

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection**

A780967587

<b>FACILITY:</b> U S STEEL GREAT LAKES WORKS		<b>SRN / ID:</b> A7809
<b>LOCATION:</b> 1 QUALITY DR, ECORSE		<b>DISTRICT:</b> Detroit
<b>CITY:</b> ECORSE		<b>COUNTY:</b> WAYNE
<b>CONTACT:</b> Nathan Ganhs , Environmental Engineer		<b>ACTIVITY DATE:</b> 03/23/2023
<b>STAFF:</b> Katherine Koster	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MEGASITE
<b>SUBJECT:</b> FY 23 Inspection		
<b>RESOLVED COMPLAINTS:</b>		

Reason for Inspection: FY2023 Targeted Inspection  
 Targeted Inspection: Continuous Galvanizing Line, Annealing Furnaces, Main Plant Boilerhouse, Fugitive Dust

Level of Inspection: PCE

Inspected by: Katie Koster, AQD

Personnel Present: Nathan Ganhs, Environmental Engineer

Facility phone number: 313-749-3857, 313-378-1612 (cell)

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**FACILITY BACKGROUND**

United States Steel, Great Lakes Works (USS – GLW) is an integrated steel mill in operation since August 1930. It is located just south of the City of Detroit. The site consists of approximately 1100 acres that span along the Detroit River through the cities of Ecorse and River Rouge. The facility includes the Main Plant Area, the 80-inch Hot Strip Mill, and the iron making and coke making operations on Zug Island.

This inspection report focuses on the continuous galvanizing line (CGL).

**COMPLAINT/COMPLIANCE HISTORY**

No complaints have been received related to the equipment inspected in this report.

**OUTSTANDING CONSENT ORDERS**

The CGL is operating under Consent Order 33-2015 as a stack test and inspection revealed that the facility was operating the annealing furnace without the use of the selective catalytic reduction system (SCR) which is a pollution control device for NOx. As such, they were not continuously meeting the NOx limit.

A burner was installed in the ductwork before the SCR system in order to ensure the temperature of the furnace exhaust gas entering the SCR system was sufficient to initiate the reaction to control NOx. The burner is not always needed; it is generally needed when processing heavy gauge steel.

Consent Order 50-2014 was the originally issued consent order which was revised to CO 33-2015 to adjust the compliance timeline and increased the monetary penalty. To date, facility has not requested to terminate the consent order.

**OUTSTANDING VN's**

There are no outstanding VN's related to the equipment that was inspected.

**INSPECTION NARRATIVE**

On March 23, 2023, AQD inspector Katie Koster arrived at USS for the CGL stack test and observed the process. I returned to the site on May 31, 2023, around 10:00 a.m. I met with Mr. Nathan Ganhs, USS Environmental Engineer, and we proceeded to the CGL and met with Mr. Al Blevens. He recently was promoted to Steelmaking manager. Mr. Blevens and staff presented some of the environmental records associated with the CGL. We walked part of the line and went into the Center Pulpit control room, and I recorded the following values and information:

- Urea flow: 5.19 (5.17 gph prior value)

- Inlet T to the SCR: 629F, (prior was 680F present value); 725F (set value)
- NO<sub>x</sub> corr : 1.395 lb/hr (1.13 lb/hr prior), NO: 0.394 lb/hr (0.4 prior), NO<sub>2</sub>: 1.789 lb/hr (9.39 prior)
- O<sub>2</sub>: 11.12% (11.21% prior)
- Level of tank: 6.58 ft (0.95 ft prior)
- Precleaner scrubber flow: 56 gpm (54 gpm and 49.2 gpm prior inspections)
- Precleaner scrubber pressure drop was 2.93 in H<sub>2</sub>O
- Current operating schedule is 10 days on and 4 days off; same as prior schedule
- Current production is 27-28K tons per month, 40K is the usual, could handle 50K. This is similar to the production during prior inspection. See attached.
- Rust prevention oils need to be at 150F for proper application
- Phos and chromate coating are needed in the construction industry; currently not used very much.

