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VIA ELECTRONIC MAIL

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RE: AK Steel Corporation – Dearborn Works
Response to Violation Notice dated January 5, 2021

Dear Neil:

I am writing on behalf of AK Steel Corporation in response to EGLE's Violation Notice dated January 5, 2021, issued to the Dearborn Works. Concurrent with the submission of this letter to you, AK Steel is providing a copy to Mss. Camilleri and Koster as instructed by the Violation Notice.

The Violation Notice alleges noncompliance with the Basic Oxygen Furnace (BOF) Electrostatic Precipitator (ESP) 6-minute average state opacity standard and alleges improper operation of the ESP. These allegations are premised entirely on Continuous Opacity Monitoring System (COMS) data reported pursuant to the 2015 Consent Decree. The Violation Notice also alleges noncompliance with the Renewable Operating Permit (ROP) reporting requirements for the failure to properly report, again based on the COMS data.

This is now the third successive Violation Notice issued by EGLE premised entirely on AK Steel's quarterly Consent Decree COMS data report. As with each prior Violation Notice, AK Steel continues to assert that these facts do not form the basis for noncompliance. In that regard, in order to avoid an infinite loop of EGLE Violation Notices every quarter alleging noncompliance followed by AK Steel responses disputing noncompliance, it seems that a meeting to resolve this disagreement is advisable.

AK Steel believes that such a meeting should include non-legal representatives. The goal of the technical meeting would be to determine if there are additional Method 9 opacity monitoring terms that can be included in the upcoming renewal of the Dearborn Works ROP to address EGLE's concerns on opacity compliance at the BOF ESP. If so, then that ideally will negate EGLE's current approach of pursuing allegations of noncompliance of the state opacity standard based on the COMS. AK Steel is agreeable to using the COMS as a diagnostic, trouble-shooting

tool (as it currently does under its Operation and Maintenance Plan and pursuant to the Integrated Iron and Steel NESHAP). It is just not appropriate to use the COMS for legal *compliance* with the state opacity standard.

In addition, any concerns regarding the sufficiency of the ESP are already being addressed with AK Steel's construction of a complete rebuild of the ESP. AK Steel intends to commence installation of structural steel for the new compartment likely yet this week. The project continues to move forward. Therefore, it seems as though this issue can be fully resolved through an agreement on some additional permit terms.

In advance of such a meeting, however, AK Steel believes it is warranted to provide a comprehensive response to EGLE's Violation Notice. Some of this information has been provided to EGLE in prior Violation Notice responses. However, it is being compiled here so that EGLE can fully understand the breadth of AK Steel's legal, regulatory and technical argument against the Violation Notice.

A. Alleged Opacity Noncompliance.

The primary allegation of noncompliance in the Violation Notice involves the regulatory and ROP opacity requirement for the BOF ESP stack. Background on the standards at issue and a chronology of how and why opacity has been measured at the BOF ESP is pertinent to establish the basis of AK Steel's objections to this Violation Notice.

1. Regulatory and Renewable Operating Permit Requirements for Opacity from the BOF ESP Stack.

The BOF ESP stack is subject to two independent, separate opacity standards. The first standard is the state opacity limit, which subjects a source to a "6-minute average of 20% opacity, except for 1 6-minute average per hour of not more than 27% opacity." R 336.1301(1); ROP Section 1, General Condition 11. AK Steel is required to conduct Method 9 visible emissions readings of the BOF ESP stack once per week. ROP EUBOF, Section VI.3. It is this state 6-minute average opacity standard that is the subject of the Violation Notice.

The second opacity standard is from the NESHAP for Integrated Iron and Steel Manufacturing Facilities, which requires a source to maintain "hourly average of opacity of emissions exiting the control device at or below 10 percent." 40 C.F.R. § 7790(b)(3). If this standard is exceeded, it is not an immediate violation, but instead a trigger to corrective action. 40 CFR § 63.7833(e). The regulations provide that the source must install, operate and maintain a COMS to monitor the hourly average opacity of emissions. 40 C.F.R. § 63.7830(d). The COMS is required to complete one cycle of data recording for every 15-second period and for each 6-minute period, and the data must be reduced to 6-minute averages, however this is simply to create the "building blocks" of data for the hourly average. This federal NESHAP standard is not a subject of the Violation Notice.

The Violation Notice also references the Consent Decree requirement to submit a quarterly report that includes each instance in which the 6-minute block average reading of the COM data for the ESP exceeds 20% opacity. Consent Decree, Paragraph 20. However, such instances are not considered noncompliance under the Consent Decree. They are only required for purposes of identifying root causes, corrective actions and preventative actions.

