

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection**

N783643533

<b>FACILITY:</b> KREHER WIRE PROCESSING INC		<b>SRN / ID:</b> N7836
<b>LOCATION:</b> 34822 GODDARD RD, ROMULUS		<b>DISTRICT:</b> Detroit
<b>CITY:</b> ROMULUS		<b>COUNTY:</b> WAYNE
<b>CONTACT:</b> Fred Smith , Plant Manager		<b>ACTIVITY DATE:</b> 03/07/2018
<b>STAFF:</b> Katherine Koster	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> MINOR
<b>SUBJECT:</b> FY2018 Targeted Inspection		
<b>RESOLVED COMPLAINTS:</b>		

**REASON FOR INSPECTION:** Targeted Inspection

**INSPECTED BY:** Katie Koster, AQD

**PERSONNEL PRESENT:** Fred Smith, Plant Manager

**FACILITY PHONE NUMBER:** 734-941-9500

**FACILITY FAX NUMBER:** 734-941-9510

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**FACILITY BACKGROUND**

Kreher Wire Processing operates a wire coil cleaning and coating line at 34822 Goddard Road. The building was constructed in 1969 and the furnaces were installed at the same time. It used to be Plant 3 of Federal Screw Works. A pickle house was installed in 1978, rebuilt in 1990, and equipment was removed in 1997. Kreher Steel purchased the plant in 2000. In 2007, Kreher installed a new "pickle line" and an AQD permit was obtained at that time. The facility operates 24 hours a day, 7 days a week and the furnaces operate around the clock. Drawn wire coils are sold and made into sockets, balls, studs, nuts, fasteners, rivets, etc. 34 people are employed at the 56,000 square foot facility.

**COMPLAINT/COMPLIANCE HISTORY**

No complaints have been received against the facility.

**OUTSTANDING CONSENT ORDERS**

None

**OUTSTANDING LOVs**

None

**INSPECTION NARRATIVE**

AQD staff, Katie Koster, arrived at Kreher Wire Processing on 3/7/18 at 9:30 a.m. I did not detect any odors in the vicinity of the facility or notice any opacity from the building or stacks. I entered the facility and met with Mr. Fred Smith, Plant Manager. Safety glasses and hearing protection are needed at this site. No hard hat is required. The main office is no longer in the plant; it is about ½ mile away. Kreher receives coils from Newcor and ArcelorMittal Canada.

Mr. Smith accompanied me about the plant. The general process is as follows: cleaning/pickling and coating, annealing, and drawing (cold heading). The OEMs of the steel wire only manufacture to certain diameters of wire. Kreher allows for additional diameters of wire to be available to its clients as well as corrosion resistance through pickling and coating.

There are 16 tanks on the line (see attached). The process starts at the pickling line where coils are loaded onto hooks. High carbon (C) steel takes about 15 minutes; low C about 45. First, the coil may be submerged in the alkaline tank containing C-Clean60L (SDS attached) depending on the condition of the

wire. Mr. Smith noted that the alkaline does a better job of cleaning than acid. Not all coils are submerged in this tank; it is used on an as needed basis. Next, the coil enters the hot water rinse tank if it was alkaline cleaned. Otherwise, it is submerged in one of four sulfuric acid tanks which are kept at about 12% H<sub>2</sub>SO<sub>4</sub>. Then, the coil travels through a water spray rinse tank followed by an acid cold rinse tank and an acid hot rinse tank. This is the end of the pickling/cleaning portion of the line. During the prior inspection, the alkaline tank was not in use. There are slot hoods at the far end of the alkaline, hot water rinse, and four acid tanks. Fumes from all of these tanks are directed to the slot hoods and controlled by the packed bed caustic wet scrubber.

The spray water rinse and acid cold rinse are not heated. Acid cold rinse and the acid hot rinse contain a small concentration of acid. The eval form indicates that the spray rinse, cold rinse, and hot rinse will be controlled by the scrubber in addition to the sulfuric acid tanks. However, the rinse tanks are not vented to the caustic scrubber. A review of the eval form states that even without the scrubber, sulfuric acid emissions comply with the screening level requirements in R225. Additionally, any fumes from the spray rinse and acid cold water rinse are released to the in-plant environment and would be minimal given little to no acid in the tank and no heating. The acid hot rinse is controlled by a new additional scrubber. The "new" scrubber is described below.

