Manila Cliffs A8640

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

A864064269

FACILITY: Cleveland-Cliffs Steel Corporation Dearborn Works		**SRN / ID:** A8640
LOCATION: 4001 MILLER ROAD, DEARBORN		**DISTRICT:** Detroit
CITY: DEARBORN		**COUNTY:** WAYNE
CONTACT: Dave Pate , Environmental Engineer		**ACTIVITY DATE:** 08/30/2022
STAFF: Katherine Koster	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: Reladle and Desulf inspection - FY2022		
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: p 313.323.1261 m 248.251.3440; david.pate@clevelandcliffs.com

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FACILITY BACKGROUND

Cleveland Cliffs - Dearborn Works (formerly AK Steel – Dearborn Works and 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 officially became Cleveland Cliffs on March 13, 2020.

OUTSTANDING CONSENT ORDERS

Facility is current operating under Consent Decree Civil Action No. 15-cv-11804 which includes, but is not limited to, the ESP. Also, the facility is under a SIP Consent Order to control fugitive dust (30-1993). There is also a state consent order 6-2006 that includes the BOF Shop.

OUTSTANDING VN's

There are no outstanding VN's related to the equipment that was inspected (Desulfurization and Reladling).

PROCESS DESCRIPTION

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

The BOF shop is where iron is converted to steel. There are multiple control devices. The basic process for reladle and desulfurization is:

1. Molten iron/Hot Metal is received in torpedo cars from the C blast furnace. Hot metal is transferred (poured) from the torpedo car into a charging ladle at the hot metal transfer station. Charging ladles can be distinguished from tapping ladles by the pouring lip on them as well as the fact that they do not drain from the bottom. A moveable hood slides into place before pouring begins to collect and route emissions to the secondary baghouse (reverse air type).

2. Once full, the charging ladle is moved by crane to the desulfurization station. A lance is lowered into position and powdered desulfurization agents (magnesium and lime) are blown through the lance using an inert carrier gas (such as nitrogen) and injected by fluid momentum into the hot metal bath. Materials are injected in amounts calculated to meet the desired sulfur content specification. This process liberates kish (carbon graphite). Kish is skimmed from the

top of the ladle after desulfurizing is complete. Desulfurizing and slag skimming are controlled by a moveable hood and the desulfurization baghouse (shaker type).

INSPECTION NARRATIVE

I arrived at the facility on 8/30/22 to observe stack testing and observe the desulfurization process. Mr. Pate and I went into the desulf pulpit and I discussed the process with the operators.

Regarding reladle, the bent ductwork that is inside of the facility after the hood and leading to the exterior of the building has been replaced. Metal chain curtain that is supposed to help with capture was in place around the hot metal hole hood. Also, there is a red line along the north wall of the building which is an indicator to the crain operator of the height limit for the ladle in order to prevent smoke from exiting the roof monitor and potentially causing a VE exceedance.

I observed slag skimming and the capture which had some fugitive emissions but appeared similar to prior observations. There are notable fugitive emissions especially during skimming but it does not seem to cause a roof monitor opacity violation. We returned to the office, and I reviewed the Method 9 VE sheets

RULES/PERMIT CONDITIONS EVALUATED

Conditions evaluated are from ROP MI-ROP-A8640-2016a. Note, each emission unit only includes special conditions that were evaluated as part of this inspection.

These emission units are subject to NESHAP FFFFF which has been incorporated into the permit conditions.

The following conditions apply to EURELADLINGBOF

DESCRIPTION: Reladling South & North – BOF

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Baghouse

I. EMISSION LIMITS – IN COMPLIANCE

3. PM	6.3 tpy[2] 4.01 tpy was highest in December 2017 (from Dec 2017 to Jan 2019). See attached spreadsheet (Appendix B).	12-month rolling time period as determined at the end of each calendar month	EURELADLINGBOF Roof monitors
4. PM10	3.6 tpy[2] 2.29 tpy was highest in December 2017 (from Dec 2017 to Jan 2019). See attached spreadsheet (Appendix B).	12-month rolling time period as determined at the end of each calendar month	EURELADLINGBOF Roof monitors
5. PM2.5	1.84 tpy[2] 1.16 tpy was highest in December 2017 (from Dec 2017 to Jan 2019). See	12-month rolling time period as determined at the end of each calendar month	EURELADLINGBOF Roof monitors

	attached spreadsheet (Appendix B).		

