

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

A864046945

FACILITY: AK STEEL - DEARBORN WORKS		SRN / ID: A8640
LOCATION: 4001 MILLER ROAD, DEARBORN		DISTRICT: Detroit
CITY: DEARBORN		COUNTY: WAYNE
CONTACT: James E. Earl, Environmental Manager		ACTIVITY DATE: 11/14/2018
STAFF: Katherine Koster	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: FY2019 Targeted Inspection - LRF#1 and #2		
RESOLVED COMPLAINTS:		

Reason for Inspection: Targeted Inspection**Level of Inspection: PCE****Inspected by: Katie Koster, AQD****Personnel Present: Dave Pate, Environmental Engineer****Facility phone number: 313-845-3217**

FACILITY BACKGROUND

AK Steel – Dearborn Works (formerly Severstal Dearborn, LLC) is an integrated iron and steel mill which primarily produces flat rolled coils. The facility is operating at 4001 Miller Road, Dearborn. The previous address, 3001 Miller Road, has been assigned to the Ford Motor Company Rouge Plant which is adjacent to the mill. The company was previously operating under the name Severstal Dearborn, LLC until it became AK Steel Dearborn Works in October 2014. Before being purchased by Severstal in 2004, the company was operating as Rouge Steel.

COMPLAINT/COMPLIANCE HISTORY

No complaints have been received related to the emission units evaluated in this report.

OUTSTANDING CONSENT ORDERS

There are no outstanding consent orders related to the emission units inspected in this report.

OUTSTANDING LOVs

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

PROCESS DESCRIPTION

The description below includes only the processes discussed and/or observed during the inspection. This does not include the entire facility.

The ladle refining facility (LRF) is used for heating, argon stirring, and alloying although not all heats need alloying. LRF #1 is at the north end of the building along with the degas station and LRF #2 is at the south end. Each LRF station is controlled by a baghouse. All heats from the Basic Oxygen Furnace (BOF) Shop pass through the LRF to be "trimmed" before going to the continuous caster. At the BOF, operators try to meet the steel specifications as close as possible, so that when the heats arrive at the LRF there are only minor adjustments that need to be made ("trimming"). About 30-40% of all heats from the BOF are degassed. Degassing produces ultra low carbon steel which is required by the automotive industry. Degassing takes about 20 minutes. Carbon monoxide is generated from the degasser and is controlled by a flare. There is an alarm if the pilot light on the flare goes out and there is also a back up pilot.

During processing, the steps are intermittent (heating and stirring occur off and on throughout the cycle). Alloys/materials added include: aluminum wire, aluminum cones, titanium wire, calcium carbide, low carbon Mn, med carbon Mn, lime, and cooling scrap. Alloys are off loaded into bins and bins empty

through a shoot into the ladle. There is a scavenger duct in this area that connects to the baghouse to control dust from alloy handling according to Dave Pate.

LRF#1 generally services Continuous Caster #1 which has two lines (Strand 1 and Strand 2). A heat at this station generally takes 30-40 minutes. If a heat has to be degassed (necessary to make ultra low carbon steel), then the alloys will be added at the degas station (and not the LRF). LRF#2 generally services Caster #2 (Strand #3) and a heat takes about 60-90 minutes. At each station, a hood is lowered above the ladle (although there is still a gap between the ladle and hood). Electrodes are lowered through the hood and provide heat (again there is a gap between the electrode and the opening). Argon gas is bubbled in to the steel through a lance.

LRF#2 is on the south side and is the less frequently used station. It is generally used for high carbon steel and more specialty products. It takes twice as long to run a heat at this station as it only feeds one caster with one strand (Strand #3). Alloys are added from the storage container into the ladle by hand at this station.

