



May 5, 2014

Ms. Katherine Koster
State of Michigan, Department of Environmental Quality
Air Quality Division, Southeast District
2058 W. Grand Blvd, Suite 2-300
Detroit, MI 48202

SENT VIA ELECTRONIC MAIL AND CERTIFIED MAIL

**SUBJECT: United States Steel Corporation – Great Lakes Works
Michigan Rule R336.1912 Report Violation Notice dated April 14, 2014**

Dear Ms. Koster,

On or about April 15, 2014, U. S. Steel received a violation notice (VN) dated April 14, 2014 from the Michigan Department of Environmental Quality (MDEQ) regarding the information in the Michigan Rule R336.1912 (Rule 912) Report submitted to the MDEQ by U. S. Steel on April 4, 2014.

In the notice, MDEQ alleges U. S. Steel violated the opacity limit of 20% on a 3 minute average on March 27, 2014 intermittently between 4:55 PM and 7:15 PM which would be a violation of Michigan Rule R336.1364(2) as incorporated by reference in Table E-01.18 Section II.2 of the Renewable Operating Permit No. 199600132d and 40 CFR Part 63 Subpart FFFFF, Table 1.12. MDEQ alleges U. S. Steel failed to properly operate the air pollution control equipment and to properly control particulate matter emissions via the Electrostatic Precipitator (ESP) to a limit of 0.057 lb/1000 lbs exhaust gas and 0.02 gr/dscf which would be a violation of Michigan Rule R336.1910 as incorporated by reference in the State of Michigan Renewable Operating Permit No. 199600132d, Table E-01.18, Section VI.1. MDEQ alleges U. S. Steel failed to implement an adequate operation and maintenance plan for the ESP capture/collection system which would be a violation of AQD Consent Order No. 1-2005, Condition B.

US Steel respectfully disagrees with the allegations stated in the April 14, 2014 violation notice issued by MDEQ. However, U. S. Steel is unable to certify compliance with applicable limits during the incident, and therefore, provided such notice to the Department. The #2 BOP Shop experienced a malfunction not readily foreseeable. As defined by Michigan Rule R336.1113, a malfunction is, "any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions." The malfunction was unforeseeable, as it has not previously occurred and therefore could not be anticipated. As a result of the malfunction, to the greatest extent possible, U. S. Steel mitigated air emissions released. U. S. Steel Great Lakes Works is committed to

following good air pollution control practices during unexpected breakdowns to minimize emissions.

On March 27, 2014 at approximately 4:55 PM, the gas collection system for 26 Vessel including 26 Vessel downcomer and the west end of the dirty gas main collapsed through the BOP roof while the BOP was in normal operations. At the time of the incident, 26 Vessel was two minutes into the blow and BOP operations were immediately halted. At approximately 4:55 PM, the time of the structural failure, potential instantaneous emissions may have been visible. From approximately 4:56 PM to 6:30 PM, no emissions were emitted as all operations had ceased production. At approximately 6:30 PM, to protect personnel and equipment from significant harm, the heat on 26V, which was sitting for over 90 minutes, was blown for 4 minutes to allow for removal of the molten metal from the Vessel and safely shutdown. Blowing the heat allowed the solidifying molten metal in 26V to become more viscous which allowed for pour control and minimization of emissions. From approximately 6:40 PM to 6:50 PM, 26V was tapped and drained to a ladle. Over approximately a 10 minute duration beginning at about 6:55 PM, the heat was poured inside the #2 BOP Shop. At approximately 7:15 PM, a ladle containing 222 tons of iron (unprocessed at the BOP) was charged into 25 Vessel. 25 Vessel was then tapped into a steel ladle and at approximately 8:00 PM a controlled pour of the molten iron over a 10 minute duration inside the #2 BOP Shop occurred. The transferring of hot iron from a ladle to 25 Vessel was necessary to safely pour the hot iron and to minimize emissions from the pour. Visible emissions may have been present over each 10 minute pour event from both vessels. Please note, during charging and tapping operations, the baghouses were operational and no excess emissions would be expected from these activities.

As of the writing of this response, the #2 BOP Shop is still down and undergoing repair. The cause of structural failure is still under investigation and repairs, which include replacement of damaged utilities, reconstruction of structural supports, and repair to both the BOP Shop and ESP ductwork continue. At present, a specific start-up date cannot be projected as the details for start-up are still being evaluated and finalized; and the preparation activities to start up can range in time and the length of time is not necessarily known until such activities begin. However, based upon our current estimates, we do anticipate start-up sometime by the middle of May.

In the VN, the MDEQ requested additional records and information related to the ESP. U. S. Steel believes that the requests for information are unduly burdensome and overly broad. Furthermore, U. S. Steel questions the relevance and probative value of some of the requested information, and by providing a response, U. S. Steel does not concede to the relevance or materiality of the information sought by any request or subject matter to which they refer, nor does U. S. Steel waive any such objections. Please note that the responses provided herein or attached shall not constitute any admission of liability on the part of U. S. Steel for any alleged violations.