### Continuous Galvanizing Line

Zinc galvanizing is performed on steel that will be used on “exposed” parts which have a high likelihood of rusting. Annealing occurs first to soften and improve the formability of the steel strip prior to being coated with zinc. The galvanizing line is composed of a welder/tension leveler controlled by a dust collector, an electrolytic caustic precleaner controlled by a mist scrubber, a strip dryer, an annealing furnace controlled by selective catalytic reduction unit, cooling tower, zinc dip tank, dryers, and a line oiler and a new phosphorus chromate coating section. The new coating section is to provide an extra layer of corrosion resistance. It has been operational for a few years but is rarely used based on the usage records. Parts are no longer galvanized which required the use of the edge burners as of August 2022. Company is now manufacturing a new product known as high strength steel to compete with aluminum.

The general process is as follows. First, the off-gauge part of the steel coil is cut off at the entry end of the process and two coils are welded together. After the welder and tension leveler, the strip enters the electrolytic cleaning process. The cleaning tank contains an NaOH solution, and four brushes scrub the steel strip. Hot water is used which is heated with residual heat from the annealing furnace. The process is controlled by a water scrubber which runs continuously. Once per shift, the water flow rate is recorded and twice a year the inside of the scrubber is cleaned. There is also a low flow alarm.

Next, the strip enters the annealing furnace where the temperature can be as high as 2000F. NO<sub>x</sub> emissions from the furnace are controlled by the SCR system whereby urea is injected in the exhaust gas from the furnace to convert the NO<sub>x</sub> to N<sub>2</sub>, H<sub>2</sub>O, and CO<sub>2</sub>. There is also a catalyst bed present to foster the necessary reaction. The urea injection rate is dependent upon the measured NO<sub>x</sub> value before the gas stream enters the control device and is constantly changing. The exhaust gas has to be at a minimum temperature before urea is injected. Facility has the target set point at 600F. If the exhaust gas/inlet gas to the SCR is not at the required minimum temperature for a reaction to occur, a burner is present that automatically turns out to heat the air. An inlet temperature below 590° F or above 765° F would trigger an alarm. The line does need to be operating as well for an alarm to trigger.

After exiting the furnace, the strip enters a cooling tower because if it is too hot, it will collect too much zinc and the excess zinc will stick to rollers in the line. The strip exits the furnace around 1480F and enters the 300-ton molten zinc bath at around 920F. There is a zinc premelt pot which is necessary to control the aluminum content in the pot. Next, the strip enters skin pass mill (temper mill) where it is sprayed with a 1% rolling solution to prevent rolling defects, then the electrostatic oiler for rust prevention, and the vertical looper. Four different oils were previously in use but at this time only Ferrocote 61MAL and 61A are being applied. Quaker Chemical reports the usage to USS based on how much they have ordered and how much Quaker comes to haul away in waste. The permit was modified to apply a phosphorus and chromate coating in 2015 (98-15, 219-06B) which is in use about once a month. Nitrogen and hydrogen are used for cooling plus water. The presence of oxygen will cause scaling. Finally, the strip is recoiled and packaged. According to Mr. Blevens, USS GLW can make and process jumbo rolls through the CGL which is the only operation that can domestically.

### Annealing Furnaces

There are also separate stand alone annealing furnaces still in use. At this time, usage is partially due to the company's efforts to manufacture high strength steel. Some furnaces are in the B annealing building and others are in the J (H<sub>2</sub>) building. There are some bases of annealing furnaces in the F building but they are not in use and there are no furnace covers.

### Fugitive Dust

Asphalt emulsion was applied the prior Monday and was apparent with the wet look on the surface of the unpaved roads.

### Main Plant Boilerhouse

Boiler 8 and 9 are back in operation after an explosion in a pipe in the boilerhouse. There are three stacks visible from the boilerhouse. #9 is the left stack (when facing south) and #8 is the middle stack. The right stack is not in use. We viewed where the coke oven gas line has been blanked off.