EUBOFDESULF

DESCRIPTION Desulfurization operation using lime and magnesium to remove sulfur and skimming of slag into a slag pot, all controlled by a movable hood to a baghouse.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT Baghouse

I. EMISSION LIMITS – IN COMPLIANCE. See below

Pollutant	Limit	Time Period / Operating Scenario	Equipment
1. Visible Emissions	20% Opacity No excess VE's were observed during the stack test or M9 records review	3-minute average	EUBOFDESULF Baghouse stack
2. Visible Emissions	20% Opacity No excess VE's were observed during the stack test or M9 records review related to desulf operations	3-minute average	EUBOFDESULF BOF Shop Building
3. Visible Emissions	20% Opacity No excess VE's were observed during the stack test or M9 records review related to desulf operations.	3-minute average	EUBOFDESULF BOF Shop Building
4. PM	0.01 gr/dscf 0.001 gr/dscf was the result from the September 2019 stack testing. Testing occurred in 2022. Results pending.	Test Protocol*	EUBOFDESULF Baghouse stack
5. PM	7.7 pph	Test Protocol*	EUBOFDESULF

Pollutant	Limit	Time Period / Operating Scenario	Equipment
	0.6 pph was the result from the September 2019 stack testing. Testing occurred in 2022. Results pending.		Baghouse stack
6. PM	126.72 tpy 80.4 tpy was highest 12 month rolling in September 2021 (from Jan 2020-July 2022)	12-month rolling time period as determined at the end of each calendar month	EUBOFDESULF Roof monitor
7. PM10	3.6 pph 0.9 pph was the result from the September 2019 stack testing. Testing occurred in 2022. Results pending.	Test Protocol*	EUBOFDESULF Baghouse stack
8. PM10	24.38 tpy 15.49 tpy was highest 12 month rolling in September 2021 (from Jan 2020-July 2022)	12-month rolling time period as determined at the end of each calendar month	EUBOFDESULF Roof monitor
9. PM2.5	3.6 pph 0.9 pph was the result from the September 2019 stack testing. Testing occurred in 2022. Results pending.	Test Protocol*	EUBOFDESULF Baghouse stack
10. PM2.5	14.25 tpy 9.04 tpy was highest 12 month rolling in September 2021 (from Jan 2020-July 2022)	12-month rolling time period as determined at the end of each calendar month	EUBOFDESULF Roof monitor
11. Pb	0.0016 pph 0.0004 pph was the result from the September 2019 stack testing. Testing	Test Protocol*	EUBOFDESULF Baghouse stack

Pollutant	Limit	Time Period / Operating Scenario	Equipment
	occurred in 2022. Results pending.		
12. Mn	0.013 pph 0.001 was the result from the September 2019 stack testing. Testing occurred in 2022. Results pending. (.002 pph 2016)	Test Protocol*	EUBOFDESULF Baghouse stack

II. MATERIAL LIMITS NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. Compliance based on records reviewed and stack testing. EUBOFDESULF and the 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. NOT APPLICABLE. SSM plan is no longer a requirement; has been removed from the Iron and Steel MACT. The permittee shall develop and implement a written startup, shutdown and malfunction plan for EUBOFDESULF and the associated emission control system and operate in accordance with the plan during periods of startup, shutdown, and malfunction.

3. IN COMPLIANCE. Compliance based on records reviewed and stack testing. The permittee shall not operate EUBOFDESULF unless the baghouse dust collector is installed, maintained, and operated in a satisfactory manner.

IV. DESIGN/EQUIPMENT PARAMETERS NA

V. TESTING/SAMPLING

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

1. IN COMPLIANCE. This is the MACT required testing which occurred in 2018 and 2013. Next test is due in 2023. The permittee shall conduct performance tests for particulate matter emissions and opacity at least once every 5 years.

