

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection

N207945885

FACILITY: Lacks Industries, Inc.		SRN / ID: N2079
LOCATION: 4375 52ND STREET SE, KENTWOOD		DISTRICT: Grand Rapids
CITY: KENTWOOD		COUNTY: KENT
CONTACT: Karen Baweja , Supervisor of Air Quality		ACTIVITY DATE: 08/09/2018
STAFF: April Lazzaro	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Partial Compliance Evaluation of Barden Plater for the Michigan PFAS initiative.		
RESOLVED COMPLAINTS:		

Staff, April Lazzaro arrived at the facility to conduct an unannounced, scheduled Partial Compliance Evaluation of the Barden Plating facility. Earlier that morning, I had called Karen Baweja, Supervisor of Air Quality to let her know I would be there at 1:00 PM.

#### FACILITY DESCRIPTION

The Barden Plating facility conducts decorative chrome electroplating primarily on plastic automotive parts, but also on plumbing fixtures, household appliances and business machines. The process consists of pretreatment, alkaline cleaning, acid dipping, and strike plating of copper, copper electroplating, nickel electroplating, and chromium electroplating. Electroless copper, conditioner, and rack stripping are controlled by wet scrubbers while the chrome plating and etching are controlled by composite mesh pad scrubbers.

The stationary source that houses the Barden Plating facility operates pursuant to MI-ROP-N2079-2017, and the Barden Plating facility is regulated in Section 2. This report only evaluates Section 2 of the ROP.

The chrome plating operations are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chromium emissions in Subpart N. This Partial Compliance Evaluation is to evaluate compliance with the state initiative to inspect chrome plating facilities to ensure perfluorooctane sulfonic acid (PFOS) is not in use. It was confirmed that the product used at the Barden Plating facility is PFOS free and has been since before 2015. All Lacks plating operations use the same PFOS free product manufactured by MacDermid Enthone. The emergency engines are subject to the Reciprocating Internal Combustion Engine NESHAP and the New Source Performance Standard (NSPS) for spark ignition engines.

#### COMPLIANCE EVALUATION

During the Barden inspection, Ms. Baweja and I were joined by David Coin and Mike DeVos.

#### EUCONDITIONER

This emission unit (EU) was recently underwent New Source Review for a higher emission rate of 1,3-dichloro-2-propanol. In order to receive a higher emission rate, the emission unit was required to install a taller stack. The old permit limit is a 60' tall stack, and the new permit limit is for a 100' tall stack. This change has been completed and the new height incorporated into the ROP renewal. At the time of the inspection, testing had recently been conducted, with no results to verify compliance with the emission limit available. However, operating parameters were found to be within the ranges as established in the Operation and Maintenance (O&M) Plan. At the time of the inspection the pressure drop of the scrubber (B-1) was 2.64" H<sub>2</sub>O, the flow was 67 gpm and the bleed off was 4.9 gpm.

#### EUELECTROLESSNI

The electroless nickel plating tank is an optional process and does not operate if the electroless copper is in use. At the time of the inspection, the electroless copper was in use, and therefore this EU is not applicable.

#### EUELECTROLESSSCU

Stack testing was recently conducted on this emission unit. Formaldehyde is limited to 2.97 pph and tested emissions were 0.0659 pph. Methanol is limited to 12.2 pph and tested emissions were 2.6076

pph. Operating parameters were found to be within the ranges as established in the O&M Plan. At the time of the inspection the pressure drop of the scrubber (B-4) was 1.01" H<sub>2</sub>O, the flow was 170 gpm and the bleed off was 2.74 gpm.

#### EUEMERGENCYRICE-SI

The facility maintains the emergency generator as required and following AQD request was able to provide a copy of the last annual oil change as required. In the ROP renewal, AQD staff changed this to a flexible group in case Lacks chooses to add more units in the future.

#### EUEMERGENCYRICE-CI

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#### FGCHROME1

This flexible group (FG) contains three chrome etch tanks, which are each an emission unit. The chrome etch tanks have been determined to not be subject to the chrome NESHAP. Stack testing was recently conducted on this emission unit. Total chromium is limited to 0.0025 pph and tested emissions were 0.0014 pph. Operating parameters were found to be within the ranges as established in the O&M Plan. At the time of the inspection, the pressure drop of the composite mesh pad scrubber (B-2) was 3.206" H<sub>2</sub>O and the evaporator was 1.288" H<sub>2</sub>O. The surface tension readings taken that morning at three different times were as follows: Tank 1- 36, 42, 35 dynes/cm, Tank 2- 34, 38, 33 dynes/cm, Tank 3- 38, 40, 36 dynes/cm. While the O&M Plan states that the surface tension shall be less than 45 dynes, this should be modified to a range that is more fitting with the tested level since the surface tension is directly related to the amount of chrome loading into the scrubber and therefore emissions. The surface tension during testing as established by a three-run average per tank are as follows: Tank 1- 37 dynes/cm, Tank 2- 32.6, dynes/cm and Tank 3- 34.6 dynes/cm. The O&M Plan shall be modified to better match the tested parameters because those levels are used to determine compliance. Compliance is based on the combination of control device and surface tension. During the inspection and data collection in the laboratory, it was learned that they keep the surface tension below 40 dynes/cm as a matter of practice. Safety Data Sheets were requested for the chemical fume suppressant used at this facility. It was verified that the chrome fume suppressant and the chrome etch fume suppressant do not contain perfluorooctane sulfonic acid (PFOS).