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

Permit to Install (PTI) 219-06B addresses excess NOx emissions from the CGL with the installation of a duct burner to heat the gas entering the SCR to ensure it is at the proper temperature for a reaction. PTI 98-15 was issued to modify the cleaning section of the CGL and add a new phosphate and chromic acid coating operation. The following conditions are from PTI 98-15. This permit has not yet been incorporated into existing ROP. There are no other conditions in the existing ROP that would conflict with this PTI or that are not covered in the PTI.

### **The following conditions apply to EUCON-GALV-LINE-S1**

Continuous galvanizing operations including: 1. Continuous galvanizing line 2. Continuous galvanizing line annealing furnace 3. Continuous galvanizing line selective catalytic reduction unit with exhaust gas NOx and Oxygen analyzers 4. Burner to heat exhaust if needed before entering the selective catalytic reduction unit 5. Continuous galvanizing line oiler 6. Continuous galvanizing line pre-cleaner mist scrubber 7. Phosphorus and Chromate coating section

**POLLUTION CONTROL EQUIPMENT:** Pre-cleaner mist scrubber and Selective Catalytic Reduction Unit.

#### **I. EMISSION LIMITS**

1. Total combined nitrogen oxide emissions as nitrogen dioxide (NOx) is limited to 7.24 pounds per hour from the EUCON-GALV-LINE-S1 Annealing Furnace, including the burner and the edge burners of the hot dip galvanizing line in the G-Building

**IN COMPLIANCE. Based on the most recent March 2023 test result, NOx emissions were 0.24 lb/hr (prior results were 0.3 lb/hr in April 2018 and 0.2 lb/hr in 2013).**

2. Total combined nitrogen oxide emissions as nitrogen dioxide (NOx) is limited to 27.51 tons per year based on a 12-month rolling time period as determined at the end of each calendar month for the EUCON-GALV-LINE-S1 Annealing Furnace and the edge burners of the hot dip galvanizing line in the G-Building.

**IN COMPLIANCE. Based on the attached records, the highest 12 month rolling NOx emissions from January 2022 to May 2023, was 0.44 tons in January 2022. See attached.**

3. Total combined nitrogen oxide emissions as nitrogen dioxide (NOx) are limited to 6.6 pounds per hour as determined by the average of three one-hour time periods by testing or otherwise determined by the testing protocol agreed upon by AQD. This applies to EUCON-GALV-LINE-S1 Annealing Furnace controlled by a Selective Catalytic Reduction (SCR) unit.

**IN COMPLIANCE. Based on the most recent March 2023 test result, NOx emissions were 0.24 lb/hr (prior results were 0.3 lb/hr in April 2018 and 0.2 lb/hr in 2013).**

4. Total combined nitrogen oxide emissions as nitrogen dioxide (NOx) 25 tons per year based on a 12-month rolling time period as determine at the end of each calendar month from EUCON-GALV-LINE-S1 Annealing Furnace controlled by a Selective Catalytic Reduction (SCR) unit.

**IN COMPLIANCE. Based on the attached records, the highest 12 month rolling NOx emissions from January 2022 to May 2023, was 0.44 tons in January 2020. See attached.**

5. Particulate Matter is limited to 0.26 pounds per hour as determined through reference test method 5 from the EUCON-GALV-LINE-S1 Electrolytic cleaning process equipment controlled by a cross flow packed bed scrubber system.

**IN COMPLIANCE. Based on the most recent March 2023 test result, PM emissions were 0.15 lb/hr (April 2018 result was 0.03 lb PM/hr, and March 2013 result was 0.04 lb/hr.)**

6. VOC is limited to 28.91 tons per year based on a 12-month rolling time period as determined at the end of each calendar month from the EUCON-GALV-LINE-S1 Rust preventive oil application electrostatic spray unit operation.

**IN COMPLIANCE. Based on the attached records, highest 12 month rolling VOC emissions from January 2022 through May 2023 were 8.59 tons in January 2022.**

7. VOC content is limited to 0.44 pound per gallon of oil per Method 24 or other AQD approved method for the EUCON-GALV-LINE-S1 rust preventive oil application electrostatic spray unit operation.