INSPECTION NARRATIVE

I conducted an inspection on November 14, 2018. I met with Mr. Dave Pate and Mr. Jim Earl, AK Steel Environmental Staff. Mr. Pate accompanied me to the LRF building. We started the inspection at LRF#1. LRF#2 was down because a transformer had blown over a week ago. At 11:20 a.m., a heat was being processed at LRF#1. Heats 30459, 30460, and 30461 had been processed recently at LRF#1. Heat logs are attached and appear to be consistent with heats observed in the past. The overall pressure drop for the baghouse was 4.75 in. w.c. and the individual compartment pressure drops were #2:spark box, #4:3.33, #6:3.21; #1:3.15; #3:3.24; #5, 3.16. I also recorded an inlet T of 96F, inlet damper of 28%, baghouse draft was 17 in. w.c., and opacity (via the bag leak detector reading) was 0.0. The fans are always on. I did not observe any emissions from the process. Values recorded during the prior inspection were: overall pressure drop of 6.27 in H2O and the individual compartments were (2) spark box; (4) 0.37 in H2O; (6) 4.95; (1) 4.42; (3) 3.76; (5) 4.01. The pressure drops were within the "normal ranges" of 1-8 in. H2O per compartment and 2-9 overall. 0% was the BLD reading. Baghouse draft was 17 in. w.c. Fan damper was open 26% which is tied to inlet pressure.

The operator screen showed that the pilot light for the flare was on. There is also a backup pilot. The pilot combusts CO generated from the degassing process.

All baghouse compartments were rebagged in 2018. We walked outside to observe the baghouse. The exterior shell of the baghouse and dust collection bins appeared to be in good condition. Mr. Pate explained that 4 of the 6 dust collection bins had been replaced. This is because the old bins have an access panel in the front of the bin for emptying and when the bin was full, dust would escape when the panel was opened. The new bins have the access panel on the top of the box so no dust escapes when opened. All of the bins will eventually be replaced. I did not notice any visible emissions from the baghouse stack or the roof monitor of the LRF building.

Note, the degasser uses a lot of natural gas for preheating as there is also a back up unit on standby as well as the tundish vessel at the start of the continuous caster process.

Even though LRF#2 was not in operation, we proceeded to the LRF #2 baghouse. The shell and dust collection bins also appeared to be in good condition. Some labelling had been added to each bin recently due to a DEQ waste inspection.

Mr. Pate and I noticed some whitish dust being emitted from the northeast side of the LRF, closest to the LRF#1 processing equipment. It appeared to be lime. The building walls already had some whitish buildup. Mr. Pate stated that he would follow up and let me know what it was.

We returned to the environmental offices and I reviewed compliance records with Mr. Pate. Attached is an email summarizing copies of the records I requested.

RULES/PERMIT CONDITIONS EVALUATED

(Conditions are from ROP MI-ROP-A8640-2016a)

The following conditions apply to : EULADLEREFINE1

DESCRIPTION: No. 1 Ladle refining facility controlled by a baghouse
Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Baghouse

I. EMISSION LIMITS

Pollutant	COMPLIANCE STATUS	Limit	Time Period / Operating Scenario	Equipment
1. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	5% Opacity	6-minute average	EULADLEREFINE1 Baghouse stack
2. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions from the roof monitors while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	No visible emissions	Instantaneous	EULADLEREFINE1 Roof monitors
3. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions from the roof monitors while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	20% Opacity	3-minute average	EULADLEREFINE1 Roof Monitors
4. PM	IN COMPLIANCE. Stack test results were 0.0005 gr/dscf**	0.005 gr/dscf	Test Protocol*	EULADLEREFINE1 Baghouse stack
5. PM	IN COMPLIANCE. Stack test results were 0.0005 gr/dscf**	0.01 gr/dscf	Test Protocol*	EULADLEREFINE1 Baghouse stack
6. PM	IN COMPLIANCE. Stack test results were 0.38 lb/hr**	6.33 pph	Test Protocol*	EULADLEREFINE1 Baghouse stack
7. PM10	IN COMPLIANCE. Stack test results were 0.84 lb/hr**	6.65 pph	Test Protocol*	EULADLEREFINE1 Baghouse stack
8. PM2.5	IN COMPLIANCE. Stack test results were 0.84 lb/hr**	6.65 pph	Test Protocol*	EULADLEREFINE1 Baghouse stack
9. Pb	IN COMPLIANCE. Stack test results were 0.001 lb/hr**	0.022 pph	Test Protocol*	EULADLEREFINE1 Baghouse stack

*Test Protocol will specify averaging time.