In that regard, note that EGLE has mischaracterized this third-quarter 2020 COMS data in the Violation Notice. EGLE states that the COMS quarterly report identified 29 exceedances. The correct number from that report, however, is 24 exceedances, taking into account the Michigan exemption for startup, shutdown and malfunction events pursuant to Mich. R. 336.1315 and Mich. R. 336.1316.

2. History of Reporting COMS 6-Minute Opacity Data for the BOF ESP.

This disagreement over the correct manner in which to demonstrate compliance with the BOF ESP stack state 6-minute average opacity limit has a long-running history. The BOF ESP has maintained a COMS since the 1980s. However, the purposes for the COMS was for operational assessment of the BOF ESP. It was not for purposes of assessing compliance with the state 6-minute average opacity standard, and neither the state nor the county air agency ever issued a Violation Notice based on opacity measured by the COMS (until EGLE's recent actions).

In the early 2000s, U.S. EPA issued and then revised the NESHAP for Integrated Iron and Steel Manufacturing Facilities. The NESHAP required the use of a COMS for the BOF ESP. The regulation as revised required compliance with an hourly opacity average. At that point, Severstal (AK Steel's predecessor) did not assess 6-minute data generated by the COMS for purposes of comparison to the state 6-minute average opacity standard. Instead, Severstal determined compliance with the NESHAP opacity standard by assessing COMS data and determined compliance with the state opacity standard by assessing Method 9 data.

At some point after U.S. EPA promulgated the NESHAP standard, EGLE identified to Severstal that the U.S. Steel Great Lakes facility was assessing COMS data for purposes of compliance with the state 6-minute average opacity standard for its BOF ESP. EGLE stated that Severstal needed to do the same. Severstal acquiesced and began to assess COMS data for the state 6-minute average opacity standard and reported any deviations of the state standard pursuant to its ROP.

However, pursuant to a letter dated November 17, 2014, AK Steel informed EGLE that the BOF ESP COMS cannot be used to assess compliance with the state 6-minute average opacity standard. AK Steel provided a detailed legal analysis for its position. EGLE did not respond in writing to that letter.

Since that time, pursuant to the Consent Decree, AK Steel has reported numerous instances every quarter in which the 6-minute block average reading of the COMS data has exceeded 20% opacity. However, EGLE did not issue any Violation Notices for any of those previous instances

over the past nearly five years, until the Violation Notice issued in March 2020. AK Steel therefore assumed that EGLE was not using COMS data to assess compliance with the state 6-minute average opacity standard.

3. Method 9, Not COMS, Is the Only Appropriate Methodology to Assess Compliance with the State 6-Minute Average Opacity Standard.

In the Violation Notice, EGLE states that: "COMS measurements are a direct compliance method for opacity as allowed by R. 336.1303" and that "as such, the opacity exceedances as measured by the COMS represent violations ..." This is an incorrect statement as it relates to the state 6-minute average opacity standard at the Dearborn Works.

The requirement that is the subject of the Violation Notice is the state 6-minute average opacity standard. The standard is set forth in Rule 301. R. 336.1301(1)(a). Rule 301 identifies the numeric aspects of the opacity standard, and several exemptions.

Rule 303, titled "grading visible emissions," then provides the methodology for determining compliance with the Rule 301 opacity standard. R. 336.1303. Rule 303 states, in its entirety, that: "the opacity of a visible emission shall be determined by a qualified observer and shall be certified in accordance with, and using the procedures specified in, reference method 9 or an alternative method approved by the department." R 336.1303.

Therefore, Rule 303 requires Method 9, or "an alternative method approved by the department." While COMS may be considered an "alternate method" for measuring opacity for some facilities, it is not for the Dearborn Works. AK Steel has not sought approval from EGLE for an alternative method to measure opacity. And even if EGLE had the unilateral right to "approve" an alternate method on its own, AK Steel is unaware of any action taken by EGLE to approve such a method as COMS. Certainly, if EGLE had unilateral authority here, it would need to be pursuant to an appealable final action.

Likewise, Rule 303 is approved in the Michigan SIP. 57 Fed. Reg. 24752 (June 11, 1992). Thus, U.S. EPA has concurred that Method 9 is the appropriate means to identify compliance with the stack opacity standard. Furthermore, U.S. EPA has stated that when a state allows a source to measure its emissions by a test method other than what is identified in the SIP, "this substitution constitutes a revision to the SIP and must be submitted to U.S. EPA for review and approval." 47 Fed. Reg. 41587 (September 21, 1982). There has been no such revision to the SIP to allow for the use of COMS as a reference method for opacity from a BOF ESP stack.