**IN COMPLIANCE. Based on the SDS's, the highest VOC content of the oils used is 0.44 lb/gal for Ferrocoate 61MAL HCL.**

8. Ammonia is limited to 1.44 pounds per hour as determined by the average of three one-hour time periods by testing or otherwise determined by the testing protocol agreed upon by AQD from EUCON-GALV-LINE-S1 Annealing furnace controlled by SCR unit.

**IN COMPLIANCE. Based on the most recent March 2023 test results, ammonia emissions were 0.71 lb/hr (April 2018 result was 0.84 lbs/hr, and May 2013 was 0.6 lb/hr of ammonia).**

9. Phosphoric Acid is limited to 4.4 pounds per hour on a 24-hour average from the EUCON-GALV-LINE-S1 Phosphorus and Chromate Coating operation.

**IN COMPLIANCE. From January 2022 to May 2023, the highest usage was 30 pounds per day which equates to approximately 1.23 pounds per hour on March 10, 2022.**

## **II. MATERIAL LIMITS**

1. 850,000 tons galvanized steel processed per year based on a 12-month rolling time period as determined at the end of each calendar month from EUCON-GALV-LINE-S1.

**IN COMPLIANCE. From January 2022 to May 2023, the highest 12 month rolling tons of galvanized steel produced was 321,926 in February 2022 (prior highest was 401,897 tons in February 2020). See attached.**

2. 838.6 million cubic feet per year of natural gas based on a 12-month rolling time period as determined at the end of each calendar month from EUCON-GALV-LINE-S1 Annealing Furnace, including the duct burner, and edge burners.

**IN COMPLIANCE. From January 2022 to May 2023, the highest 12 month rolling natural gas usage was 255.845 MMCF in February 2022 (prior was 342.279 MMCF in January 2020). See attached.**

3. Phosphoric Acid is limited to 105.6 pounds per day on a 24-hour average from the EUCON-GALV-LINE-S1 Phosphorus and Chromate Coating operation.

**IN COMPLIANCE. Highest usage was approximately 65 pounds per day on a 24-hour average on March 10 2022. At this point, it appears that the phos acid material is only used one day at a time, as opposed to multiple days in a row. Therefore, block vs rolling average is not a potential concern. Daily (12 am to 11:59 pm) usage is acceptable.**

## **III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate the continuous galvanizing line, EUCON-GALV-LINE-S1, unless an Operation and Maintenance Plan (OMP) as described in Rule 911(2) has been submitted to the AQD District Supervisor. The permittee shall submit an updated OMP including the burner no later June 29, 2016, or 210 days after the issuance of Permit to Install 219-06B, whichever is later. The OMP shall include monthly inspections of all systems associated with the urea feed system, describe preventative maintenance consistent with the manufacturer's recommendations, and include a requirement for periodic determination of the functional viability of the catalyst. The OMP shall also include a requirement to repair any defect that could reasonably be expected to result in non-compliance identified during any inspection within a reasonable time period.

**IN COMPLIANCE. The OMP and MAP were received on June 30, 2016. The main update was the addition of the duct burner and the catalyst is checked annually and either cleaned or replaced. The latest version of the plans are in the facility file. US Steel uses a third-party each year to verify that the catalyst is still in good condition. According to Mr. Blevens, catalyst was inspected by 3<sup>rd</sup> party in July 2022. Copy of the results is attached. From USS: "Only one layer was replaced. The first layer was removed and the second layer moved to that location. The new catalyst is then added to the back of the SCR. Both sections are tested annually by the consultant and I believe that is how they recommend replacing the catalyst unless one section is overtly in poor condition."**

2. The permittee shall not operate the continuous galvanizing line, EUCON-GALV-LINE-S1, unless a Malfunction Abatement Plan (MAP) as described in Rule 911(2) has been submitted to the AQD District Supervisor. The permittee shall submit an updated MAP including the burner no later than June 29, 2016, or 210 days after the issuance of Permit to Install 219-06B, whichever is later. The MAP shall include the annealing furnace controlled by the SCR unit, the burner, and the electrolytic cleaning equipment controlled by a packed bed scrubber. It shall address alarm conditions that indicate abnormal functioning of the system including the operating parameter values and associated averaging time that would trigger the alarm.

