

Report of...

# Total Chromium Emissions Testing

performed for...

**Lacks Enterprises, Inc.**  
**Airplane South Plant**  
Kentwood, Michigan

on

**Various Sources**

**RECEIVED**  
JUL 27 2017  
AIR QUALITY DIVISION

May 8-11, 2017

021.30

Network Environmental, Inc.  
Grand Rapids, MI

**RECEIVED**

JUL 27 2017

**AIR QUALITY DIV.**

**I. INTRODUCTION**

Network Environmental, Inc. was retained by Lacks Enterprises to perform Total Chromium (Cr) compliance emission sampling on the SCVR-4 Line Chrome Plating Scrubber Exhaust, the SVS-P10 Line Chrome Plating Scrubber Exhaust and the SVS-P11 Chrome Etch Scrubber Exhaust located at their Airline South facility in Kentwood, Michigan. The purpose of the study was to quantify the Cr emissions from the three exhausts to document compliance with Michigan Department of Environmental Quality, Air Quality Division, Renewable Operating Permit MI-ROP-N0895-2012.

The sampling was performed by R. Scott Cargill and Richard D. Eerdmans of Network Environmental, Inc. on May 8-11, 2017 by employing U.S. EPA Method 306. Assisting in the study was Ms. Karen Baweja of Lacks Industries. Mr. Tom Gasloli and Ms. April Lazzaro 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  
SCVR-4 LINE SCRUBBER  
CHROME PLATING EXHAUST  
LACKS ENTERPRISES  
AIRLANE SOUTH FACILITY  
KENTWOOD, MICHIGAN  
MAY 11, 217**

Sample	Time	Air Flow Rate DSCFM	Concentration Mg/M <sup>3</sup>	Mass Emission Rate Lbs/Hr
1	8:50-10:54	21,001	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
2	11:10-13:13	21,159	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
3	13:30-15:32	20,886	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
<b>Average</b>		<b>21,015</b>	<b>NA</b>	<b>NA</b>

1 = Non Detect at an average detection limit of 0.00069 Mg/M<sup>3</sup> and 0.000055 Lbs/Hr.

**II.2. TABLE 2  
 CHROMIUM (Cr) EMISSION RESULTS  
 SVS-P10 LINE SCRUBBER  
 CHROME PLATING EXHAUST  
 LACKS ENTERPRISES  
 AIRLANE SOUTH FACILITY  
 KENTWOOD, MICHIGAN  
 MAY 10, 2017**

Sample	Time	Air Flow Rate DSCFM	Concentration Mg/M <sup>3</sup>	Mass Emission Rate Lbs/Hr
1	10:35-12:42	20,995	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
2	13:07-15:32	20,843	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
3	15:55-17:58	20,676	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
<b>Average</b>		<b>20,825</b>	<b>NA</b>	<b>NA</b>

1 = Non Detect at an average detection limit of 0.00068 Mg/M<sup>3</sup> and 0.000053 Lbs/Hr.

**II.3 TABLE 3  
 CHROMIUM (Cr) EMISSION RESULTS  
 SVS-P11 CHROME ETCH SCRUBBER  
 CHROME ETCH EXHAUST  
 LACKS ENTERPRISES  
 AIRLANE SOUTH FACILITY  
 KENTWOOD, MICHIGAN  
 MAY 9, 2017**

Sample	Time	Air Flow Rate DSCFM	Concentration Mg/M <sup>3</sup>	Mass Emission Rate Lbs/Hr
1	8:35-10:39	17,630	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
2	11:05-13:07	17,544	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
3	13:23-15:25	17,924	N.D. <sup>(1)</sup>	N.D. <sup>(1)</sup>
<b>Average</b>		<b>17,699</b>	<b>NA</b>	<b>NA</b>

1 = Non Detect at an average detection limit of 0.00076 Mg/M<sup>3</sup> and 0.000051 Lbs/Hr.

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

The Cr emission results are presented in Tables 1 through 3 (Section II.1 through II.3).

The Total Chromium emission limits for these sources are:

SVCR-4 Chrome Plate = 0.01 Mg/DSCM and 0.0005 Lbs/Hr

SVS-P10 Chrome Plate = 0.01 Mg/DSCM and 0.000489 Lbs/Hr

SVS-P11 Chrome Etch = 0.000542 Lbs/Hr

### **IV. SAMPLING AND ANALYTICAL PROTOCOL**

The sampling location for the #4 Line Plater Chrome Scrubber Exhaust was on the forty (40) 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:

<b>Point #</b>	<b>Point Location (Inches)</b>
1	0.84
2	2.68
3	4.72
4	7.08
5	10.00
6	14.24
7	25.76
8	30.00
9	32.92
10	35.28
11	37.32
12	39.16

The sampling location for the SVS-P10 Line Plater Chrome Scrubber Exhaust was on the forty (41) 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:

<b>Point #</b>	<b>Point Location (Inches)</b>
1	0.86
2	2.75
3	4.84
4	7.26
5	10.25
6	14.60
7	26.40
8	30.75
9	33.74
10	36.16
11	38.25
12	40.14

The sampling location for the Chrome Etch Stack SVS-P11 Exhaust was on the forty-one (41) 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	0.86
2	2.75
3	4.84
4	7.26
5	10.25
6	14.60
7	26.40
8	30.75
9	33.74
10	36.16
11	38.25
12	40.14

**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 exhausts. 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.

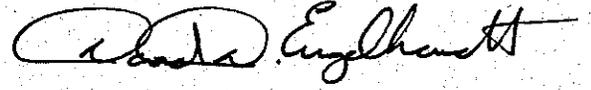
**IV.2 Exhaust Gas Parameters** - In addition to the Cr sampling, the exhaust gas parameters (air flow rate, temperature, moisture, and density) were determined by employing U.S. EPA Reference Methods 1 through 4. All the quality control and quality assurance requirements listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:

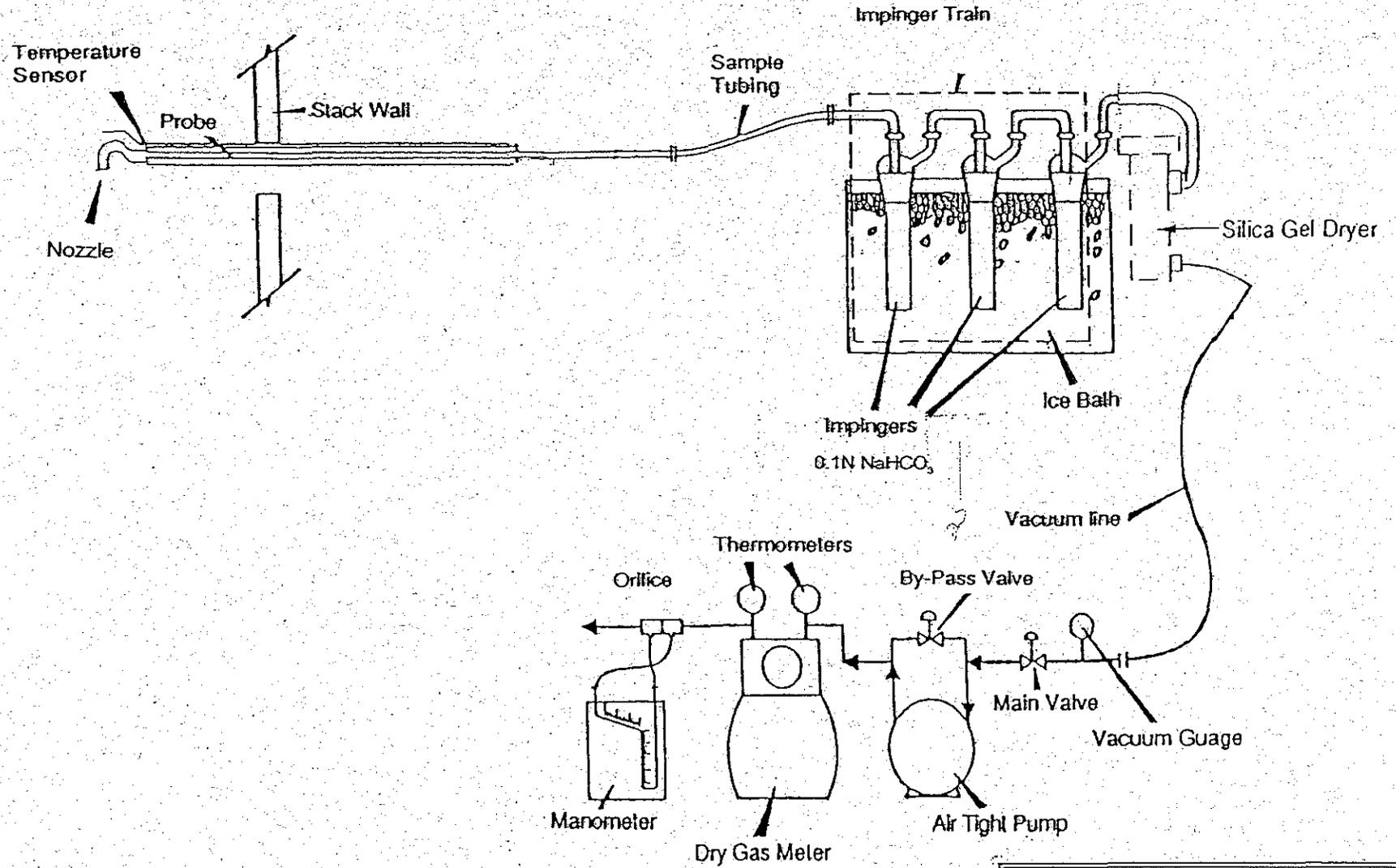


R. Scott Cargill  
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This report was reviewed by:



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FIGURE 5  
TOTAL CHROME SAMPLING TRAIN