Subject to the conditions noted above, enclosed herein, please find our responses to MDEQ's request for information in the VN dated April 14, 2014. Please note, that while we made every effort to fully respond to MDEQ's request for information, due to the breadth of the request and short time to respond, we continue to search for responsive information and will supplement this response if additional responsive information is located.

The request states to include the following:

- Records of ESP inspections and ESP related capture system and ductwork inspections for the last five years.

U. S. Steel Response – Please see attached electronic files.

- Results of all ESP duct and duct support thickness testing for the last five years.

U. S. Steel Response – U. S. Steel has no data that are responsive to this request.

- A list of all emission units that emitted opacity during the event.

U. S. Steel Response – Emission units which may have emitted opacity during the incident include BOP Vessel 26, the BOP Roof Monitor, and dirty gas main.

- Total duration of the event including start and end of observed opacity

U. S. Steel Response – The times which visible emissions may have been present include:

- 4:55 PM – Instantaneous emissions may have been present at the collapse of the dirty gas main and downcomer.
- 6:30 PM – 6:34 PM – Emissions may have been present during the 4 minute 26 Vessel oxygen blow.
- 6:55 PM – 7:05 PM – Emissions may have been present over the duration of the controlled pour of molten metal from 26 Vessel.
- 8:00 PM – 8:10 PM – Emissions may have been present over the duration of the pour of molten iron from 25 Vessel.

- Copies of all visible emissions (VE) readings taken during the event

U. S. Steel Response – No visible emissions readings were conducted during or immediately after the incident.

- ESP COMs data for the 24 hour period from 12:01 AM to 11:59 PM for March 27.

U. S. Steel Response – Please see digital media with file attachments.

- Dimensions of the ductwork that collapsed

U. S. Steel Response – The dimensions of the collapsed ductwork are approximately 13' x 110'.

- An explanation of how the estimate of 3.375 tons of uncontrolled particulate matter released was derived

U. S. Steel Response – U. S. Steel disagrees with that the emissions were “uncontrolled.” While it is true the emissions were not able to be directed to the ESP as a result of the malfunction, emissions were controlled to the extent safe and practicable. For example, the heat was required to be processed to better control the pour which reduces emissions. (If the heat was not blown, the pour would not be as controllable resulting in safety hazards and higher emissions.) These practices were conducted to ensure the safety of the area and to minimize emissions. The 3.375 tons was derived by using the dust removed by Waste Management from the ESP for maintenance activities in 2014 and the heats processed in 2014. This 3.375 tons is consistent with the AP-42 factor (3.563 from the R336.1912 report). U. S. Steel believes the 4 minute blow and pouring of steel inside the shop, as required for safety and to minimize emissions, would be equivalent to processing one heat.

U. S. Steel’s Calculations

➤ ESP Dust removed in 2014	9540.11 tons
➤ Material removed from pipe in 2014	310.59 tons
➤ Heats produced in 2014	2918
$\frac{(\text{ESP Dust} + \text{Material Removed})}{\text{Heats Produced}}$	= Average Emissions/Heat
$\frac{(9540.11 + 310.59)}{2918}$	=3.376 Tons/Heat

Using AP-42 uncontrolled emission factor of 28.5 lb/ton for melting and refining and an average tons per heat of 250 for GLW = 3.56 tons/heat.

AP-42 Calculations

➤ AP-42 Emission Factor	28.5 lb/ton
➤ Average Tons/Heat	250
$\frac{(\text{Tons/Heat} * \text{AP-42 Emission Factor})}{2000 \text{ lbs/Ton}}$	= Tons/Heat
$\frac{(250 * 28.5)}{2000}$	= 3.56 Tons/Heat

- A list of operations that occurred at the No. 2 BOP shop after the ductwork collapsed and the approximate duration of each event

U. S. Steel Response – As previously stated, operations which commenced after the downcomer and dirty gas main collapse included charging, oxygen blow, tapping, and pouring activities. A detailed scope of durations is provided above.

As noted above, the malfunction and resulting emissions were a result of a sudden and unavoidable breakdown of process and control equipment, beyond the reasonable control of U. S. Steel. During the malfunction, U. S. Steel had to continue to process the one heat in Vessel 26 (that was being processed when the malfunction incurred) to ensure that the molten steel was able to be poured safely and in a manner to minimize emissions. It is significant to note that the heat in Vessel 26 was not sent to the caster for processing and therefore was not blown for production purposes. As noted above, U. S. Steel quickly shutdown all affected operations, including upstream blast furnace operations, to minimize the emissions as a result of the malfunction.

We would be pleased to address any questions or concerns the MDEQ may have. If you have any questions regarding this matter or require additional information, please contact Alexis Piscitelli at 313-749-3900.

I certify that based off information and belief formed after reasonable inquiry, the information provided in this response is true and correct to the best of my knowledge and information.

Sincerely,



James Gray
General Manager
U. S. Steel – Great Lakes Works



Alexis Piscitelli
Director, Environmental Control
U. S. Steel – Great Lakes Works

cc: Dave Hacker (USS)