BEFORE THE DIRECTOR
ALLEGHENY COUNTY HEALTH DEPARTMENT
542 4TH AVENUE
PITTSBURGH, PENNSYLVANIA 15219

UNITED STATES STEEL CORPORATION, Appellant, v. ALLEGHENY COUNTY HEALTH DEPARTMENT, Appellee.	: : : : : : : : : : : :	In Re: Petition for Temporary Stay of Enforcement Order No. 190202

APPELLANT'S NOTICE AND EXPLANATION OF IMPOSSIBILITY AND CONFLICT WITH EXISTING LEGAL OBLIGATIONS

AND NOW, this 7th day of March, 2019, pursuant to Paragraph 2 of the Allegheny County Health Department's Administrative Decision, issued and effective on March 1, 2019, U. S. Steel is serving the Department with a written explanation consistent with the requirements in paragraph 8 of the Enforcement Order No. 190202. The written explanation is provided in the attached letter that was served to the Department on this day.

BEFORE THE DIRECTOR
ALLEGHENY COUNTY HEALTH DEPARTMENT
542 4TH AVENUE
PITTSBURGH, PENNSYLVANIA 15219

UNITED STATES STEEL CORPORATION, Appellant, v. ALLEGHENY COUNTY HEALTH DEPARTMENT, Appellee.	: : : : : : : : : : :	In Re: Petition for Temporary Stay of Enforcement Order No. 190202

CERTIFICATE OF SERVICE

I hereby certify that on the 7th day of March, 2019, a true and correct copy of the foregoing Notice and Explanation of Impossibility and Conflict with Existing Legal Obligations was served by electronic mail to the following

Max Slater, Esq.
Administrative Hearing Officer
Allegheny County Health Department
542 Fourth Avenue
Pittsburgh, PA 15219
max.slater@alleghenycounty.us

Jason K. Willis, Esq.
Assistant Solicitor
Allegheny County Health Department
301 39th Street, Bldg. No. 7
Pittsburgh, PA 15201
jason.willis@alleghenycounty.us

Michael A. Parker, Esq.
Pa. I.D. No. 90979
ACHD Solicitor
Allegheny County Health Department
542 Fourth Avenue
Pittsburgh, PA 15219
michael.parker@alleghenycounty.us

Respectfully submitted,

David W. Hacker, Esq.
Counsel for United States Steel Corporation

United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel: 412.433.2919
Fax: 412.433.2964
E-mail: dwhacker@uss.com

David W. Hacker
Senior Counsel-Environmental

March 7, 2019

Jayme Graham
Air Quality Program Manager
Allegheny County Health Department
301 39111 Street, Bldg. No. 7
Pittsburgh, PA 15201-1811

Jason Willis, Esq.
Assistant Solicitor
Allegheny County Health Department
301 39111 Street, Bldg. No. 7
Pittsburgh, PA 15201-1811

Dear Ms. Graham and Mr. Willis:

Re: Enforcement Order No. 190202
Notice of Material Impossibility and Conflict of Legal Requirements

Pursuant to Paragraph 2 of the Allegheny County Health Department's ("ACHD" or "Department") Administrative Hearing Officer's Order issued on March 1, 2019, and consistent with Paragraph 8 of ACHD Enforcement Order No 190202 ("Order"), U. S. Steel is serving the Department with a notice and written explanation of material impossibility and conflict of legal requirements. In addition, while not required by the Hearing Officer's March 1, 2019 Order, in good faith, U. S. Steel is providing the Department with a proposed alternate mitigation plan.

INTRODUCTION

Compliance with the Order would unreasonably risk the safety of our employees and the public as explained during our hearing on March 1, 2019, and as set forth below. For these reasons, U. S. Steel urges the Department to terminate the Order, or alternatively, revise the Order such that compliance with any revised Order could be achieved without compromising the safety of employees and the public and which could be achieved while minimizing any conflict with existing legal obligations currently in effect.

U. S. Steel notes that, with the exception of certain requirements in the Order addressed here, U. S. Steel has from the onset independently initiated and implemented a number of SO2 mitigation projects and has fully cooperated and complied with all of the Department's requests, including more recently, providing the necessary funding for the installation and operation of additional ambient air monitors to determine impacts and the effectiveness of our mitigation efforts. In light of our actions and regular communications with the Department since the December 24th fire, U. S. Steel was disappointed to have received the unilateral order without prior discussion of its content. To the extent the Department believed that the mitigation efforts were insufficient, we believe it would have been more constructive for the Department to have discussed its concerns with U. S. Steel prior to issuance of the unilateral order. It is in this spirit that U. S. Steel remains ready to engage in an open dialogue with the Department and the public regarding the incident and the best path forward.

BACKGROUND

On December 24, 2018, at approximately 4:30 AM, U. S. Steel's Clairton plant experienced a significant fire which required the immediate shutdown of the No. 2 Control Room and No. 5 Control Room for the safety of employees and equipment. As a result, desulfurization of the coke oven gas was no longer available. However, since the fire we have implemented several mitigation efforts, including extending coking times, using more natural gas, and directing coke oven gas to flares to mitigate any ambient air impacts from the inability to desulfurize coke oven gas.

On January 9, 2019, ACHD issued an alert encouraging Mon Valley residents to limit their outdoor activities, especially sensitive populations, until further notice. On January 30, 2019, the Health Department notified the public that there is no need to take any specific precautions, but residents, especially sensitive populations, should continue to be aware of the potential for SO2 exceedances until repairs at U. S. Steel's Clairton Coke Works are complete.