**IN COMPLIANCE. The OMP and MAP were received on June 30, 2016. The main update was the addition of the duct burner. According to the facility, the alarms are instantaneous.**

3. The permittee shall submit the OMP and MAP and any amendments to the OMP or MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the OMP, MAP, amended OMP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the OMP/MAP within 45 days, if new equipment is installed. The permittee shall review the OMP/MAP upon request from the District Supervisor.

**IN COMPLIANCE. Documents were submitted. AQD did not issue a formal approval so the plans were approved by default after 90 days.**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The SCR unit shall be equipped with an automatic urea feed injection system controlled by an automatic control system based on feedback and feed forward controls. This automatic control system shall be equipped with an alarm that will indicate any abnormal functioning of the system as described in the MAP.

**IN COMPLIANCE. Automatic control system is in place. Urea flow rate alarm would be main indicator of abnormal functioning. Alarms flash on the HMI screen in the operator's pulpit and they are recorded in the shift report.**

2. The permittee shall not operate the electrolytic cleaning process equipment unless the cross flow packed bed scrubber is installed and operating properly. A minimum water flow rate of gallons per minute or other rate established during compliance testing shall be maintained. The permittee shall install a flow gauge to measure the water flow rate.

Note, there is a typo in this condition, "a minimum flow rate of gallons per minute" but 30 gpm is referenced in condition VI.9.

**IN COMPLIANCE. Water flow gauge is installed and routinely calibrated. During the inspection, I recorded a flow rate of 54 (flows in prior two inspections were 49.2 gpm and 57.5 gpm). According to the OMP/MAP, flow rate below 35 gpm triggers an alarm. The scrubber is inspected quarterly, and example inspections are attached.**

3. NOx and Oxygen concentrations in the exhaust gases from the annealing furnace controlled by the SCR unit shall be monitored using NOx and Oxygen analyzers and the automatic calibration equipment shall be programmed pursuant to the manufacturer's specifications on a time frame acceptable to the AQD District Supervisor.

**IN COMPLIANCE. NOx and O2 analyzers are installed and calibrated. Automatic calibrations occur at monthly intervals. Outside contractor calibrates the analyzers at quarterly intervals. Records were presented and reviewed during the on site inspection.**

4. Effective April 30, 2016 or 150 days after the issuance of Permit to Install 219-06B, whichever is later, the permittee shall not operate the galvanizing line unless the SCR unit and associated burner are installed and operating properly. Proper operation includes, but is not limited to, maintaining a minimum catalyst bed inlet temperature of 475 degrees Fahrenheit during production mode of operation. The unit shall be considered in production mode if the main burners are firing and the product is moving through the continuous annealing furnace.

**IN COMPLIANCE. A letter was received that burner was installed on May 6, 2016. Catalyst bed temperature was above the minimum of 600F, which is the facility's set point, during the inspection. On the "Center Section Checklist", the exhaust temperature entry is recorded once per shift and also alarms on the operator control screen if it is too low. Burner turns on/off automatically based on the temperature set point.**

5. Effective 150 days after the issuance of Permit to Install 219-06B, the permittee shall not operate the galvanizing line unless the SCR alarms monitoring the catalyst bed inlet temperature and urea injection rate are installed, maintained, and operating properly as specified in the OMP and MAP. The unit shall be considered in production mode if the main burners are firing and the product is moving through the continuous annealing furnace.

**IN COMPLIANCE. There are reportedly alarms that flash on the HMI control screen for inlet temp and urea injection rate. Operators cannot use the control screen without acknowledging the alarm. An automated email also goes out to managers.**

#### **V. TESTING/SAMPLING**

1. The permittee shall conduct a nitrogen oxides and ammonia emission test from the annealing furnace/SCR unit during operation once every five years or more frequently upon the request of AQD. Nitrogen oxides emission testing shall be performed using Reference Method 7E or other approved method and ammonia emission testing shall be performed using an approved method. No less than 30 days prior to testing, a complete stack test protocol must be submitted to AQD for approval. The final plan must be approved by the AQD prior to testing.