** Note, stack test results from most recent stack test performed August 20 – August 24, 2018

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. **IN COMPLIANCE.** Based on the operation and maintenance records, the baghouse appears to be operated and maintained in the appropriate manner. The EULADLEREFINE1 and associated baghouse shall be operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR Part 63, Subpart FFFFF.
2. **IN COMPLIANCE.** Facility submitted an updated SSM plan on 9/13/18 with the semi annual deviation report. See attached. The permittee shall develop and implement a written startup, shutdown and malfunction plan for the EULADLEREFINE1 and the associated emission control system and operate in accordance with the plan during periods of startup, shutdown, and malfunction.

IV. DESIGN/EQUIPMENT PARAMETERS

1. **IN COMPLIANCE.** Based on the operation and maintenance records, the baghouse appears to be operated in the appropriate manner. The permittee shall not operate EULADLEREFINE1 unless the baghouse is installed and operating properly.

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. **IN COMPLIANCE.** This condition is related to the Iron and Steel MACT testing requirement for PM. The prior tests were conducted in August 2013 and Oct/Nov 2016. The most recent test was conducted in August 2018. Permittee shall conduct performance tests for particulate matter emissions at least once every five years.
2. **IN COMPLIANCE.** Based on a review of the 2018 stack test report, it appears that sampling was only performed when processing heats at the LRF#1 as required. The test report includes the stack testers sampling times and the LRF heat times which are aligned. Sampling during the performance tests will occur only when the operations being controlled are in operation.
3. **IN COMPLIANCE.** The most recent stack testing for all of the listed pollutants was performed on August 20-24, 2018. Dust samples were obtained and Pb levels were reported for the prior test in 2016 and sampling was not repeated for this test as subsequent sampling was not required. The test plan was received on June 15, 2018. The 45 day window was met. The test results were submitted on October 23, 2018 which is within 60 days of the end of the test event. Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE1 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE1 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.
4. **IN COMPLIANCE.** The CFD modeling test was performed in February 2017, and the analysis was completed by March 24, 2017. The results were received on May 22, 2017. This meets the deadlines outlined in the condition. No changes to the capture and collection system or process were made based on the test results. The permittee shall verify the capture efficiency for EULADLEREFINE1 using computational fluid dynamics (CFD) modeling or other approved method within three years of the issuance of this permit. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the

final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. **IN COMPLIANCE.** Records were received in a timely manner. The permittee shall complete all required calculations/records in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.
2. **IN COMPLIANCE.** AQD performed a review of the Method 9 VE observation records while on site. The required frequency and duration of the readings appears to be met. No corrective actions have been required. The permittee shall perform a Method 9 certified visible emission observation for the EULADLEREFINE1 baghouse stack at least once every month during EULADLEREFINE1 processing activity for a minimum of one complete heat or a maximum of one hour during a heat. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.
3. **IN COMPLIANCE.** AQD performed a review of the Method 9 VE observation records while on site. The required frequency and duration of the readings appears to be met. No corrective actions have been required. The permittee shall perform Method 9 certified visible emission observation for the EULADLEREFINE1 roof monitors at least once a week during EULADLEREFINE1 operations for a minimum of one complete heat or a maximum of one hour during a heat. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.
4. **IN COMPLIANCE.** Daily log of pressure drop readings, per compartment and overall, for 2018 is attached. Pressure drop is monitored continuously and recorded once per day for each compartment and for the overall pressure drop. The system is programmed to record a reading two minutes into the first heat every day. If the pressure drop is out of range, an investigation is performed and results are noted in the log. Most of the incidents are related to the compartment just finishing a cleaning cycle so the pressure drop is low. This is to be expected and is acceptable. Also, a daily report is generated and sent to environmental. See attached example. The permittee shall monitor the pressure drop across each baghouse compartment daily to ensure that the pressure drop is within the normal operating range identified in the operation and maintenance manual.
5. **IN COMPLIANCE.** See below. The permittee shall conduct inspections of the Ladle Refining Baghouse at the specified frequencies according to the requirements in paragraphs (a) through (h) below. The permittee shall maintain records needed to document conformance with these requirements.
 - a. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual. Pressure drop is monitored and evaluated for potential problems every day. Pressure drops outside of the normal range are investigated. See attached log.
 - b. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms. Contractor empties hoppers on a weekly basis. A receipt is generated and maintained by AK Steel. A sampling of receipts was presented during the prior on-site inspection, and the process is unchanged.
 - c. Check the compressed air supply for pulse-jet baghouses each day. See attached log. Compressed air supply pressure is monitored continuously and recorded once per day. Low compressed air pressure is noted and investigated. Based on the attached log, there were some incidents of low pressure but all were resolved on the day of occurrence.
 - d. Monitor cleaning cycles to ensure proper operation using an appropriate methodology. Cleaning cycles are trended. A daily report with the total cleaning cycles in generated and reviewed by environmental staff. See attached example.
 - e. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means. Monthly inspections for 2017 and 2018 of this baghouse are attached.
 - f. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices. N/A. This is a pulse jet baghouse.