The last Liberty monitor exceedance of the hourly standard was on January 8, 2019. There have been no SO2 NAAQs exceedances at the Liberty monitor since January 8. In addition, in full cooperation with the Department, U. S. Steel agreed to providing sufficient funding for additional temporary air quality monitors to determine air quality impacts and whether the mitigation efforts have been successful. The Department installed two additional monitors to measure SO2 in the ambient air at Clairton and West Mifflin. These locations were selected by the Department to assess air quality impacts from U. S. Steel's redirection of the combustion of coke oven gas. The Clairton monitor began monitoring SO2 on January 24, 2019. There have been no SO2 NAAQS exceedances at this monitor. The West Mifflin monitor began monitoring SO2 on February 21, 2019. This monitor was strategically located downwind of the flares at U. S. Steel's Irvin plant where most of the coke oven gas was redirected and is being combusted. There have no exceedances at the West Mifflin monitor since its installation.

In addition, the Department regularly monitors SO2 at the North Braddock monitor. The have been two isolated hourly exceedance at the North Braddock monitor, The first was recorded on January 7, 2019 at 83 ppb at the 11 pm hour; and the second (and last) exceedance of hourly standard was on February 4, 2019 at 82 ppb at the 10 pm hour. This exceedance occurred on a day when there was an air quality alert in approximately twenty counties across Pennsylvania – as the Department explained in its public statements. There have been no SO2 NAAQS exceedances at the Braddock monitor since February 4, 2019.

At the same time the above described mitigation measures were initiated, U.S. Steel began working diligently to repair the damage to Control Room 2 and Control Room 5 in order to restore COG desulfurization as quickly as possible. U.S. Steel believes that the most critical part of any response to the damage to the desulfurization system is to repair the infrastructure and equipment that was damaged so that we can resume desulfurization of the COG as expeditiously as possible.

NOTICE OF MATERIAL IMPOSSIBILITY

Safety is a core value at U. S. Steel. The safety of employees, contractors and the public is of paramount importance. As explained below, attempts to comply with the Order would compromise this core value and jeopardize the safety of employees, contractors, and the public. Based on unacceptable risks to the safety of employees, contractors, and the public, and the compliance deadlines included in the Order, U.S. Steel is providing the Department with the following explanation of material impossibility in complying with the enumerated paragraphs of the Order.

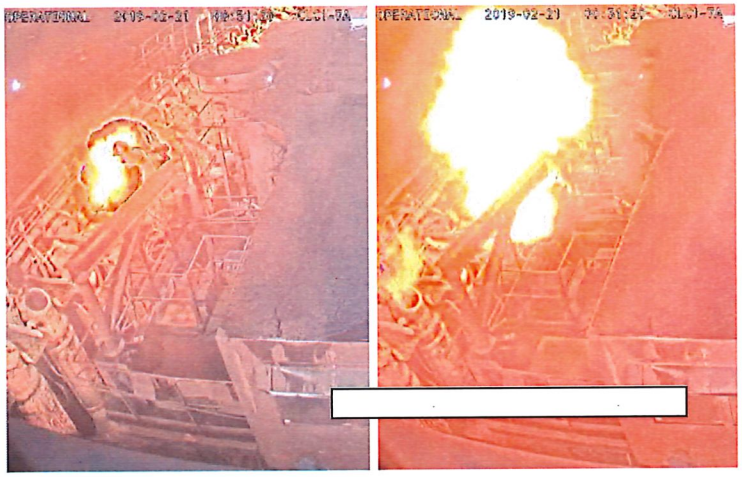
Paragraphs 1, 2, and 3 – Extended Coking Schedule

Compliance with Paragraph 1 of the Order cannot be achieved without significant risk to U. S. Steel employees, contractors and the public. While extending coking time in 15-minute increments in an isolated manner may be achieved, the schedule to extend coking times set forth in the Order would create an unacceptable increase in risks to employees, contractors and the public.

Adjusting battery minimum net coking times (MNCT) beyond 26 hours requires significant attention to detail in controlling the battery suction/foul gas collector main backpressure. Adjusting coking times can be achieved in a balanced or unbalanced method. The Order requires U. S. Steel to achieve the coking times in an unbalanced manner because the batteries are currently on different MNCTs and adjustments would be uniformly applied across the board. (For safety reasons, it is best to adjust coking times in a balanced manner.) A balanced approach in adjusting coking times plant-wide requires that the batteries be brought to the same minimum coking time, meaning that not all batteries would extend coking on the first day. In any case, neither method can be employed to reach the required coking times in the schedule demanded by the Department. To achieve the coking times in the unbalanced manner set forth in the Order, U. S. Steel would need to first install restriction orifice plates. Installation of these restriction orifice plates requires significant preparation (2-3 weeks). The act of installing these restriction orifices itself creates a significant safety risk as employees would have to work around a large gas joint – while the gas line is live – creating substantial risks. For this reason, significant preparation and safety precautions would be required to be executed perfectly to minimize the risks of an explosion in the gas main and protect our employees and contractors. In any case, even if we were to extend coking times in the manner prescribed in the Order, because of the significant preparatory work required, U. S. Steel could not complete the extending of coking times by the deadlines provided in the Order.

Rather than installing the scaffolds, rehearsing the very large gas joints and preparing to install restriction orifices, in our alternate plan, as explained below, we are proposing to equalize coking times across the facility and then step the facilities down TOGETHER with MNCT equalized. This is the safest and most environmentally sound way to execute the MNCT adjustments required in the ACHD enforcement order. However, the extended coking time requirements cannot be achieved for the batteries in the schedule required by the Order. On March 1, 2019, we began to extend coking times beyond the extended times employed before receipt of the Order, as outlined in the schedule detailed in our alternate plan.