But to the extent there is any ambiguity here based on the regulation, the ROP provides the definitive answer. The ROP unequivocally states that compliance with the state 6-minute average opacity standard is pursuant to Method 9 monitoring.

Specifically, the Dearborn Works ROP is consistent with Rule 301 and Rule 303. The opacity standard is included in the ROP at Section 1, General Condition 11. It recites the numeric

opacity requirements from Rule 301 and then notes that "the grading of visible emissions shall be determined in accordance with Rule 303."

The General Conditions do not contain specific monitoring requirements for the state 6-minute opacity standard. Emission Unit EUBOF, however, does contain opacity monitoring requirements based on Rule 301. Specifically, EUBOF, Section VI.3 requires that AK Steel perform a Method 9 visible emissions observation of the BOF ESP stack at least once every week for a minimum of one complete heat. This permit condition specifically cites Rule 301 as the underlying applicable requirement.

Based on this monitoring requirement, AK Steel conducts weekly Method 9 observations of the BOF ESP stack. AK Steel has demonstrated 100% compliance with the state 6-minute opacity requirement.

In the Violation Notice, EGLE also states that: "COMS measurements are a direct compliance method for opacity as allowed . . . in the Integrated Iron and Steel MACT" and that "as such, the opacity exceedances as measured by the COMS represent violations ..." The use of the COMS for purposes of compliance with the Integrated Iron and Steel NESHAP opacity standard has no bearing on the methodology for compliance with the state 6-minute opacity standard. The sole regulatory purpose of the COMS is to demonstrate compliance with the NESHAP opacity standard. The NESHAP does not require maintaining or assessing 6-minute averages for compliance with a state standard or for any other purposes. And to the extent there was any question, the ROP again provides the definitive answer. Everywhere there is a permit condition associated with the COMS, the sole underlying applicable requirement is appropriately the NESHAP standard, not the state standard.

The fact that the ROP identifies Method 9 as the compliance methodology for the state 6-minute average opacity standard provides a legal bar from the use of another methodology based on the permit shield. The Michigan ROP permit shield regulation states the following:

> each renewable operating permit shall include a permit shield provision stating that compliance with the conditions of the permit shall be considered compliance with any applicable requirements as of the date of permit issuance, if either of the following provisions is satisfied: (i) The applicable requirements are included and are specifically identified in the permit. ...

R 336.1213(6)(a). This permit shield provision is restated in the ROP at Section 1, General Condition 26. U.S. EPA has stated that the purpose of the permit shield is to "give greater certainty to the regulated community" and provide that "unclear provisions or changes in interpretations will not affect a shielded source after a permit has been issued." 56 Fed. Reg. 21744 (1991).

Since AK Steel's ROP includes and specifically identifies the state opacity applicable requirements, compliance with the permit based on Method 9 is considered compliance with the

applicable requirement. Therefore, it is undeniable that the sole appropriate methodology for determining compliance with the state 6-minute opacity standard is Method 9. The COMS is not used for compliance with this state standard.

4. Use of "Credible Evidence" Is Not Available in Michigan.

In the Violation Notice, EGLE states that "at a minimum, COMS opacity exceedances represent credible evidence." This is incorrect. Credible evidence is not a Clean Air Act catch-all that applies everywhere. It is a specific (disputed) regulatory provision that has no applicability unless it is formally adopted. And EGLE has not adopted it.

In 1997, U.S. EPA promulgated the credible evidence rule. 62 Fed. Reg. 8314 (February 24, 1997). The purpose of the rule was to clarify what types of evidence agencies and citizens could rely upon in bringing enforcement actions. However, U.S. EPA stated that the rule merely addresses an evidentiary issue and that the rule would not affect the stringency of underlying emission standards by amending the nature of the compliance obligation.

The credible evidence rule was incorporated into several Clean Air Act regulations. Primarily, the concept of credible evidence was added to the federal regulation that identifies how the federal government will enforce standards that are part of a state's State Implementation Plan (SIP). 40 C.F.R. § 52.12(c). In addition to this regulation on federal enforcement, and of importance here, U.S. EPA included a separate provision in its credible evidence rulemaking requiring each state to adopt through the SIP process its own credible evidence rule. 40 C.F.R. § 51.212(c). This regulation states that each SIP "must provide" for credible evidence.