- g. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks. Quarterly inspections for 2017 and 2018 are attached. When there is a hole in a bag, it is removed and the opening is capped. The bag is not necessarily changed at that time.
 - h. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means. Quarterly inspections for 2017 and 2018 are attached.
- 6. **IN COMPLIANCE.** The BLD system was manufactured by FilterSense and is the PM100 model which meets the requirements of the condition below. It appears to be operated and maintained in a satisfactory manner as the manufacturer (FilterSense) inspects the system periodically. Based on a 2016 inspection by FilterSense, the alarm is in use and working properly. Alarm set points are outlined in the attached 2016 inspection. Except as allowed in S.C. VI.8, the permittee shall install, operate, and maintain a bag leak detection system meeting the following specifications on the baghouse control:
 - a. Certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic foot (0.0044 grains per actual cubic foot).
 - b. Provides output of relative changes in particulate matter loadings.
 - c. Is equipped with an alarm, located such that it is heard by appropriate plant personnel that sounds an alarm when an increase in relative particulate loadings is detected over a preset level.
 - d. Initially adjusted by establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device and setting the alarm set points and alarm delay time.
- 7. **DID NOT EVALUATE.** At this time, according to the facility, the BLD system has not been adjusted. However, it is unclear what operation and maintenance plan this condition is referring to as the LRF baghouses are not required to have an O&M per 63.7800(b). Following the initial adjustment of the bag leak detection system, the permittee shall not adjust the sensitivity or range, averaging period, alarm set points or alarm delay time except as specified in the operation and maintenance plan. This requirement does not apply if the permittee installs COMS as specified in S.C. VI.8.
- 8. **NOT APPLICABLE.** A bag leak detection system is installed. If permittee does not install and operate a bag leak detection system, the permittee shall install, operate, and maintain a COMS according to the requirements in 40 CFR Sec. 63.7831(h) and monitor the hourly average opacity of emissions exiting each control device stack according to the requirements in 40 CFR 63.7832.
- 9. **IN COMPLIANCE.** Process appears to be monitored properly. The permittee shall monitor the process as required by 40 CFR 63, Subpart FFFFF, except during monitoring malfunctions, out-of-control periods, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments).
- 10. **IN COMPLIANCE.** Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used in data averages and calculations used to report emission or operating levels or to fulfill minimum data availability requirements.
- 11. **IN COMPLIANCE.** Records are maintained and are attached. One alarm was experienced in 2017 and two in 2018. Facility appears to have taken appropriate and timely corrective action, when needed. Corrective action involved inspecting the compartment with the high readings and replacing or reseating bad bags. The permittee shall maintain records of the time corrective action was initiated, the corrective action taken, and the date when corrective actions were completed in response to a bag leak detection system alarm.
- 12. **IN COMPLIANCE.** Company maintains sensitivity has not been changed. If the sensitivity of the bag leak detection system is changed beyond the limits established pursuant to 40 CFR 63.7831(f)(6), a copy of a written certification by a responsible official shall be included in the semiannual compliance report for that period. This requirement does not apply if the permittee installs COMS as specified in S.C. VI.8.
- 13. **DID NOT EVALUATE.** Did not verify the contents of the facility internal files. Company certifies compliance with this condition on a semi annual basis. AQD has this information in its files. The permittee shall maintain a copy of each notification and report submitted under 40 CFR Part 63, Subpart FFFFF, including all documentation supporting the initial notification or notification of compliance status submitted according to 40 CFR 63.10(b)(2)(xiv)).
- 14. **DID NOT EVALUATE.** Did not verify the contents of the facility internal files. Company certifies compliance with this condition on a semi annual basis. The permittee shall maintain the records required for startup, shutdown and malfunction under 63.6(e)(3)(iii) through (v).
- 15. **DID NOT EVALUATE.** Did not verify the contents of the facility internal files. Company certifies compliance with this condition on a semi annual basis. AQD has this information in its files. The permittee shall maintain records associated with performance tests, and performance evaluations as required by 40 CFR 63.10(b)(2)(viii).

