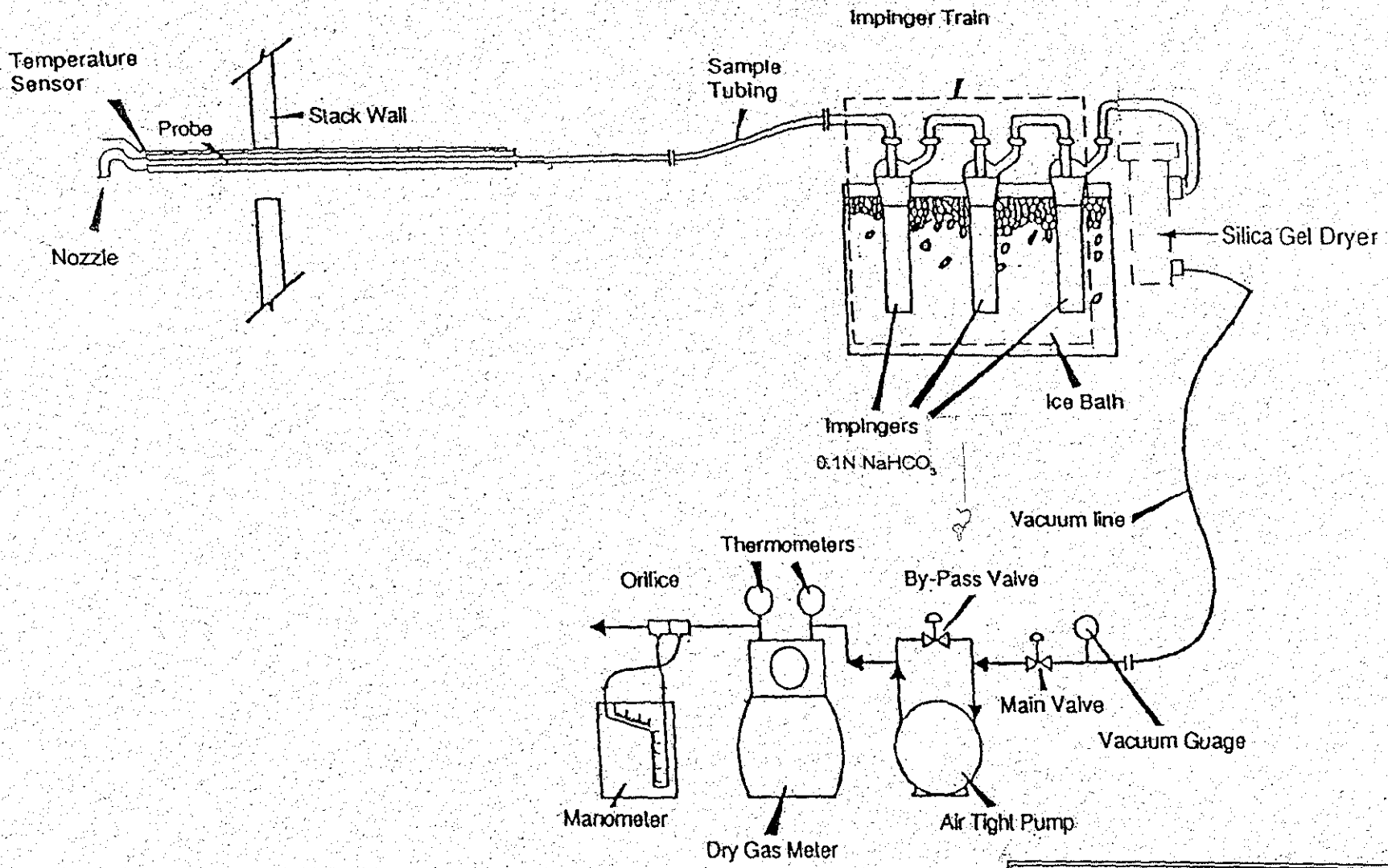

FIGURE 1

TOTAL CHROME SAMPLING TRAIN