Courts have held that credible evidence cannot be used in a state until that state promulgates the credible evidence regulation in 40 C.F.R. § 51.212. *See*, *Sierra Club v. TVA*, 430 F.3d 1337 (11th Cir. 2005) (holding that only Method 9, and not COMS, could be used to determine compliance before Alabama adopted its own credible evidence rule through the SIP process) and *BP Amoco Chemical Co. v. Flint Hills Resources, LLC*, 615 F. Supp. 2d 765 (E.D. Ill. 2009) (following *Sierra Club v. TVA* and holding that the credible evidence rule applies only for purposes of federal enforcement and that it was unavailable to enforce provisions in a SIP until the state adopted its own credible evidence rule).

However, it does not appear that EGLE has adopted into its SIP the credible evidence requirements of 40 C.F.R. 51.212. In addition, nowhere in the ROP is there a term requiring the assessment of credible evidence. Therefore, EGLE does not have a credible evidence provision it can rely on in this circumstance.

Note that AK Steel is aware of MCL § 324.5532 that sets forth factors to be considered in determining the amount of a penalty. One such factor is "[t]the duration of the violation as established by any credible evidence, including evidence other than the applicable test method." This provision replicates the penalty criteria in the Clean Air Act at Section 113(e)(1). This provision, however, allows for the use of credible evidence only to establish the *duration* of a

violation. This is an entirely separate issue than the use of credible evidence to establish the violation itself, as EGLE purports to do in the Violation Notice.

5. Even If the Use of Credible Evidence Was Available to EGLE, Use of COMS Is Not Credible Evidence of a Method 9 Standard.

Even if AK Steel's compliance with the state 6-minute average opacity standard was subject to credible evidence, use of COMS data in place of Method 9 is not, in fact, credible evidence. This is because the opacity standard at issue was not promulgated as a continuous standard.

It is important to understand that an emission standard consists of three interconnected elements: (1) the numerical limit; (2) the averaging time; and (3) the compliance demonstration method or measurement. An adjustment to any of these elements will affect the stringency of the limit. A test method is an integral part of the standard itself and the test method should not be changed without a full evaluation of the impact such a change might have on the standard.

Changing the compliance demonstration method from a periodic measurement to a continuous measurement significantly increases the stringency of the limit beyond what was contemplated when the limit was established. Quite simply, a 6-minute average standard based on the use of COMS is significantly more stringent than a 6-minute average standard based on Method 9 observations.

Per the D.C. Circuit, changing the method of measuring compliance with an emission limitation can affect the stringency of the limitation itself. *See*, *Appalachian Power Company v. EPA*, 208 F.3d 1015, 1027 (D.C. Cir. 2000); *Portland Cement Association v. Ruckelshaus*, 486 F.2d 375, 396-97 (D.C. Cir.1973). In *National Parks Conservation Assoc. v. TVA*, a federal court concurred with the above D.C. Circuit decisions, and held that "obviously, monitoring the smokestack emissions continuously with equipment capable of reliably measuring the opacity will identify many more exceedances than will be identified by an operator 'eyeballing' the smokestack emissions once a day or less." 175 F.Supp.2d 1071 (E.D. Tn. 2002).

In addition to the above courts weighing in on the conceptual nature of credible evidence, this exact issue on COMS versus Method 9 has been litigated and decided by a federal District Court. In a decision dated January 14, 2014, the District Court for the Northern District of West Virginia held that use of COMS data in place of Method 9 data for assessing an opacity standard is improper and beyond the scope of the credible evidence rule. *United States v. Mountain State Carbon, LLC*, 2014 WL 131065, (N.D. W.Va. Jan. 14, 2014).

In that case, U.S. EPA alleged that emissions from Mountain State Carbon's (MSC) coke battery combustion stack were in noncompliance with the state-based opacity standard based on COMS data, even though the state-based opacity limit required the use of Method 9 to determine compliance. U.S. EPA referenced the credible evidence provision included in West Virginia's

regulation and in MSC's Title V permit. U.S. EPA concluded that these provisions allowed the use of COMS data to assess noncompliance with the opacity standard.

The Court, however, disagreed. The court concluded that use of COMS was more stringent than use of Method 9 due to the continuous nature of the COMS, which is in conflict with U.S. EPA's preamble statements that the credible evidence rule was not intended to make limits more stringent. Specifically, the court concluded that "using COMS as 'credible evidence,' therefore, would affect the stringency of underlying emission standards by amending the nature of the compliance obligation."

As noted above, EGLE has not incorporated the credible evidence rule into its SIP or its permits. That forecloses any use of the concept. However, even if EGLE did have a credible evidence rule, the MSC court decision is entirely on point and excludes the use of COMS in place of Method 9 for the purposes of demonstrating compliance with the state 6-minute average opacity standard.

6. U.S. EPA Has Concluded that it is Technically Unreasonable to Require Compliance with a 6-Minute Average Opacity as Measured by COMS for a BOF ESP.