VII. REPORTING

IN COMPLIANCE with 1-3 below. Required reporting has been submitted in timely manner. Reports are in the facility file

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A.
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30.
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.
4. IN COMPLIANCE. Notifications have been received by the required deadline. The permittee shall submit a notification of intent to perform any performance testing under 40 CFR Part 63, Subpart FFFFF at least 60 calendar days before testing is to begin.
5. NOT APPLICABLE. No SSM events have been reported. When actions taken by the permittee during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not consistent with the procedures in the startup, shutdown, and malfunction plan, the permittee shall comply with the requirements of 40 CFR 63.10(d)(5)(ii).

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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)
1. SVLADELREFINE1	108	148

IN COMPLIANCE. Stack appears to meet the specified dimensions based on visual observation. Exhaust gas is discharged unobstructed vertically upwards.

IX. OTHER REQUIREMENTS

1. IN COMPLIANCE. Based on conditions evaluated in this report, facility appears to be complying with emission limits and O&M requirements in the MACT for the LRF#1. The permittee shall comply with the emission limitations and operation and maintenance requirements from 40 CFR Part 63, Subpart FFFFF, except during periods of startup, shutdown and malfunction.
2. IN COMPLIANCE. Records are on site for the most recent two year period. Did not evaluate the last five year period. Records required under 40 CFR Part 63, Subpart FFFFF and specified in this section shall be retained for five years. The records must be maintained onsite for the two most recent years of the five year period. Records from the remaining three years of the five year period may be keep offsite.
3. IN COMPLIANCE. Compliance determination is based on conditions evaluated in this report which contain the substantive provisions of the MACT related to the LRFs is included. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart FFFFF for Integrated Iron and Steel Manufacturing by the initial compliance date.

The following conditions apply to : EULADLEREFINE2

DESCRIPTION: No. 2 Ladle refining facility controlled by a baghouse.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Baghouse**I. EMISSION LIMITS**

Pollutant	COMPLIANCE STATUS	Limit	Time Period / Operating Scenario	Equipment
1. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	5% Opacity	6-minute average	EULADLEREFINE2 Baghouse stack
2. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions from the roof monitors while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	No visible emissions	Instantaneous	EULADLEREFINE2 Roof monitors
3. Visible emissions	IN COMPLIANCE. I did not observe any visible emissions from the roof monitors while on site. Also, the certified VE reader has not observed any emission exceedances based on the semi annual deviation reports.	20% Opacity	3-minute average	EULADLEREFINE2 Roof monitors
4. PM	IN COMPLIANCE. Stack test results were 0.0014 gr/dscf**	0.005 gr/dscf	Test Protocol*	EULADLEREFINE2 Baghouse stack
5. PM	IN COMPLIANCE. Stack test results were 0.0014 gr/dscf**	0.01 gr/dscf	Test Protocol*	EULADLEREFINE2 Baghouse stack
6. PM	IN COMPLIANCE. Stack test results were 0.62 lb/hr**	3.72 pph	Test Protocol*	EULADLEREFINE2 Baghouse stack
7. PM10	IN COMPLIANCE. Stack test results were 0.90 lb/hr**	3.91 pph	Test Protocol*	EULADLEREFINE2 Baghouse stack
8. PM2.5	IN COMPLIANCE. Stack test results were 0.90 lb/hr**	3.91 pph	Test Protocol*	EULADLEREFINE2 Baghouse stack
9. Pb	IN COMPLIANCE. Stack test results were 0.0004 lb/hr**	0.013 pph	Test Protocol*	EULADLEREFINE2 Baghouse stack

*Test Protocol will specify averaging time.