Finally, extending coking times can lead to unstable operations. During periods of excessively extended coking times, the risks of harm to employees, contractors and the public are increased. Controlling battery suction and foul gas mains is imperative from an employee and contractor safety standpoint. Failure to maintain proper battery suction control can result in a lean foul gas main condition. When a lean foul gas main condition is present, there is tremendous risk of battery "kicks." A "kick" is an explosion in the foul gas main which results in an instantaneous overpressure situation, where fire balls exit open standpipes, or battery lids. We have had actual instances where our employees have sustained significant burn injuries in this situation. The photographs below were taken from videos of a recent kick where net coking times on a battery that was in excess of 30 hour NCT.



With regard to Paragraph 2, U. S. Steel also notes that maintaining "the Minimum Required Coking Times until June 30, 2019 or until all repairs have been completed to the Nos. 2 and 5 Control Rooms and operation returns to the manner in which it was conducted prior to December 24, 2018, *whichever is later* [emphasis added]" and being required to provide the Department weekly reports "until June 20, 2019 or until all repairs have been completed to the Nos. 2 and 5 Control Rooms and 100% of the coke oven gas exiting those Control Rooms is being desulfurized, *whichever is later* [emphasis added]" is not appropriate or necessary. We request the Department reconsider these requirements, as it is inappropriate to require extended coking and reporting after the Nos. 2 and 5 Control Rooms are operational and the facility resumes stable operations (noting that we expect to return to stable operations as explained in the alternate plan described below.) Reporting beyond the repair of No. 2 Control Room and normal operation of No. 5 Control Room would also be unnecessary. The ACHD will continue to receive periodic monitoring and recordkeeping reports per the SO_2 SIP installation permit and the facility Title V Operating permit.

Paragraph 4 – Lower Use of Coke Oven Gas at Edgar Thompson Boilers

U. S. Steel notes that on the date we received the Order, we made additional adjustments to the fuel gas system configuration to reconfigure the system in a manner

so that Edgar Thomson, including the boilers, is no longer receiving coke oven gas. In good faith, we are and have been complying with Paragraph 4 of the Order since the afternoon of February 28th. However, we note that it would be materially impossible to operate Edgar Thomson, including the boilers, consistent with the requirements of Paragraph 4 in the event no blast furnace gas is available, as it is physically impossible to operate some sources, including the boilers, on 100% natural gas. Additionally, the safety of our employees and contractors, and Edgar Thomson's environmental performance are being monitored as Edgar Thomson operates in this manner. Thus, reduction of coke oven gas at Edgar Thomson is feasible, however, in the event of a severe upset or dual blast furnace outage at Edgar Thomson, additional mixed coke oven gas and jet gas must be consumed to maintain a safe, environmentally friendly, stable plant operation. We will alert the ACHD if either of those conditions occur.

Paragraph 5 General Comments

As a preliminary manner, we disagree with the Department's derivation of the "aggregate limit" of 13,597.59 pounds per day. We note that the permits issued by the Department for the Clairton, Edgar Thomson, and Irvin authorize substantially more SO2 emissions (31,106 pounds per day in aggregate from Clairton, Edgar Thomson and Irvin sources, *not including* emissions from the ground flares and Peachtree flare.)

We respectfully note that applying an aggregate limit in this manner does not reflect the mitigation efforts where we have directed combustion of the coke oven gas at the flares to the maximum extent practicable and coke battery under fire stacks for maximum dispersion. Existing ambient air monitoring data indicate that the mitigation efforts have been successful.

Paragraph 5a – Reduce Coal Charge

First, U. S. Steel notes that it has never reduced coal charges as a means to reduce production; and notes that it is not aware of this being an industry practice because of the safety risks and damage to the battery. This is because there is no safe or technically feasible method to reduce the volume of coal in each oven as suggested such that the SO2 emissions are reduced to 13,597.59 lb/day. Coke ovens must be fully charged to the correct height to ensure consistent heating of the coke mass and to prevent significant carbon formation and coke stickers.

When a coke sticker occurs, the coke must be manually dug out, creating safety concerns due to heat exposure and burn potential to the employees perfprming that process and increases emissions. Inconsistent heating of the coke mass results in increased push and travel fugitive emissions. Significant carbon formation results in various restrictions of gas movement. This restriction causes increased charging emissions due to buildup of carbon around the charging ports. Carbon formation also can result in increased lid emissions due to the carbon preventing the lids from properly seating and increased door emissions due to carbon build up on the door jamb. *The carbon formation also causes a significant safety concern because the buildup needs to be manually removed from the oven.*

Paragraph 5b – Extend and Maintain Coking Time Beyond the Minimum Required Coking Time

This paragraph provides an option to meet the new aggregate SO2 limit of 13,597.58 pounds per day included in Paragraph 5 of the Order by further extending coking times beyond the listed Minimum Required Coking Times (MRCT) listed in Paragraph 1. While extending coking times beyond the MRCTs is possible, U.S. Steel has significant doubts that this option, by itself, will result in compliance with the Order's new aggregate SO2 limit of 13,597.59 pounds per day. Moreover, as discussed above, it is materially impossible to meet the MRCTs according to the deadlines listed in Paragraph 1.