Rulemaking for the Integrated Iron and Steel NESHAP provides further reasons why it is technically inappropriate to rely upon the COMS for purposes of assessing compliance with the state 6-minute average opacity standard. Specifically, U.S. EPA has concurred that it is inappropriate to assess proper operation and maintenance of a BOF ESP based on compliance with a 6-minute average opacity standard measured by a COMS.

In the initial Integrated Iron and Steel NESHAP rulemaking, U.S. EPA included a provision for establishing an opacity limit for BOF ESPs based upon the 99% confidence limit of 6-minute average COMS measurements during a performance test. 68 Fed. Reg. 27646 (May 20, 2003). Industry petitioned U.S. EPA on this standard, noting that such short-term opacity limit was unattainable. Industry provided two primary arguments to support its position.

First, industry noted that moisture in the BOF ESP gas stream interferes with the COMS ability to accurately provide short term readings. As a result, COMS often provide false high opacities when corresponding visible emissions reading using Method 9 demonstrate much lower opacity levels. Industry provided data sets from COMS monitoring that demonstrated frequent opacity readings well above actual opacities measured by Method 9. (*See*, American Iron and Steel Institute's comments dated October 11, 2001 to the proposed rule). Similar interference from water vapor had been identified in wet scrubber installations, which do not utilize COMS because of the inaccurate and erroneously high readings. COMS are just simply not suitable in certain circumstances.

Second, industry noted that COMS have a known level of error that can impact compliance with a short-term, low opacity limitation. This is due to COMS inherent error bands at low

opacities. As a result, COMs often express baseline opacities readings at several percent even when processes are not operating, and opacities should be zero. For these reasons, industry concluded that COMS were inappropriate to determine compliance with an opacity limitation where little margin of error is permitted due to a low opacity limit averaged over a short period of time, coupled with the presence of water vapor in the gas stream.

U.S. EPA recognized these challenges and limitations of COMS, and instead of requiring an opacity limitation from these sources based on a short-term period, developed an hourly average opacity requirement. 71 Fed. Reg. 39579 (July 13, 2006). As such, U.S. EPA has expressly concluded that 6-minute averages as measured by a COMS is technically inappropriate for determining compliance with BOF ESP stack emissions. It is unreasonable for EGLE to now try and enforce use of the COMS on a 6-minute average when U.S. EPA has made this technical finding.

7. There Is a Substantial Positive Bias in the BOF ESP COMS Data When Compared to Method 9 Data.

AK Steel has undertaken a comparison of the past two years of Method 9 data and compared it to COMS data from the same time range. Consistent with US. EPA's findings above in conjunction with the Integrated Iron and Steel NESHAP rulemaking, it is apparent that a substantial positive bias in COMS data compared to Method 9 data at the Dearborn Works BOF ESP exists.

Specifically, AK Steel conducted a comparative analysis of ninety Method 9 observations conducted between January 2, 2019 and December 27, 2020 with the concurrent COMS data. The analysis revealed that the COMS overstated average opacity by an average factor of 4 and the highest 6-minute average opacity by an average factor of 2.2 when compared with the Method 9 observations. In addition, in three cases where the COMS identified an opacity exceedance, the corresponding Method 9 observation identified compliance.

Note also that the Method 9 observations used in this data comparison were obtained from four separate certified observers. That fact therefore negates any potential that a particular observer was biased in their observations.

This bias that AK Steel has identified between the COMS and Method 9 observations is not surprising. A 1996 study prepared for the Steel Manufacturer's Association identified a COMS measurement error of 7.5 percent opacity, based on the measurement deviations permitted by U.S. EPA's Performance Specification 1 (PS-1). And U.S. EPA's own studies have identified a 4% opacity error in COMS data. *See*, 65 Fed. Reg. 48914, 48917 (August 10, 2000).

This site-specific and broadly applicable technical assessment results in several conclusions:

- The COMS greatly overstates the average opacity when compared with Method 9.

- The COMS greatly overstates the highest 6-minute average opacity when compared with Method 9.
- The positive COMS bias is confirmed by multiple Method 9 observers.

For these reasons, use of the BOF ESP COMS data on a 6-minute basis cannot be used to establish noncompliance with the state 6-minute average opacity standard due to the substantial bias.