** Note, stack test results from the most recent stack test performed August 20 – August 24, 2018

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. **IN COMPLIANCE.** Based on the operation and maintenance records, the baghouse appears to be operated and maintained in the appropriate manner. The EULADLEREFINE2 and associated baghouse shall be operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR Part 63, Subpart FFFFF.
2. **DID NOT EVALUATE.** AQD did not review the SSM plan at this time. The permittee shall develop and implement a written startup, shutdown and malfunction plan for the EULADLEREFINE2 and the associated emission control system and operate in accordance with the plan during periods of startup, shutdown, and malfunction.

IV. DESIGN/EQUIPMENT PARAMETERS

1. **IN COMPLIANCE.** Based on the operation and maintenance records, the baghouse appears to be operated in the appropriate manner. The permittee shall not operate EULADLEREFINE2 unless the baghouse is installed and operating properly

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years.

1. **IN COMPLIANCE.** This condition is related to the Iron and Steel MACT testing requirement for PM. The prior tests were conducted in 2013 and October/November 2016. The most recent test was conducted in August 2018. Permittee shall conduct performance tests for particulate matter emissions at least once every five years.
2. **IN COMPLIANCE.** During the 2018 stack testing, AQD observed that sampling was only performed when processing heats at the LRF#2. Also, the test report includes the stack testers sampling times and the LRF heat times which are consistent. Sampling during the performance tests will occur only when the operations being controlled are in operation.
3. **IN COMPLIANCE.** The most recent stack testing for all of the listed pollutants was performed on August 20-24, 2018. Dust samples were obtained and Pb levels were reported for the prior test which was conducted in October 2016. Subsequent sampling is not required per the condition. The test plan was received on June 15, 2018. The 45 day window was met. The test results were submitted on October 23, 2018 which is within 60 days of the end of the test event. Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE2 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE2 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.
4. **IN COMPLIANCE.** The CFD modeling test was performed in February 2017 and the analysis was completed by March 24, 2017. The results were received on May 22, 2017. This meets the deadlines outlined in the condition. No changes were made based on the test results. The permittee shall verify the capture efficiency for EULADLEREFINE2 with computational fluid dynamics (CFD) modeling or other approved method within three years of the issuance of this permit. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. **IN COMPLIANCE.** Records were received in a timely manner. The permittee shall complete all required calculations/records in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.
2. **IN COMPLIANCE.** AQD performed a review of the Method 9 VE observations while on site. The required frequency and duration of the readings appears to be met. No corrective actions have been required. The permittee shall perform a Method 9 certified visible emission observation for the EULADLEREFINE2 baghouse stack at least once every month during EULADLEREFINE2 processing activity for a minimum of one complete heat or a maximum of one hour during a heat. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.
3. **IN COMPLIANCE.** AQD performed a review of the Method 9 VE observations while on site. The required frequency and duration of the readings appears to be met. No corrective actions have been required. The permittee shall perform a Method 9 certified visible emission observation for the EULADLEREFINE2 roof monitors at least once a week during EULADLEREFINE2 operations for a minimum of one complete heat or a maximum of one hour during a heat. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.
4. **IN COMPLIANCE.** Daily log of pressure drop readings, per compartment and overall, for 2018 is attached. Pressure drop is monitored continuously and recorded once per day for each compartment and for the overall pressure drop. The system is programmed to record a reading two minutes into the first heat every day. If the pressure drop is out of range, an investigation is performed and results are noted in the log. Most of the incidents are related to the compartment just finishing a cleaning cycle so the pressure drop is low. This is to be expected and is acceptable. Also, a daily report is generated and sent to environmental. See attached example. The permittee shall monitor the pressure drop across each baghouse compartment daily to ensure that the pressure drop is within the normal operating range identified in the operation and maintenance manual.
5. **IN COMPLIANCE.** See below. The permittee shall conduct inspections of the Ladle Refining Baghouse at the specified frequencies according to the requirements in paragraphs (a) through (h) below. The permittee shall maintain records needed to document conformance with these requirements.
 - a. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual. Pressure drop is monitored and evaluated for potential problems. See attached log.
 - b. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms. Contractor cleans hoppers on a weekly basis. A receipt is generated and maintained by AK Steel. A sampling of receipts was presented during the prior on-site inspection and the process is unchanged.
 - c. Check the compressed air supply for pulse-jet baghouses each day. See attached log. Compressed air supply pressure is monitored continuously and recorded once per day.
 - d. Monitor cleaning cycles to ensure proper operation using an appropriate methodology. Cleaning cycles are trended. A daily report with the total cleaning cycles is generated and reviewed by environmental staff. See attached example
 - e. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means. Monthly inspections for 2017 and 2018 of this baghouse are attached.
 - f. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices. N/A. This is a pulse jet baghouse.
 - g. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks. Quarterly inspections for 2017 and 2018 are attached. When there is a hole in a bag, it is removed and the opening is capped. The bag is not necessarily changed at that time.
 - h. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means. Quarterly inspections for 2017 and 2018 are attached.