Paragraph 5c – Hot Idling Batteries in 35-Days

Because of the required preparatory work and safety requirements (as explained herein), it is materially impossible to hot-idle batteries within 35 days. At a minimum, 90-days would be required to hot-idle batteries. In addition, this would require U. S. Steel to redirect resources from the repair effort causing delays in getting desulfurization operational; the ultimate goal of any effort.

There is significant preparatory work that must take place to safely idle batteries, foul gas handling system, and chemical by-products processes. *We anticipate that it would take no less than 90 days – operating under an extremely expedited and aggressive schedule to complete the preparatory work necessary and to safely idle the batteries*. This estimate was determined separately from the current incident, when preparing a work stoppage contingency plan in 2018.

To summarize the complex process, we would need to complete significant preparatory work, including the locating of scaffolding and the installation of purge piping for safe purging of the foul gas systems. We would need to procure adequate supplies of standpipe/gooseneck dams, insulation, and other equipment would be needed. We would need to fabricate blanks for the foul gas main and install restriction orifices and additional infrastructure for fuel gas and air adjustments at idle hot locations. We would need to procure sufficient volumes of nitrogen to purge the foul gas main. Adjustments would also need to be made to ancillary operations, energy operations, and utilities.

The coke batteries would be pushed empty over the final 20 days of operation leading to idle hot. We would push a battery empty one day (this process takes the full day) and then begin setting up for the next battery on the subsequent days.

Please note that while U. S. Steel has previously provided the Department with notice of "hot idle" 35-days prior to hot idling (e.g., letter from U. S. Steel to the Department, dated February 27, 2009), most of the preparatory work was completed prior to U. S. Steel's submittal of the notice and because the economic downturn continued, hot-idling of some batteries was completed, albeit as a last resort.

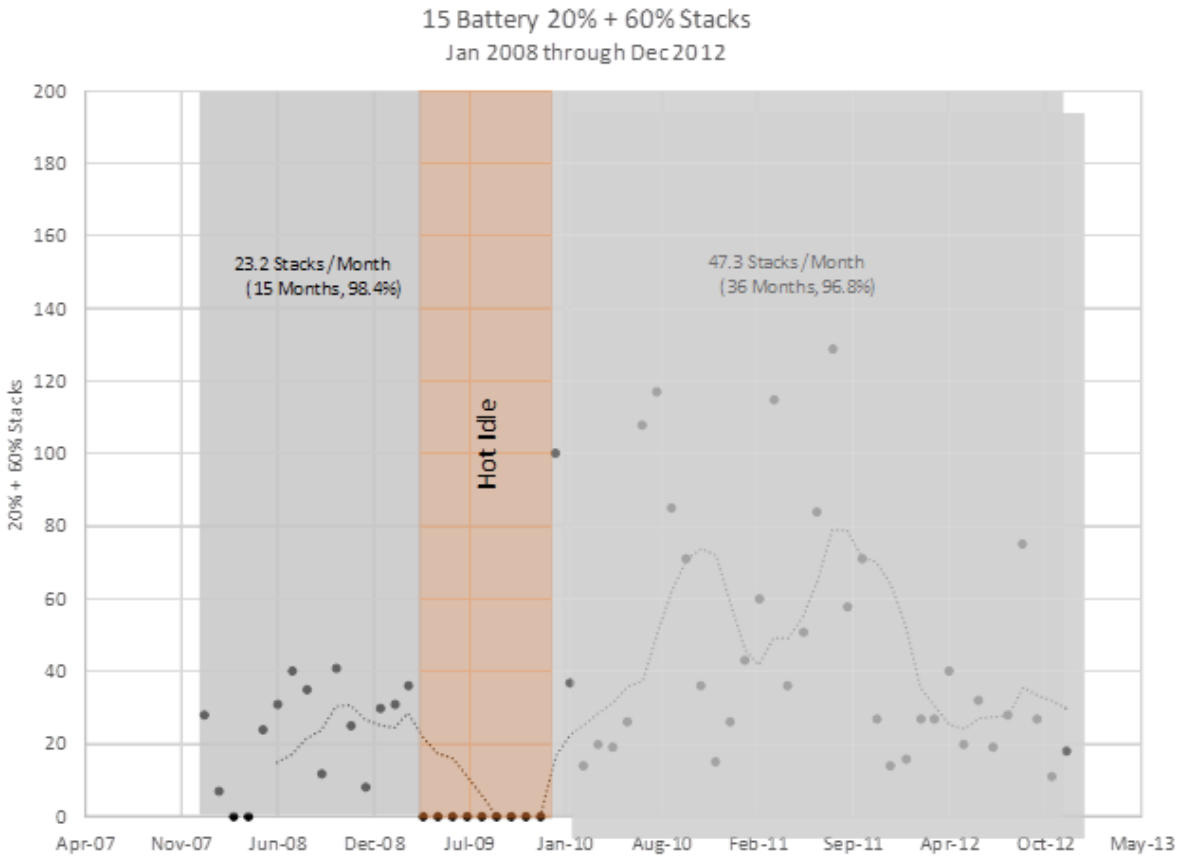
Paragraph 5d – Sulfur Dioxide Reduction Plan

U. S. Steel notes that while requiring U. S. Steel to submit a complex, comprehensive emissions reduction plan within five days is unreasonable, it is materially impossible to reduce the emissions to 13,597.59 pounds per day within ten days of submittal of the plan (or 15-days of receipt of the Order).