After the acid hot rinse, the coil enters one of two high nickel zinc phosphate tanks, a cold water phosphate rinse, phosphate neutralizer, and is then dipped in either lubricant, lime (if no phosphate dip) or 110 polymer (instead of lubricant). This is the coating part of the line to provide corrosion resistance. In 2016, the facility installed a packed bed water scrubber to control fumes from the acid hot rinse tank and the two phosphate tanks. Previously these tanks were uncontrolled and released emissions into the in plant environment. The permit language is unclear as to what tanks are required to be controlled; in the evaluation form, it makes no mention of the phosphate tanks needing control.

There are two 200 hP Clayton steam generators for heating the tanks. One is in use and the other serves as back up.

We viewed the permitted caustic scrubber. Two flow monitors associated with the two pumps have been installed since the prior inspection. I recorded a flow of approximately 110 gallons per minute (gpm) on each gauge. The permit requires a minimum of 400 gpm through the scrubber. I did not observe a pressure drop monitor. There is a bucket of caustic with a hose connected to the liquid reservoir at the bottom of the scrubber. The pH probe is in this area. Staff perform a daily visual check of the system. According to Daryl England, maintenance manager, there are no alarms conditions in place. The output pH reading on the control panel was 9.67. The value was fluctuating indicating that measurements were being taken. The probe is cleaned about once a month. pH readings are not recorded. There is a 10,000 gallon caustic tank.

We went outside and viewed the caustic scrubber stack. I did not smell any acid odors. The pickle line operates about 5-6 days per week. The stack vented unobstructed vertically upwards. Building height is 28 ft. I also observed the "new" water scrubber. I did not observe any parametric monitoring on this scrubber; Mr. Smith stated that it was on a periodic maintenance schedule.

Wastewater from the pickling line is treated on site. Ferrous sulfate is the byproduct which is sold.

After cleaning and coating, wires are fed into one of two furnaces for annealing before drawing. Natural gas fired furnaces are identical and the wire stays in the furnace for 12-13 hours. The facility installed a

small batch anneal furnace in 2016. This furnace is used for non critical remanufactured items. A burner test by DTE indicated that the maximum BTU/hr was 2MM.

Annealed wires are pulled through one of three draw blocks which stretches the wire thereby reducing its diameter and increasing the length. This process may generate some particulate which is released to the general in plant environment. Draw blocks are sized by diameter of the coil.

We returned to the parking lot and drove to Mr. Smith's office where we discussed records required by the permit. I informed him that I would follow up with a records request via email. See attached.

#### **EQUIPMENT AND PROCESS CONTROLS**

Two natural gas fired "push" annealing furnaces; each 10.4 MMBTU/hr maximum heat input. This value was determined by a test that DTE performed on the burners. Note, the prior inspection contains incorrect heat input information. The facility provided heat input was in units of BTU/hr when it should have been MBTU/hr (MBTU =  $10^3$ ).

One natural gas fired batch anneal furnace

A wastewater treatment facility

Three draw blocks

Cleaning/pickling/coating line controlled by two scrubbers - 1 alkaline cleaning tank, 1 hot rinse, 4 acid tanks, 1 spray rinse, 1 cold rinse, 1 hot rinse, 2 zinc phosphate tanks, 1 phosphate rinse tank, 1 phosphate neutralization tank, 1 lube tank, 1 polymer tank, 1 lime tank

Two 200 hP boiler/steam generators

10,000 gallon caustic tank

Sulfuric and nitric and phosphoric acid storage

#### **APPLICABLE RULES/PERMIT CONDITIONS**

Facility is operating under Permit to Install 224-07

#### **Material Usage Limits**

**1.1 IN COMPLIANCE.** The nitric acid concentration by weight in any aqueous tank in EUPICKLINE shall not exceed 8 percent by weight of commercially available nitric acid. (R 336.1224) Facility tests the acid baths daily. Results are monitored via a points system. The points can be converted to a weight percent (see attached letter). Dubois, formerly Century Chemical, audits the line on a weekly basis. See attached letter. Based on the attached letter and spot check of facility daily records while on site, the facility appears to be in compliance with this limit.