6. **IN COMPLIANCE.** The BLD system was manufactured by FilterSense and is the PM100 model which meets the requirements of the condition below. It appears to be operated and maintained in a satisfactory manner as the manufacturer (FilterSense) inspects the system periodically. Based on a 2016 inspection by FilterSense, the alarm is in use and working properly. Alarm set points are outlined in the attached 2016 inspection. Except as allowed in S.C. VI.8, the permittee shall install, operate, and maintain a bag leak detection system meeting the following specifications on the baghouse control:
 - a. Certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic foot (0.0044 grains per actual cubic foot).
 - b. Provides output of relative changes in particulate matter loadings.
 - c. Is equipped with an alarm, located such that it is heard by appropriate plant personnel that sounds an alarm when an increase in relative particulate loadings is detected over a preset level.
 - d. Initially adjusted by establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device and setting the alarm set points and alarm delay time.
7. **DID NOT EVALUATE.** At this time, according to the facility, the BLD system has not been adjusted. However, it is unclear what operation and maintenance plan this condition is referring to as the LRF baghouses are not required to have an O&M per 63.7800(b). Following the initial adjustment of the bag leak detection system, the permittee shall not adjust the sensitivity or range, averaging period, alarm set points or alarm delay time except as specified in the operation and maintenance plan. This requirement does not apply if the permittee installs COMS as specified in S.C. VI.8.
8. **NOT APPLICABLE.** A BLD system is installed. If permittee does not install and operate a bag leak detection system, the permittee shall install, operate, and maintain a COMS according to the requirements in 40 CFR Sec. 63.7831(h) and monitor the hourly average opacity of emissions exiting each control device stack according to the requirements in 40 CFR 63.7832.
9. **IN COMPLIANCE.** Process appears to be monitored properly. The permittee shall monitor the process as required by 40 CFR 63, Subpart FFFFF, except during monitoring malfunctions, out-of-control periods, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments).
10. **IN COMPLIANCE.** Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used in data averages and calculations used to report emission or operating levels or to fulfill minimum data availability requirements.
11. **IN COMPLIANCE.** Records are maintained and are attached. No alarms were experienced at LRF#2 for 2017 or 2018. The permittee shall maintain records of the time corrective action was initiated, the corrective action taken, and the date when corrective actions were completed in response to a bag leak detection system alarm.
12. **IN COMPLIANCE.** Company maintains sensitivity has not been changed. If the sensitivity of the bag leak detection system is changed beyond the limits established pursuant to 40 CFR 63.7831(f) (6), a copy of a written certification by a responsible official shall be included in the semiannual compliance report for that period. This requirement does not apply if the permittee installs COMS as specified in S.C. VI.8.
13. **DID NOT EVALUATE.** Did not verify the facility internal files. Company certifies compliance with this condition on a semi annual basis. AQD has this information in its files. The permittee shall maintain a copy of each notification and report submitted under 40 CFR Part 63, Subpart FFFFF, including all documentation supporting the initial notification or notification of compliance status submitted according to 40 CFR 63.10(b)(2)(xiv)).
14. **DID NOT EVALUATE.** Did not verify the facility internal files. Company certifies compliance with this condition on a semi annual basis. AQD has this information in its files, as applicable. The permittee shall maintain the records required for startup, shutdown and malfunction under 63.6(e) (3)(iii) through (v).
15. **DID NOT EVALUATE.** Did not verify the facility internal files. Company certifies compliance with this condition on a semi annual basis. AQD has this information in its files. The permittee shall maintain records associated with performance tests, and performance evaluations as required by 40 CFR 63.10(b)(2)(viii).