Paragraph 7 - Hot Idling of the Facility in 35 days

Please see explanation above regarding the time needed to hot idle batteries. Similarly, a minimum of 90-days would be needed to safely hot idle the facility. It would be impossible to safely hot idle the facility in 35 days. In addition, it would inappropriately redirect resources from the repair efforts and delay repairs to restore the facility to normal operations. This would also inhibit bringing desulfurization back on line. As written, the Order would require U. S. Steel to maintain this level until June 30 regardless of the level of operations of #2 and #5 Control Room. This inhibits our ability to optimize the operations of #2 and #5 Control Rooms and has no apparent justification. This inhibition could potentially result in increased SO2 emissions as a result of equipment damage from operating Claus Plants at below minimum turndown.

In addition, hot idling a battery has detrimental effect on environmental performance when the battery is brought back on line as shown below.



NOTICE OF CONFLICT WITH EXISTING LEGAL REQUIREMENTS[1]

Notice

For the reasons explained below, U. S. Steel maintains that a conflict between the requirement of the Order and other existing legal obligations is irreconcilable, such that compliance with the Order would require U. S. Steel to be in non-compliance with other legal obligations and orders.

Pursuant to Paragraph 2 of the Hearing Officer's March 1, 2019 Order, U. S. Steel is notifying the Department that there is a conflict between the requirements of this Order and other legal obligations which is irreconcilable, such that compliance with this Order will require U. S. Steel to be in non-compliance with other legal obligations. In particular, compliance with Paragraphs 1, 5, and 7 of the Order (extended coking and hot idling) are irreconcilable with our existing obligations to comply with the underfire stack opacity and soaking requirements of the Consent Judgment between U. S. Steel and ACHD, effective and signed by Judge Ward on March 2016. In addition, compliance with Paragraphs 1, 5 and 7 of the Order (extended coking and hot idling) are irreconcilable with the requirements of Enforcement Order No. 180601 issued by the Department on June 28, 2018, which requires U. S. Steel to perform to specified levels that include underfire stack and soaking requirements.

This notice is also provided pursuant to Paragraph 9 on page 29 of the unilateral Enforcement Order No. 180601, issued by ACHD on June 28, 2018, whereas a conflict between the requirements of the June 28, 2018 Order and other legal obligations is irreconcilable, such that compliance with this Order will require U.S. Steel to be in non-compliance with other legal obligations. As noted above, compliance with Paragraphs 1, 5 and 7 of the Order (extended coking and hot idling) are irreconcilable with our existing obligations to comply with the underfire stack opacity and soaking requirements of the Consent Judgment between U. S. Steel and ACHD, effective and signed by Judge Ward on March 24, 2016. In addition, compliance with Paragraphs 1, 5, and 7 of the Order (extended coking and hot idling) are irreconcilable with the requirements of Enforcement Order No. 180601 issued by the Department on June 28, 2018, which requires U. S. Steel to perform to a specified compliance rate, with soaking and underfire stack opacity being specific metrics included in the compliance rate determination.

Finally, U. S. Steel is also hereby providing written notice pursuant to Section IX of the Consent Judgment, effective and entered by Judge Ward on March 24, 2016, of a potential Force Majeure event impeding U. S. Steel's performance with our obligations under the 2016 Consent Judgment including, in particular, the stack opacity and soaking requirements. In particular, attempts to comply with Paragraph 1, 2, 5 and 7 of the Penalty Assessment in Enforcement Order 190202 (extended coking and hot idling) would impede U. S. Steel's ability to comply with the underfire stack opacity and soaking requirements of the Consent Judgment. Specifically, U. S. Steel is advising ACHD that the fire on December 24, 2018, while causing intermittent and temporary challenges with complying with the Order, did not in itself result in U. S. Steel being unable to comply

[1] U. S. Steel is also notifying the Department that the underlying applicable requirements in Article XXI and the TVOP are equally affected as being irreconcilable with Order 190202.

with the Consent Judgment as U. S. Steel made proper adjustments and implemented measures that allowed us to comply with the Consent Judgment. However, an unexpected intervening event, that is, the issuance of the unilateral enforcement order on February 28, that if complied with, would adversely affect our underfire stack opacity and soaking performance as described herein. Our efforts to minimize any non-performance with the Consent Judgment include adjusting coking times in a manner as stable as possible to limit any adverse impact on the underfire stack opacity and soaking. If U. S. Steel is required to comply with the Order, compliance with the Consent Judgment would be impeded until the facility returns to normal or stable operations. We cannot provide a timetable as we do not know when and if acceptable coking times would resume under stable operations and when any batteries hot-idled would return to production. As explained herein, extending coking and hot-idling batteries result in unstable operations which adversely affects underfire stack opacity and soaking emissions.

Explanation and Justification

Adjusting coking times has a detrimental impact to stack performance. In the 2016 Consent Judgment, the Department and U. S. Steel agreed that the most effective surrogate for environmental performance across the entire facility is plume opacity from battery combustion stacks. Note that, in a given quarter, there are greater than 42,000 hours (approximately 21,000 hours associated with 20% standard & approximately 21,000 hours associated with the 60% standard) during which there is a potential for stack violations. Within each standards 21,000 hours, U.S. Steel is required to have no more than 3 minutes of 20% opacity. In addition, any instantaneous measurement over 60% opacity is a violation. Stable operations and maintaining coking times are critical factors impacting environmental performance of stack opacity.