8. Enforcement for Excess Opacity Is Improper When the Source is in Compliance with an Underlying Mass Emission Limit.

As EGLE is aware, "opacity" is not a pollutant or an emission, but instead is the degree to which particulate emissions reduce the transmission of light and obscure the view of an object in the background. *See, e.g.*, 40 C.F.R. § 60.2. The primary purpose of opacity limits, therefore, is not to measure emissions, but to ensure that a plant is properly operating and maintaining the source. *See, e.g.* 42 Fed. Reg. 61,537 (December 5, 1977) (stating "the intended effect is to limit opacity of emissions in order to insure proper operation and maintenance of facilities subject to standards of performance.").

EGLE concurs in this primary purpose of opacity limits. In guidance on the use of opacity limits, EGLE states that "in many cases, the opacity limit is included as a surrogate for, or as an indicator of compliance with, a particulate emission limit." *Use of Visible Emission Limits Less than 20% Opacity in Permits to Install*, DEQ Air Quality Division Policy and Procedure, March 4, 2013.

As discussed in more detail below, the ESP is operating well below the BOF ESP particulate matter limits in the ROP (less than 50% of the particulate matter limit), and above its design specifications for controlling particulate matter. Thus, AK Steel has demonstrated compliance with the mass particulate matter limits by a wide margin of compliance. Therefore, continued pursuit of enforcement for opacity violations alone is not consistent with long-standing principles that opacity is only a surrogate for particulate matter compliance.

9. Summary of AK Steel's Position on Use of COMS in Place of Method 9 for the BOF ESP.

Based on the above, AK Steel has provided substantial legal, regulatory and technical reasons why use of COMS data is inappropriate for determining compliance with the BOF ESP state 6-minute average opacity standard. In sum:

- Based on Michigan regulations and the Dearborn Works ROP including the permit shield, Method 9 is the only appropriate method for assessing compliance with the state 6-minute average opacity term, not COMS.
- Credible evidence is not available in Michigan as it has not been incorporated into the Michigan SIP. But even if it was available, based on applicable court decisions, COMS is

not credible evidence of a Method 9 opacity standard as use of COMS increases the stringency of the limit.

- U.S. EPA has concluded that short-term opacity limits such as 6-minute averages as measured by COMS are technically inappropriate for BOF ESPs due to steam interference from the ESP and due to inherent errors in COMS at low opacities. AK Steel has substantiated these problems and has identified a positive bias in COMS readings compared to Method 9 at the Dearborn Works.
- Opacity is merely a surrogate for particulate matter, and since AK Steel is in substantial compliance with the particulate matter limit at the BOF ESP, EGLE should not bring enforcement for alleged opacity noncompliance.

For all of these reasons, AK Steel objects to EGLE's opacity violation allegations in the Violation Notice.

B. Alleged ESP Operation Noncompliance.

The Violation Notice alleges that the ESP is not "installed and operating properly" and is not "installed, maintained and operated in a satisfactory manner" in accordance with EUBOF Standard Condition IV.1 and R. 336.1910. EGLE's basis for such allegation is solely the alleged COMS opacity exceedances. AK Steel disagrees with EGLE's assertions regarding the operation of the ESP.

As discussed in detail above, AK Steel disagrees with EGLE's allegation that there has been any noncompliance with the BOF ESP opacity emissions limit. Therefore, such alleged noncompliance cannot form the basis for alleged noncompliance with the operational requirements cited in the Violation Notice.

Importantly, however, as explained in detail in a letter to EGLE dated May 15, 2020, AK Steel has fully assessed the ESP, including: (1) reviewing ESP inspection reports and operation and maintenance records; (2) assessing the ESP design efficiency and power levels; (3) evaluating ESP tested performance; and (4) evaluating ESP compliance data. Based on this rigorous assessment, AK Steel has concluded that the ESP is operating properly and is in compliance with Rule 910. A summary of that information included in the prior correspondence follows.

1. Inspection Reports and Operation and Maintenance Records Support the Proper Operation of the ESP.

A thorough inspection of the ESP is conducted annually in accordance with the 2015 Consent Decree. The inspection requires a "detailed and thorough evaluation of the ESP Chambers 1-8, the rapper system and off-gas conditioning system" with recommendations for repair or improvement of operation. The types of repairs identified in the inspection report are routine, not unique to the ESP at AK Steel, and are common for all ESPs across this process application and other ESP applications.

In addition, AK Steel employs an Operation and Maintenance plan which monitors transformer power (KV, ma), and requires routine inspections of components on a daily, weekly, quarterly and annual frequency. Most of the O&M inspection findings are routine and are addressed promptly. This includes, among other items, structural repairs where defects have developed, replacement of defective rappers, trimming and realignment of collecting plates, repair of straightening vanes, and cleanup of material build-up. These types of repairs are common for all ESPs installed across this process application.