**1.2 IN COMPLIANCE.** The phosphoric acid concentration by weight in any aqueous tank in EUPICKLINE shall not exceed 6 percent by weight of commercially available phosphoric acid. (R 336.1224) Facility tests the acid baths daily. Results are monitored via a points system. The points can be converted to a weight percent (see attached letter). Dubois, formerly Century Chemical, audits the line on a weekly basis. See attached letter. Based on the attached letter and spot check of facility daily records while on site, the facility appears to be in compliance with this limit.

#### **Process/Operational Limits**

**1.3 UNKNOWN.** All waste liquids and other materials shall be captured and shall be disposed of in an acceptable manner in compliance with all applicable rules and regulations. (R 336.1224). I did not observe waste liquids while on site.

**1.4 NOT IN COMPLIANCE.** The permittee shall not operate EUPICKLINE unless an Operation-Maintenance Plan for servicing and calibration of the control instruments, has been submitted within 30 days of permit issuance, and is implemented and maintained. (R 336.1224, R 336.1225, R 336.1910) An O&M plan was submitted after the prior inspection but does not appear to have been implemented and maintained. For example, daily records of scrubber operations (such as flow rate value, caustic flow, level of caustic, pH value, etc.) have not been maintained.

#### Equipment

**1.5 NOT IN COMPLIANCE.** The permittee shall not operate any process tank in EUPICKLINE unless the caustic packed bed wet scrubber is installed, maintained, and operated in a satisfactory manner. Satisfactory operation shall include but is not limited to all the items in Appendix A. (R 336.1224, R 336.1225, R 336.1910). Scrubber flow rate gages have been installed but the flow rate is not being maintained at the required 400 gpm minimum. The flow gages only measure to about 160 gpm. No pressure drop monitor exists. The rest of the parameters in Appendix A were evaluated below.

#### Recordkeeping/Reporting/Notification

**1.6 IN COMPLIANCE.** The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both. All records shall be kept on file for a period of at least five years and made available to the Department upon request. (R 336.1224) SDS's were presented on site and provided upon request during the prior inspection and are the same. Also, I received the SDS for alkaline cleaner in use in Tank 1 (see attached) that was not in use during the prior inspection. It does not appear to contain any HAP's.

**1.7 IN COMPLIANCE.** The permittee shall keep the following information on a daily production basis for EUPICKLINE:

- a) Pounds (with water) of each acid containing material used or added to renew or replenish an acidic process bath.
- b) The acid content in pounds per pound of each material used or added to renew or replenish an acidic process bath.
- c) Acid concentration calculations showing the percent concentration of acids, by weight, shall be determined based on analytical testing methods used for keeping the process baths at the required acidic content level for production requirements, as given in special condition numbers 1.1 and 1.2. The records shall be kept in a format acceptable to the AQD Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. [R336.1224] The purpose of this condition is to demonstrate compliance with the weight percent limits in Conditions 1.1 and 1.2. Facility tests the acid baths daily. Results are monitored via a points system. The points can be converted to a weight percent (see attached letter). Dubois, formerly Century Chemical, audits the line on a weekly basis. See attached letter.

**1.8 Stack/Vent Restrictions. IN COMPLIANCE.** Gases were discharged unobstructed vertically upwards to the ambient air. According to Mr. Smith, the building height is 28 ft and the scrubber stack on top of the building is 8 feet for a total stack height of 36 ft. The minimum required height is 26 feet. It is a rectangular stack. Maximum diameter is 5 ft. In the permit application, it states that the cross sectional area is 61x45 inches which is equivalent to 4.92ft diameter. Based on visual observation, it appears that the stack does not exceed this limit. Also, emissions are released unobstructed vertically upwards.

**APPENDIX A – NOT IN COMPLIANCE.** No pressure drop gage has been installed so non compliance for #1 and #7. Recirculation rate is not being maintained at a minimum of 400. #3 -#5 appear to be in place. It is unclear from the log provided whether #6, system calibrations, have been performed.