<u>Adjusting Coking Times Affects Stack Opacity and Fugitive Emissions</u>

Historical data shows that during periods of adjusting coking times, increases in stack and fugitive emissions have occurred. Adjusting coking times can lead to an unstable operation that creates difficulty maintaining consistent back pressures on the battery. Inconsistent battery pressure adversely affects lid and offtake emissions. In addition, increased coking times creates a high probability for a lean gas situation at the battery. Article XXI requires the gas to be lit at the standpipe within two minutes of dampering off the oven. In a lean gas situation, the gas can cannot be lit, which results in excessive soaking emissions which would most likely lead to a violation of the soaking requirements. Therefore, soaking emissions compliance will deteriorate as has been experienced most recently on Batteries 13-15 and 19/20. As coking times are increased on any unit, oven refractory temperatures are decreased to maintain the integrity of the refractory. As a result, the gas volume generated and off-gas temperatures from the coke mass are decreased. This results in increased soaking emissions.

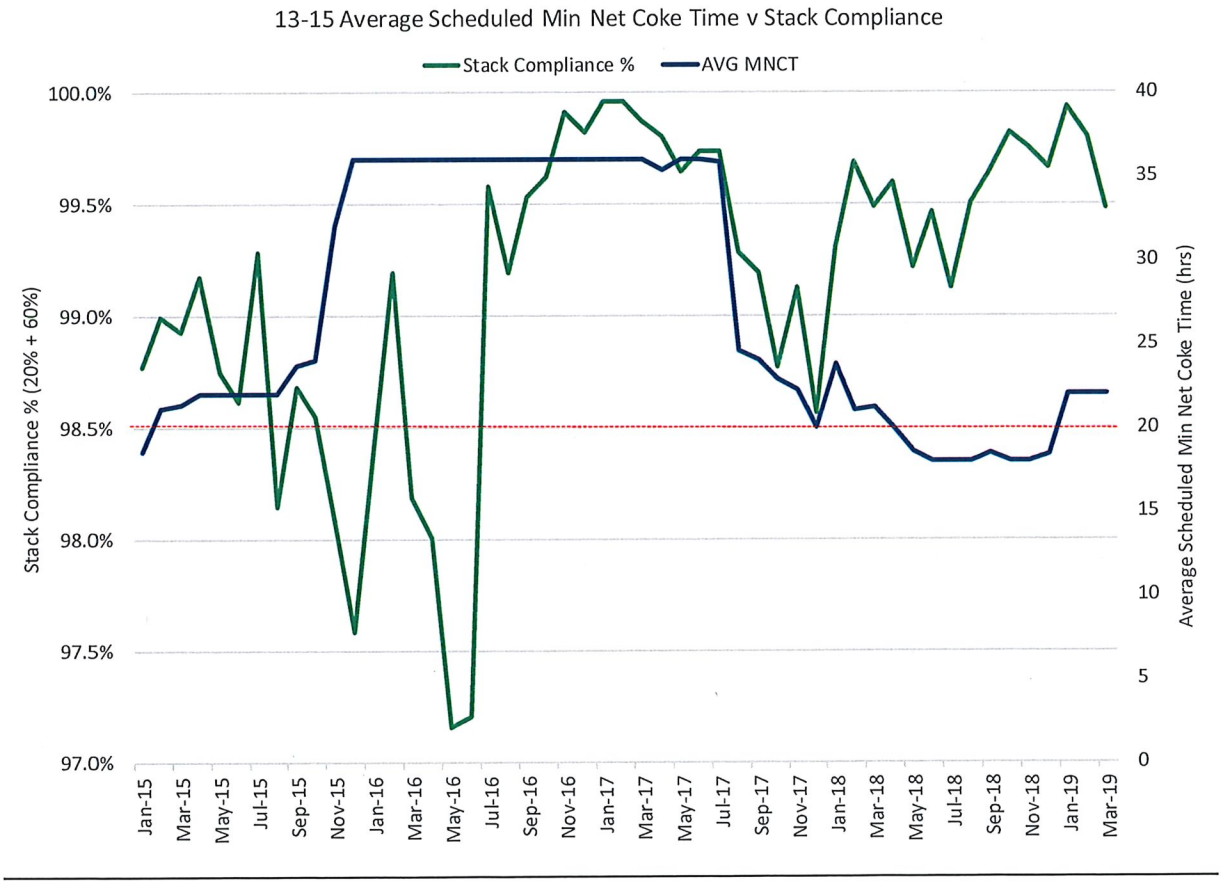
Because lids and offtakes, as well as soaking, would be adversely affected by adjusting the coking times required by the Order, and because they are components in the compliance rate to determine compliance with the June 2018 Enforcement Order (Enforcement Order No. 180601), extending coking times as established in the Order

would hinder our ability to achieve the required compliance rates established pursuant to Enforcement Order No. 180601.

Extending Coking Times Affects Stack Opacity

Extending coking times can lead to long term adverse effects on stack performance.

Loss of Beneficial Carbon
Extending coking times can adversely affect stack performance. This is caused, in part, by the loss of beneficial carbon. As coking time is extended for a coke battery the battery input fuel rate is reduced, this in turn reduces the oven refractory temperatures. When oven refractory temperatures are reduced the beneficial carbon that lines the interior of the oven chamber falls off which exposes the mortar joints to the oven interior. Any crack, fissure, or hole that was previously sealed with the thin layer of beneficial carbon normally present during normal coking temperatures is no longer there. This loss of beneficial or "Good" carbon now allows oven to flue leakage throughout each oven chamber on the entire battery. This has happened as recent as 2015 when the 2nd Unit, Batteries 13-15 and 19-20, were at 36-hour minimum scheduled net coke time and the 1st Unit, B and C Battery were at 24-hour minimum schedule net coke time.