**IN COMPLIANCE. The most recent test was performed in March 2023. Prior were in October 2018 and October 2013.**

2. The permittee shall conduct a particulate matter emission test from the cross flow packed scrubber stack during operation once every five years or more frequently upon the request of AQD. Particulate emission testing shall be performed using Reference Method 17 or other approved method. No less than 30 days prior to testing, a complete stack test protocol must be submitted to AQD for approval. The final plan must be approved by the AQD prior to testing.

**IN COMPLIANCE. Same as above.**

**VI. MONITORING/RECORDKEEPING**

1. The permittee shall monitor NO<sub>x</sub> and Oxygen concentrations in the exhaust gases from the annealing furnace controlled by the SCR unit using the NO<sub>x</sub> and Oxygen analyzers. The permittee shall continuously monitor outlet NO<sub>x</sub> concentration and record the concentration once per shift as an indicator of proper operation of the Selective Catalytic Reduction (SCR) during production mode of operation. The unit shall be considered in production mode if the main burners are firing and the product is moving through the continuous annealing furnace.

**IN COMPLIANCE. I viewed the continuous monitoring of the NO<sub>x</sub> and O<sub>2</sub> concentrations from the analyzers. NO<sub>x</sub> corrected, which is the NO<sub>x</sub> value after SCR treatment, is recorded once per shift on the Center Section Checklist (attached).**

2. The permittee shall continuously monitor the urea injection rate and record at least once per shift as an indicator of proper operation of the SCR during production mode of operation. In the event the urea injection rate alarm is triggered, corrective action must be initiated to determine the cause of the alarm within 1 hour of the alarm. The unit shall be considered in production mode if the main burners are firing and the product is moving through the continuous annealing furnace.

**IN COMPLIANCE. Urea flow is continuously monitored as shown on the operators HMI screen and recorded once per shift on the Center Section Checklist (attached). If there is an alarm triggered during the operator's shift, it flashes on the HMI screen and is noted in the Checklist or Turn Manager Shift Report (attached) in the comment or operational issues section. An email is automatically generated and sent to management. According to Mr. Ganhs, no alarms have been generated. See attached.**

3. The permittee shall continuously monitor catalyst bed inlet temperature and record the inlet temperature at least once per shift as an indicator of proper operation of the SCR. In the event the catalyst bed inlet temperature alarm is triggered, corrective action must be initiated to determine the cause of the alarm within 1 hour of the alarm.

**IN COMPLIANCE. Inlet temperature is recorded at least once per shift on the "Center Section Checklist" (example attached). Alarms are visible on the operator control screen if it is too low. Mr. Blevens stated that USS will change the nomenclature from exhaust temp to SCR entry temp or something similar for more clear indication of the temperature that is being portrayed. If there is an alarm triggered during the operator's shift, it flashes on the HMI screen and is noted in the Checklist or Turn Manager Shift Report (attached) in the comment or operational issues section. An email is automatically generated and sent to management. According to Mr. Ganhs, no alarms have been generated. See attached.**

4. An excursion is a departure from the indicator range defined in the MAP and/or OMP. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of EUCON-GALV-LINE-S1 (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions).

**NOT APPLICABLE. Facility claims that no excursions have been experienced as there have been no alarm conditions.**

5. The permittee shall conduct a cylinder gas audit on the NO<sub>x</sub> and Oxygen analyzers once each calendar quarter to assess the accuracy of the data collected by the monitors using a method acceptable to the AQD District Supervisor.

**IN COMPLIANCE. Cylinder gas audits are performed quarterly. Records were presented and reviewed during the inspection.**

6. The permittee shall record each occurrence of abnormal functions by the automatic control system of the automatic urea feed injection system of the SCR as defined in the MAP and make the records available to AQD upon request.

**IN COMPLIANCE. According to Mr. Ganhs and Mr. Blevens, facility is reporting that there have been no abnormal functions of the injection system or the SCR. According to the facility, a system is in place to review the alarms recorded on the shift report by a manager who signs off on the report and no alarms have been triggered.**

7. The permittee shall keep records of the total amount of galvanized steel processed per month and rolling 12-month time period as determined at the end of each calendar month. These records shall be made available to AQD upon request.