AK Steel's annual third-party ESP inspection reports indicate that the ESP is properly maintained and operated. Specifically, the most recent annual Inspection Report – BOF Electrostatic Precipitator Chambers 1-8 (ESP Inspection Report), dated October 21, 2020, and submitted to the government on December 2, 2020, is a very detailed report that includes numerous technical maintenance recommendations. The report does include some general conclusions. Most importantly, the report concludes that "[o]verall, the inspection found the BOF precipitator to be in reasonably good operating condition." *Inspection Report*, page 2.

2. Particulate Matter Design Efficiency and Corona Power Indicates Proper Operation and Maintenance of the ESP.

ESP efficiency is controlled by the ability to charge and move particles to the collection plate by the processes of particle migration in an electric field. The theory and practice of ESP operation was well developed at the time of the installation of this ESP and the design reflects state of the art design parameters for a high particulate removal efficiency (*i.e.* 99.2%). As designed, the collection plate area per treated gas volume (*i.e.* specific collection area) was 295 ft^2/1000 acfm and the velocity through the unit was 3.57 ft/sec at the design gas flow of 1,030,000 acfm. These parameters are used to size an ESP and determine the potential particle removal efficiency. A recent measurement of the gas volume during a typical BOF blow cycle was calculated to be 723,600 acfm. Based on this measurement, the specific collection area was calculated as 417 ft^2/1000 acfm with a velocity of 2.53 ft/sec. At these conditions the capture efficiency, when compared to design, results in a higher removal efficiency and lower mass emission rate.

Removal efficiency is also determined by electrical energy consumed by the ESP. This is defined as corona power (*i.e.* secondary power) expressed as watts per 1000 acfm of gas volume. This is another key predictive indicator of overall particulate removal efficiency and the removal efficiency is asymptotic to 100% as the value increases. An examination of ESP corona power during a test run showed power levels during the oxygen blowing portion that were sufficiently high to provide the required capture efficiency to achieve compliance with the particulate permit limit. Specific corona power for the run averaged 438 watts/1000 acfm and was 999 watts/1000 acfm during oxygen blowing where the vast majority of particulate loading for a heat occurs. In fact, when corona power reaches 200 watts/1000 acfm (or higher), the ESP is approaching optimal efficiency and performance. Corona power is expected to be high during blow periods when gas temperature and gas moisture are optimal to achieve high particulate removal efficiency.

This assessment of design efficiency data and corona power levels results in the conclusion that optimal ESP particulate matter removal efficiency is fully demonstrated. Simply stated, the ESP is operating as designed.

3. Stack Testing Performance Data and Proper-Methodology Opacity Data Indicates Proper Operation and Maintenance of the ESP.

In order to perform a thorough statistical analysis on ESP particulate emissions, AK Steel compiled a summary of 50 stack testing sample runs from both performance testing and in-house engineering testing between 2012 and 2020. The performance of the existing ESP can be seen from an examination of the particulate matter stack testing results which averaged 17.86 lb/hr and 0.0041 gr/dscf over 50 test runs. The ESP has thus demonstrated continuous compliance with the permitted particulate matter limit of 62.6 lb/hr (less than 50% of the particulate matter limit), and 0.0152 gr/dscf.

In addition, the ESP design specifications called for a particulate removal efficiency of 99.2%. AK Steel calculated particulate removal efficiencies of 99.86% for 2012 to 2016 and 99.79% for 2019 to 2020. In both data sets, the ESP greatly exceeded its design specifications.

Likewise, it is important to note that the Dearborn Works has not had any deviations of the state 6-minute opacity limit based on Method 9 observations (the approved method for reading opacity) from the BOF ESP stack. And, the Dearborn Works has not had any deviations of the NESHAP hourly opacity standard for the BOF ESP stack.

Finally, use of the COMS as a diagnostic tool continues to demonstrate high performance for the ESP. For the fourth quarter of 2020, AK Steel measured only four opacity events, considering the Rule 301 exemption and the Rules 315 and 316 startup, shutdown and malfunction provisions. This equates to 99.98% of the time without an opacity event.

4. Summary of AK Steel's Position on the Proper Operation of the BOF ESP.

Since AK Steel is in compliance with the state 6-minute average opacity standard based on the proper methodology, EGLE's Violation Notice claiming noncompliance with the requirements to properly operate the ESP is not substantiated. However, even if the opacity events were in fact considered noncompliance, AK Steel has provided substantial technical evidence that the BOF ESP is operating properly based on O&M records, design efficiency assessments, corona power analyses, and evaluation of stack test data.