#### FGNEUTCATACC

This FG consists of three tanks including neutralizer, catalyst and accelerator exhausted through a common stack with no control (B-3). There is no emission limit.

#### FGCOPPER

This FG consists of six copper related tanks exhausted through a common stack with no control. (B-5). There is no emission limit.

#### FGSEMINICKEL

This FG consists of 5 semi-brite nickel tanks exhausted through a common stack with no control (B-6). Nickel emissions are limited to 0.028 pph and tested emissions were 0.0028 pph.

#### FGBRIMICRONI

This FG consists of three nickel tanks exhausted through a common stack with no control. (B-7) Nickel emissions are limited to 0.28 pph and tested emissions were 0.0011 pph.

#### FGCHROME2

This FG consists of three decorative chrome plating tanks exhausted through a common stack with a composite mesh pad scrubber and fume suppressant for control. Stack testing was recently conducted on this emission unit. Stack testing was recently conducted on this emission unit. Total chromium is limited to 0.0006 pph and tested emissions were 0.00049 pph. Operating parameters were found to be within the ranges as established in the O&M Plan. The surface tension readings taken that morning at three different times were as follows: Tank 1- 37, 33, 35 dynes/cm, Tank 2- 37, 34, 33 dynes/cm, Tank 3- 38, 34, 33 dynes/cm. The surface tension during testing as established by a three-run average per tank are as follows: Tank 1- 33 dynes/cm, Tank 2- 37 dynes/cm, Tank 3- 40 dynes/cm. While the O&M Plan states that the surface tension shall be less than 45 dynes, this should be modified to a range that is more fitting with the tested level since the surface tension is directly related to the amount of chrome

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In 2004 the facility chose to stop using surface tension as the daily NESHAP compliance method and replace it with daily pressure drop readings of the composite mesh pad scrubber and maintain a chromium emission rate of less than 0.007 mg/dscm. This is established through stack testing conducted every two years. In 2015 the emission limit changed from 0.01 mg/dscm to 0.007 mg/dscm. The emission rate determined during testing conducted in May 2017 was 0.0043 mg/dscm and indicated compliance. The pressure drop during testing was ~3.1" H<sub>2</sub>O. At the time of the inspection, the pressure drop of the composite mesh pad scrubber (B-8) was 4.06" H<sub>2</sub>O and the evaporator was 1.288" H<sub>2</sub>O.

While all equipment was observed on the roof at the Barden facility it was noted that the chrome scrubber and surrounding area was covered in a strange blackish splatter. It was in small droplet patterns and wiped off surfaces with the finger. Ms. Baweja learned that they routinely "carbon treat" some of the nickel tanks. After they had cleaned up the roof from the first spatter they noticed a reoccurrence after they had conducted another carbon treatment. In a follow up email, Ms. Baweja stated that when the bright nickel tanks were carbon treated the carbon escaped through the bright nickel exhaust. This lead to the spatter on the roof. Lacks is investigating whether the process used to carbon treat has changed to cause the releases to occur. Follow up will be placed in the file, however the expectation is for this emission to discontinue.

#### FGSTRIPTANKS

This FG consists of a chrome strip and nitric acid strip tank controlled by a packed bed scrubber and mist eliminator. There is no emission limit. Approximately 3 years ago, Lacks added a mist eliminator to the scrubber in a pad form, instead of the old chevron blade style that was in use. They feel that the emission of nitric acid has significantly reduced since then. This FG has not been required to conduct stack testing. Operating parameters were found to be within the ranges as established in the O&M Plan. At the time of the inspection the pressure drop of the scrubber (B-9) was 2.52" H<sub>2</sub>O, the flow was 182.5 gpm and the bleed off was 5.50 gpm. The rubber gasket on the stack is starting to show some degradation and will be evaluated during the next inspection.

#### MISCELLANEOUS

While on the roof, Boiler #3 stack was noted to be sooty and black, with black material on the roof nearby. I was informed that it had malfunctioned and was currently offline and undergoing repairs.

#### CONCLUSION

Lacks Enterprises, Inc. Barden Plater was in compliance at the time of the inspection.

NAME



DATE

9-13-18

SUPERVISOR