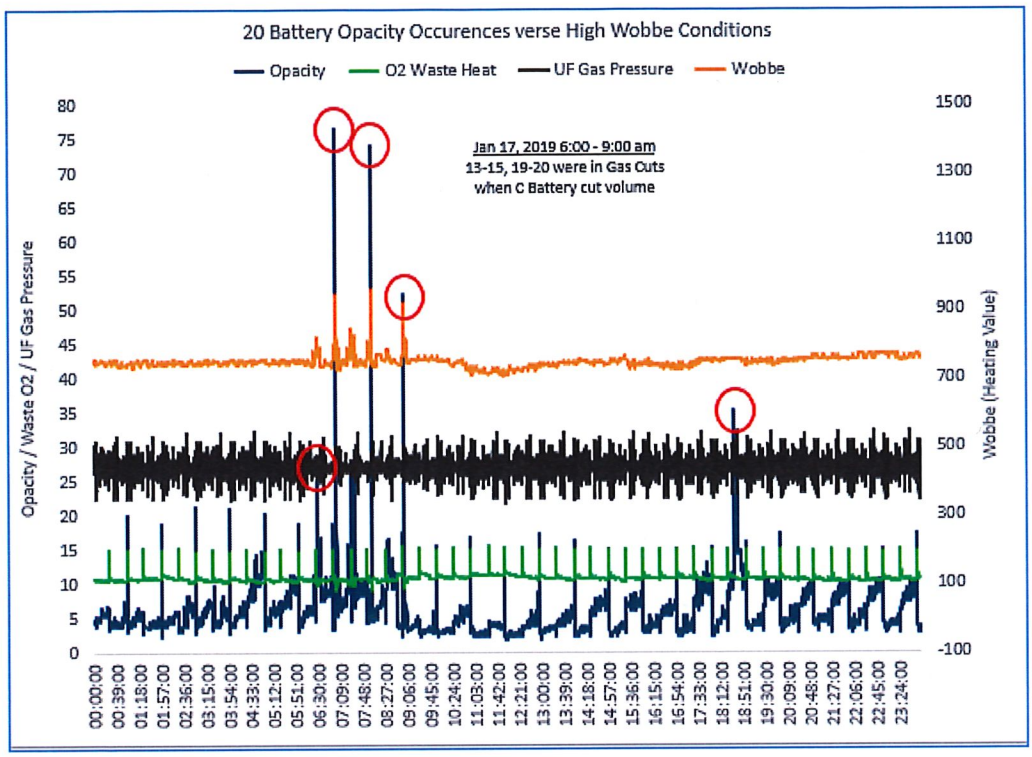


Extending coking time will cause loss of beneficial sealing carbon, which will lead to an increase in combustion stack opacity. Taking a methodical approach to increasing MNCT gives the plant operations personnel the best opportunity to stabilize the facility as we extend the MNCT to the requested dramatically increased levels of MNCT in the EO. If we were to increase this rate of change, the resulting thermal shock would be very detrimental to the battery refractory, resulting in much higher oven to flue leakage and stack opacity issues.

Incomplete Combustion

Due to the current plant fuel gas configuration, #2 Control Room out of service, Clairton is running all available natural gas jets into the battery under fire system to minimize the volume of raw coke oven gas combusted on the coke batteries for underfire heating. Natural Gas is approximately twice the heating value of coke oven gas so it is diluted with air to an equivalent heating value as coke oven gas. As the required fuel consumption rate of the batteries decrease as a result in extending minimum net coke time jets have to be systematically taken off line and replaced with raw gas. This is because the control system for the raw gas addition automatically controls to the demand, but the natural gas jets do not, they are a fixed rate.

Under current operations, if the sequencing between Chemicals and the Heating Department is not done properly, it can and will cause higher backpressure against the natural gas jets forcing the air intake on the jets to be restricted while injecting the same volume of natural gas. Under extended time operations, most of the units will be at a minimum fuel gas volume. These minimum volumes can't be reduced further without increasing the risk for air infiltration into the underfire mains. So, to make additional volume cuts, pause time will need to be utilized. It is inevitable that reversing times and pause times will overlap causing high backpressure against the natural gas jets. Both of these scenarios produce a fuel gas that is higher in heating value than the batteries can properly combust leading to stack opacity. The combustion stacks that are affected first are Batteries 13-15 and 19-20. This phenomenon is illustrated in the chart on the following page.



As noted herein, adjusting and extended coking times has a significant impact on stack performance and fugitive emissions. Stack performance accounts for half of the facility wide compliance calculation for Enforcement Order No. 18060, while fugitive emissions account for the other half of the calculation. Requiring U. S. Steel to extend coking time as required by Enforcement Order No. 190202 negatively affects U. S. Steel's ability to achieve compliance with Enforcement Order No. 18060 and the stack opacity requirements agreed to by the Department and U. S. Steel in the 2016 Consent Judgment.

MITIGATION PLAN

Since the fire on December 24, 2018, U. S. Steel has expended and continues to expend personnel and financial resources to the maximum extent practicable to employ mitigation efforts to reduce the potential impacts from the incident. We remain committed to employing actions only when such actions can be done in a manner that is safe for our employees, contractors and the public and when potential impacts to the environment can be minimized.

Immediately after the fire was extinguished, U. S. Steel began evaluating and implementing mitigation measures replacing coke oven gas with natural gas, extending coking times on Batteries 13-15, 19-20, B and C batteries, and redirecting coke oven gas combustion to flares for better dispersion.