Notwithstanding the fact that the ESP is operating properly, the practical, useful life of the ESP is often determined by evaluating ongoing costs to maintain the unit as compared to costs to replace or rebuild the unit. At this point in time the repair cost is high enough that AK Steel is rebuilding the ESP. The decision to rebuild the ESP therefore has no bearing on EGLE's allegation that the ESP is not operating properly.

For all of these reasons, AK Steel disagrees with EGLE's assertion that the Company is not properly operating and maintaining the ESP.

C. Alleged ROP Reporting Noncompliance.

The Violation Notice alleges that AK Steel failed to properly report the alleged opacity exceedances in the ROP semi-annual deviation reports and the annual compliance certifications. AK Steel disagrees with EGLE's assertions regarding the company's ROP reporting obligations.

As discussed in detail above, AK Steel disagrees with EGLE's assertion that there has been any noncompliance with the BOF ESP opacity emissions limit. Therefore, such alleged noncompliance cannot form the basis for alleged noncompliance with the ROP reporting requirements cited in the Violation Notice.

However, in the Violation Notice, EGLE states that AK Steel is required to assess "other material information" in certifying compliance with its semiannual and annual reporting obligations. And EGLE has asserted that the COMS data constitutes "other material information."

Initially, it is important to note that it is questionable whether the "other material information" terms apply in Michigan. As referenced by EGLE, the federal Title V permit regulations include the following "other material information" requirement as it relates to the contents of the annual certification: "[i]f necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information." 40 C.F.R. § 70.6(c)(5)(iii)(B). This provision, however, does not appear in Michigan's ROP regulations, thus it would seem to not apply to sources in Michigan due to EGLE having an approved Title V program. 66 Fed. Reg. 62949 (December 4, 2001).

This lack of an "other material information" requirement in Michigan's ROP regulations is consistent with EGLE's annual compliance certification reporting form. The annual compliance certification from specifies demonstrating compliance based on "the methods specified in the ROP." As noted above, the method specified in the ROP for the state 6-minute average opacity standard is Method 9, not COMS.

Legal applicability arguments aside, even if the "other material information" regulation applies to the Dearborn Works, it nonetheless has a limited scope. The "other material information" regulatory term was added to the Title V regulations in 2014. 79 Fed. Reg. 43661 (July 28, 2014). The final regulation preamble includes commentary by U.S. EPA identifying what the agency believes must be considered in the Title V compliance certification. In the preamble, U.S. EPA typically equates the scope of "other material information" to the scope of "credible evidence," at times duplicating numerous statements from prior credible evidence rulemaking.

Therefore, it is most appropriate to equate "other material information" with "credible evidence." As discussed extensively above, AK Steel asserts that COMS data is not credible evidence for compliance with the state 6-minute average opacity standard. Therefore, it likewise does not serve as "other material information" for purposes of ROP reporting, if there even is such a requirement.

Furthermore, even setting aside all of these legal and regulatory arguments, AK Steel has conclusively demonstrated that at the Dearborn Works there is a substantial positive bias with COMS data compared to Method 9 observations. This conclusion alone demonstrates that COMS data is not appropriate "other material information" for Method 9 opacity standards for the Dearborn Works BOF ESP.

D. Requested Response to Violation Notice.

Regarding the request in the Violation Notice to provide written responses to certain categories of information (*e.g.*, the dates of violation, explanation of the causes, etc.), AK Steel believes the statements in the Violation Notice do not constitute violations. Therefore, as offered by the Violation Notice, this response instead provides the legal, regulatory, and factual information to explain AK Steel's position that the statements in the Violation Notice do not constitute violations of the applicable legal requirements.

E. Next Steps.

Due to the apparent likelihood of continuing Violation Notices from EGLE for alleged violations of the state 6-minute average opacity standard based on COMS data, and AK Steel's disagreement, it seems that a meeting between the parties would be beneficial. This is especially pertinent due to the need to resolve these Violation Notices in the Consent Decree Modification that the parties are currently negotiating.

This issue is also pertinent due to the Dearborn Works' pending ROP renewal application. While AK Steel will agree in the ROP renewal to additional Method 9 observations of the BOF ESP stack beyond what it currently completes, the company will not agree to an imposition of the COMS as a methodology for the state 6-minute average opacity standard. It therefore seems sensible to determine if the parties can resolve their differences at this time.

In that regard, AK Steel will follow-up in the near term to schedule a date for a conference call with EGLE. In the meantime, if you have any questions regarding this response, please contact me.

Sincerely,

FROST BROWN TODD LLC

Steven M. Wesloh

Steven M. Wesloh

cc: David Cartella, Cleveland-Cliffs, Inc.
Michael Long, Cleveland-Cliffs, Inc.
James Earl, AK Steel Corporation

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