**IN COMPLIANCE. Monthly and 12 month rolling values for 2022 and year to date 2023 are attached.**

8. The permittee shall keep records of the total amount of urea usage per day and make the records available to AQD upon request

**IN COMPLIANCE. Urea usage is tracked daily. See attached daily urea records.**



9. The permittee shall keep records of the water flow rate reading in the cross flow packed bed scrubber daily and make the records available to AQD upon request. Permittee shall take appropriate corrective action if flow rate is below minimum of 30 gallons per minute or other flow established during stack testing and shall keep records of corrective action taken.

**IN COMPLIANCE. At this time, a flow rate below 35 gpm triggers an alarm. No low flow alarms below 30 gpm have been triggered. See attached email. Flow rate is recorded daily on the shift report. See attached record.**

10. The permittee shall keep records of the calibration and maintenance activities conducted on the automatic calibration equipment for the NOx and Oxygen Analyzers and make the records available to AQD upon request.

**IN COMPLIANCE. Calibration and maintenance activities are regularly scheduled, and records were presented during the AQD inspection.**

11. The applicant shall keep a record of the following concerning the use of the rust preventive oil application electrostatic spray unit of the hot dip galvanizing line:

a. The amount applied in gallons on a monthly and 12 month rolling basis as determined at the end of each calendar month.

b. The VOC content of each oil applied

d. VOC emission calculations determining the total mass emissions on a monthly and 12 month rolling basis as determined at the end of each calendar month.

(There is a typo in the permit and bullet point c is skipped)

**IN COMPLIANCE. See attached records for 2022 and YTD 2023.**

12. The permittee shall monitor and record the total and separate monthly natural gas usage for both the edge burners and the annealing furnace including the burner in a manner and with instrumentation acceptable to the AQD District Supervisor. Acceptable instrumentation and manner of recording are natural gas meters and total natural gas usage summary every end of the month recorded by the permittee. The permittee shall keep records of the total natural gas usage for the annealing furnace and edge burners based on the 12-month rolling time period as determined at the end of each calendar month and make the records available to AQD upon request.

**IN COMPLIANCE. Monthly total and separate natural gas usage records for 2022 and YTD 2023 are attached. Edge burners are no longer in use.**

13. The permittee shall keep records of monthly and 12 month rolling NOx emissions calculations at the end of each calendar month for the annealing furnace and edge burners and make the records available to AQD upon request.

**IN COMPLIANCE. Monthly NOx emissions records are being maintained. See attached for 2022 and YTD 2023.**

14. The permittee shall maintain records as necessary to demonstrate compliance with the Operation and Maintenance Plan (OMP) including, but not limited to, records of inspections, maintenance and repair for the SCR system.

**IN COMPLIANCE. Records of inspections and maintenance of the SCR, including catalyst bed, were presented during the inspection. See attached.**

15. The permittee shall properly maintain the monitoring system including maintaining necessary parts for routine repair of the monitoring equipment.

**IN COMPLIANCE. See attached list of parts.**

16. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

**DID NOT EVALUATE.**

17. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions.

**DID NOT EVALUATE.**

18. The permittee shall obtain the material safety data sheets (MSDS) for all coatings and cleaners used in EUCON-GALV-LINE-S1. The permittee shall maintain a copy of all versions of MSDS for each material

utilized on-site with corresponding dates of material content changes on file and make them available to AQD upon request.

**IN COMPLIANCE. SDS sheets have been presented in the past. Coatings have not changed.**

19. Records are attached. The permittee shall keep the following information on a daily basis for EUCON-GALV-LINE-S1

- a. Gallons of each liquid material used containing phosphoric acid.
- b. Phosphoric Acid content of each material on a pound per gallon basis
- d. Calculation of the total pounds of phosphoric acid used per day
- e. Phosphoric Acid emission calculations determining the average hourly emission rate in pounds per hour based on daily use

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.