IN COMPLIANCE for #2, #3, and #4 – Based on information in the stack testing reports and staff observations during the testing, the conditions below were met.

2. Sampling during the performance tests will occur only when the operations being controlled are in operation.

3. Performance tests for visible emissions shall be conducted such that the opacity observations overlap with the performance tests for particulate.

4. The permittee shall demonstrate compliance with the opacity limitation in SC I.3 with a certified observer according to Method 9 except for the following:

a. Record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles rather than using the procedure specified in Section 2.4 of Method 9.

b. Determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.

5. IN COMPLIANCE. PM, PM10, PM2.5, Pb and Mn test was completed in September 2019 and test was conducted in August 2022. Results are pending.

Within three years of May 12, 2014, the permittee shall verify the PM, PM10, PM2.5, Pb, and Mn emission rates from EUBOFDESULF 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 May 12, 2014, the permittee shall obtain Pb and Mn dust concentrations in the EUBOFDESULF baghouse hoppers. Subsequent Pb and Mn 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 to the AQD within 60 days following the last date of the test.

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 EUBOFDESULF baghouse stack at least once every month during EUBOFDESULF processing activity for a minimum of one complete 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 except NOT APPLICABLE for condition c. The permittee shall conduct inspections of the Desulfurization 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 Cliffs.

c. Check the compressed air supply for pulse-jet baghouses each day. This is not a pulse jet baghouse so N/A. Note, prior inspection report from 3/6/2019 erroneously stated that compressed air supply was checked every day but this is not applicable to this type of baghouse.

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. How does company determine proper cleaning cycles

e. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means. Monthly inspections of this baghouse for 2021 and 2022 YTD are attached.

f. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed 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.

g. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks. Quarterly inspections for 2021 and 2022 YTD are attached.

h. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means. Quarterly inspections for 2021 and 2022 YTD are attached.

4. IN COMPLIANCE. Bag leak detector is installed and being maintained.

Except as allowed in SC VI.6, 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.

5. IN COMPLIANCE. Company has certified that no changes have been made. 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 SC VI.6.

6. 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.

7. IN COMPLIANCE. The process is being monitored as required. The permittee shall monitor the process as required by 40 CFR Part 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).

8. IN COMPLIANCE. Inappropriate data is not in use. 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.

9. IN COMPLIANCE. Records are maintained and are attached. No alarms have been experienced from January 2021- August 2022. 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.

10. 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 SC VI.6.

11. DID NOT EVALUATE. Did not evaluate whether company has all of this information. 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).

12. NOT APPLICABLE. SSM plans are no longer required. The permittee shall maintain the records required for startup, shutdown and malfunction under 40 CFR 63.6(e)(3)(iii) through (v).

13. IN COMPLIANCE. Based on supporting information provided in the MAERS report, it appears facility is maintaining this information. The permittee shall maintain records associated with performance tests and performance evaluations as required by 40 CFR 63.10(b)(2)(viii).

14. IN COMPLIANCE. Monthly records are attached for 2021 – 2022 YTD. The permittee shall keep monthly records of the amount of iron throughput to EUBOFDESULF. The permittee shall keep the records on file at the facility and make them available to the department upon request.

15. IN COMPLIANCE. Records are attached and are calculated using methodology in Appendix 7-1. Using the method shown in Appendix 7-1, the permittee shall calculate monthly and 12-month rolling time period PM, PM10, and PM2.5 emission rates from the EUBOFDESULF roof monitor. The permittee shall keep the records on file at the facility and make them available to the department upon request.

VII. REPORTING

IN COMPLIANCE with 1-4 below. Required reporting has been submitted in timely manner. Reports are in the facility file.For 5, SSM provisions are no longer in effect.

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. 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. 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

IN COMPLIANCE. Stack appears to be in compliance based on visual observation. The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

FINAL COMPLIANCE DETERMINATION

Facility appears to be in compliance with conditions evaluated in this report.

NAME [signature] DATE 11/4/22 SUPERVISOR April L. Wendling 11/07/2022