VII. REPORTING

IN COMPLIANCE with 1-3 below. Required reporting has been submitted in timely manner. Reports are in the facility file.

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c) (ii))

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))
4. IN COMPLIANCE. Notifications have been received by the required deadline. The permittee shall submit a notification of intent to perform any performance testing under 40 CFR Part 63, Subpart FFFFF at least 60 calendar days before testing is to begin. (40 CFR 63.7840(d))
5. NOT APPLICABLE. No SSM events have been reported When actions taken by the permittee during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not consistent with the procedures in the startup, shutdown, and malfunction plan, the permittee shall comply with the requirements of 63.10(d)(5)(ii). (40 CFR 63.7841(c))

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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)
1. SVLADELREFINE2	72	150

IN COMPLIANCE. Stack appears to meet the specified dimensions. Exhaust gas is discharged unobstructed vertically upwards.

IX. OTHER REQUIREMENTS

1. IN COMPLIANCE. Based on conditions evaluated in this report, facility appears to be complying with the emission limits and O&M requirements in the MACT for LRF#2. The permittee shall comply with the emission limitations and operation and maintenance requirements from 40 CFR Part 63, Subpart FFFFF, except during periods of startup, shutdown and malfunction.
2. IN COMPLIANCE. Records are on site for the most recent two year period. Did not evaluate the last five year period. Records required under 40 CFR Part 63, Subpart FFFFF and specified in this section shall be retained for five years. The records must be maintained onsite for the two most recent years of the five year period. Records from the remaining three years of the five year period may be keep offsite.
3. IN COMPLIANCE. Compliance determination is based on conditions evaluated in this report. Review of the MACT indicates that the substantive provisions of the MACT related to the LRFs are included. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart FFFFF for Integrated Iron and Steel Manufacturing by the initial compliance date.

VACCUUM DEGAS (from the ROP) Vacuum degasser

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Flare

I. EMISSION LIMIT(S)

Pollutant	Compliance status	Limit	Time Period/ Operating Scenario	Equipment
1. Carbon monoxide	IN COMPLIANCE. Based on the 2009 stack test, the average hourly emissions were 0.71 lb/hr. Based on the 2017 stack test, the average hourly emissions are 1.88 lb/hr.	1. 2.42 lb/hr ²	Based upon a flare destruction efficiency of 99.5%	Vacuum degasser
	IN COMPLIANCE. For the 2017 MAERS report, pounds of CO emitted were 1793 which is less than 1 ton. For 2016, based on the hours of operation, emissions were 1249 pounds which is also less than one ton.	2. 10.08 tons per year ²	Yearly	Vacuum degasser
2. Visible emissions	IN COMPLIANCE. No visible emission were observed during the on site inspection or by the certified VE reader. No deviations have been reported in the semi annual reports.	No visible emissions ²	6 minute average	Vacuum degasser

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. IN COMPLIANCE. There is a primary and back up flare. The operating status is shown on the operator's screen in the pulpit. An alarm is triggered if the pilot to the flare goes off. Also, a daily report is generated that shows the operational status of the flare (off/on) and whether an alarm was triggered that day. See attached example. No alarms have been generated. Flare appears to be operating properly. The vacuum degasser shall not be operated unless the flare is installed and operating properly.
2. IN COMPLIANCE. For 2017, total hours of operation were 1629. See attached. The vacuum degasser shall not be operated more than 8,350 hours per year.

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. IN COMPLIANCE. Test was conducted in 2009. Facility interpreted this condition to mean that testing was not required again until the ROP was renewed. The ROP was renewed in 2016 and a subsequent test was conducted in 2017. The permit language will be clarified in the next ROP

VI. MONITORING/RECORDKEEPING

VII. REPORTING

COMPLIANCE DETERMINATION

DATE 2/13/19 SUPERVISOR W.M.