#### **Caustic Packed Bed Wet Scrubber**

##### **Operating Guidelines**

1. maintain the pressure drop across the scrubber per manufacturer specifications
2. maintain the recirculated caustic solution flow rate at a minimum of 400 gpm
3. recirculate the sodium hydroxide solution scrubbant liquid
4. clean spray nozzles periodically
5. dose in sodium hydroxide solution to maintain pH at the desired level
6. calibrate the system periodically
7. maintain a pressure differential indicator across the spray nozzles

#### **EXEMPT EQUIPMENT - IN COMPLIANCE**

**Wastewater Treatment Process – Facility is using Rule 285(2)(m) exemption.** The facility is not precluded from using this exemption because it is not treating VOCs, is not a sludge incinerator or dryer, not a heat treatment process, and not for odor control

Each steam generator is 200 hP which is about 500,000 BTU/hr. This meets the exemption in 282(2)(b)(i); fuel burning equipment...for indirect heating...which burns...(i) sweet natural gas..with a rate input capacity of not more than 50,000,000 BTU/hr.

**Annealing Furnaces – Two of the furnaces are rated at a maximum heat input capacity of 10,500,000 BTU/hr and one at 2,000,000 BTU/hr.** As such, the 2 MMBTU/hr furnace is exempt per 282(a)(i) as it fires sweet gas and has a maximum total heat input of less than 10 MMBTU/hr. The 10.5 MMBTU/hr furnaces are exempt per 282(b)(i), fuel burning equipment..used for indirect heating and which burns only the following fuels: (l) sweet natural gas...and the equipment has a rated heat input capacity of not more than 50 MMBTU/hr.

**Draw blocks are exempt per 285(2)(l)(i);** the exemption states in part that equipment used for drawing hot or cold metals is exempt.

**New scrubber exempt per 285(2)(f);** Installation or construction of air pollution control equipment for an existing process or process equipment if the control equipment itself does not actually generate a significant amount of criteria air contaminants as defined in R 336.1119(e) or a meaningful increase in the quantity of the emissions of toxic air contaminants or a meaningful change in the quality and nature of toxic air contaminants

**Cold water rinse and spray rinse water tanks appear to be exempt per Rule 285(2)(r)(iv);** equipment used for cleaning metal and emissions are released into the in-plant environment (paraphrased).

**Caustic tank exempt per Rule 284(i):** storage of...noncarcinogenic liquids in a vessel that has a capacity of not more than 40,000 gallons and true vapor pressure of not more than 1.5 psia at actual storage conditions. Google search indicates a VP of 2.4kPA or 0.348 psi.

**Sulfuric and nitric and phosphoric acid storage – All stored as water solutions less than the percentages listed in the exemption 284(1)(h).** See MSDS for C-PHOS HMN which contains the nitric and phosphoric acid concentrations. Sulfuric acid MSDS indicates that it has at least 1% H2O. MSDS's are in facility file.

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**NSPS/MACT**

**NSPS Subpart Dc – Two steam generators are not subject because they are less than 10 MMBTU/hr maximum heat input.**

**200hP is 508886 BTU/hr output. Assuming 30% efficiency results in a 1.7MMBTU/hr input. The affected source for the NSPS must be at least 10MMBTU/hr heat input.**

**MACT - Facility is a minor source of HAPs according to the permit application. Regardless, since the facility is pickling with sulfuric acid, instead of HCl, subpart CCC does not apply. Metal fab area source MACT with 9 source categories (6X). Kreher is not manufacturing any products so it is not subject. AQD does not have delegation of this area source MACT.**

**APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS**

**N/A. At this time, the facility does not have a fugitive dust control plan. I did not observe any fugitive dust issues.**


**MAERS REPORT REVIEW**

**Facility is minor and does not appear to be subject to MAERS.**

**FINAL COMPLIANCE DETERMINATION**

**At the time of the inspection, this facility does not appear to be in compliance with the recordkeeping requirements and the operational monitoring requirements for the scrubber. A violation notice was issued.**

**Additionally, if facility applies for a permit modification, condition 1.5 should be clarified.**

NAME 

DATE 6/26/18

SUPERVISOR 