**IN COMPLIANCE. See attached records.**

20. The permittee shall maintain records of the date and time each time the urea injection or catalyst bed temperature alarm was triggered, date and time the corrective action was initiated, the corrective action taken, and the time and date when corrective actions were completed in response to an alarm. Records shall also contain the operating parameter and value that triggered the alarm and the value at the time the corrective action is completed.

**IN COMPLIANCE. Facility claims that no alarms have been triggered. See attached email.**

## **VII. REPORTING**

1. Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances.

**DID NOT EVALUATE. No semi annual reports have been received.**

## **VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted.

**DID NOT EVALUATE. Did not evaluate stack heights at this time. Gas is discharged unobstructed vertically upward.**

## **IX. OTHER REQUIREMENTS**

1. The permittee shall comply with all applicable requirements of 40 CFR Part 64.

**DID NOT EVALUATE. Did not evaluate additional conditions beyond those in this report.**

2. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

**NOT APPLICABLE. No failures have been identified.**

From Consent Order 33-2015, the following is the compliance program and implementation schedule:

9. A. Permit 1. No later than April 30, 2016 or 150 days after the issuance of Permit to Install 219-06B, whichever is later, the NOx emissions from EG-CON-GALV-LINE shall not exceed the emission rates specified in the Company's ROP that is in effect.

B. Compliance Schedule 1. No later than April 30, 2016 or 150 days after the issuance of Permit to Install 219-06B, whichever is later, the Company shall have completed the installation of the appropriate equipment and notified the AQD Detroit District Supervisor in writing that the installation of the appropriate equipment has been completed and operation of the equipment has commenced in accordance with the provisions of Permit to Install 219-06B, as amended.

**IN COMPLIANCE. Permit issuance date was December 3, 2015. According to the letter received on June 6, 2016, as of May 6, 2016, the equipment required by AQD CO 33-2015 and PTI 219-06B has been installed. This met the 150-day window. The required equipment was a pre-burner for the SCR system to heat the incoming exhaust air from the annealing furnace to at least the minimum temperature needed for the SCR system. The SCR system has been tested and shown to achieve compliance with**



the NOX emission rates so the CGL should be achieving said emission rates with proper maintenance. Maintenance records and temperature records were presented during the inspection.

.....  
**MAIN PLANT BOILERHOUSE NO. 1- Boiler #8 and #9 permit conditions are below:**

**IN COMPLIANCE. See attached records.**

The permittee shall keep records of all types and total amount of fuels consumed for each boiler on a monthly basis.

The permittee shall perform a Method 9 certified visible emission observation for a minimum of one hour of the stack of each operating boiler at least twice a year during operation. The permittee shall initiate corrective action upon observation of visible emissions exceeding the applicable visible emission limits of this permit and shall keep a written record of each required observation and corrective action taken.

The type of fuels burned in No. 8 Boiler and No. 9 Boiler at the No. 1 Boiler House at the Main Plant shall be restricted to either Coke Oven Gas (COG), or Natural Gas (NG).

**EXEMPT EQUIPMENT**

Annealing furnaces were determined to be exempt during the original ROP issues per Rule 282(a)(i),

**APPLICABLE FUGITIVE DUST PLAN CONDITIONS**

No fugitive dust issues with this process.

**MAERS REPORT REVIEW**

2022 MAERS report appears to be correct for the emission units evaluated. For the CGL, there are two columns one for injection and one for non injection. I asked Mr. Ganhs about this as injection should occur at all times while the furnace is processing steel. Below is part of the answer I received:

"The determination on the difference for injection vs non injection is based on PI data. The urea injection rate is tracked, so as long as it is greater than 0, it goes under the injection total and if it is 0 then it does not. The periods of Non-Injection I believe would be times where the Furnace is burning NG, but we are not running. So, startups and likely delay periods when the furnace needs to be kept warm for example."

**FINAL COMPLIANCE DETERMINATION**

At this time, the facility appears to be in compliance with the conditions evaluated in this report for the CGL.

NAME *Karr*

DATE 10/16/23

SUPERVISOR *April L. Wendling*  
10/10/23