On January 7, 2019, we reconfigured a natural gas supply system to allow us to introduce additional natural gas to the Clairton No. 1 and No. 2 Boilers and the No. 1

Boiler and Hot Strip Mill at Irvin Plant. In addition, on January 10, 2019, we increased the use of natural gas on Clairton Boiler No. 1. Clairton underfire natural gas percentage increased from 40% to 60%. We continue to monitor these efforts.

On January 14, 2019, we increased the coking time on Batteries 1, 2, and 3 from 22 hours to 23 hours. On January 15, we increased 20 Battery coking time from 22.5 to 23.5 hours. On January 17, we increased C Battery coking time from 20 to 21 hours. On January 25, we increased 19 and 20 Batteries to 24 hours. On January 28, we increased 19 and 20 again, to 26 hours. We continue to monitor all batteries and associated environmental performance.

On February 28, 2019 changes were made to the Mixing Station operations to reduce the percentage of Coke Oven Gas to 5-15% for Clairton Plant and Irvin Plant. Also, the Edgar Thomson Plant Coke Oven Gas usage was reduced to zero by shutting down the COG compressor station and directing more jet gas from the Mixing Station to the Edgar Thomson Plant. While the repairs continue, we will continue to operate with zero Coke Oven Gas usage unless there is a curtailment of blast furnace gas availability because the boilers cannot physically operate on 100% natural gas.

On February 28, 2019, U. S. Steel received the Order and while a number of the requirements were not able to be implemented due to safety and environmental concerns, U. S. Steel did begin further extending coking times in addition to continuing the aforementioned mitigation measures.

As we have explained, our mitigation strategy is fluid, as we are continuously evaluating and reevaluating actions that could be employed for additional mitigation, including efforts to expedite the repairs. As a result, U. S. Steel is willing to implement the following updated mitigation plan to further mitigate any impacts of the incident and to expeditiously restart the No. 2 and No. 5 Control Rooms:

Updated Mitigation Plan

- Further extended coking times and coke production from 11,000+ tons per day (pre-fire) to approximately 8,000 tons per day (by March 28th – see schedule for extended coking below) to reduce the coke oven gas generated.
- Continue to expedite the repairs so that the No. 2 and No. 5 Control Rooms could be restarted by April 15, 2018.
- At the reduced production, 100% of the coke oven gas will be able to be processed at the No. 2 and No. 5 Control Rooms.
- Adjust coking times thereafter, ensuring that 100% of the coke oven gas can be processed to accommodate any additional coke oven gas

With the intense focus and commitment by the Clairton team, including the USW, trades, and vendors, on completing the work necessary, U. S. Steel's current plan is to restart No. 2 and 5 Controls Rooms by April 15, 2019 – one month sooner than the original estimate. The original schedule was developed during demolition and before the damage assessment was 100% complete. As more information became available, we were able to make adjustments accordingly. The previous schedule of May 15th was

based on vendor delivery dates. As repairs were being made, and because U. S. Steel, USW and trades, and our contractors worked continuously and diligently to expedite the repairs. In addition, U. S. Steel procurement and vendors were instrumental in improving delivery dates. For example, the roof truss delivery date improved by three weeks (from what was in our original schedule) which resulted in an acceleration of the installation of roof purlins, roof decking and sheeting, roof level fire protection system and high bay lighting. Schedule meetings are held twice a day to discuss work progress, ways to expedite efforts, and material delivery dates. During these meetings, the team coordinates next steps to ensure that critical tasks are completed on or ahead of schedule. Note that the plan may be revised as necessary to minimize potential for safety issues and to maximize environmental performance.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

U. S. Steel will commit to continue to further extend coking times to approximately 27 hours MNCT for all 10 of the coke batteries and the 27 MNCT will be completed by approximately March 28, 2019, per the schedule below:

	MNCT				
Date	1-3	B	C	13-15	19-20
2/28/2019	~~23.00~~	~~20.00~~	~~21.00~~	~~22.00~~	~~26.00~~
3/1/2019	~~23.00~~	~~20.25~~	~~21.00~~	~~22.00~~	~~26.00~~
3/2/2019	~~23.00~~	~~20.50~~	~~21.00~~	~~22.00~~	~~26.00~~
3/3/2019	~~23.00~~	~~20.75~~	~~21.00~~	~~22.00~~	~~26.00~~
3/4/2019	~~23.00~~	~~21.00~~	~~21.00~~	~~22.00~~	~~26.00~~
3/5/2019	~~23.00~~	~~21.25~~	~~21.25~~	~~22.00~~	~~26.00~~
3/6/2019	~~23.00~~	~~21.50~~	~~21.50~~	~~22.00~~	~~26.00~~
3/7/2019	23.00	21.75	21.75	22.00	26.00
3/8/2019	23.00	22.00	22.00	22.00	26.00
3/9/2019	23.00	22.25	22.25	22.25	26.00
3/10/2019	23.00	22.50	22.50	22.50	26.00
3/11/2019	23.00	22.75	22.75	22.75	26.00
3/12/2019	23.00	23.00	23.00	23.00	26.00
3/13/2019	23.25	23.25	23.25	23.25	26.00
3/14/2019	23.50	23.50	23.50	23.50	26.00
3/15/2019	23.75	23.75	23.75	23.75	26.00
3/16/2019	24.00	24.00	24.00	24.00	26.00
3/17/2019	24.25	24.25	24.25	24.25	26.00
3/18/2019	24.50	24.50	24.50	24.50	26.00
3/19/2019	24.75	24.75	24.75	24.75	26.00
3/20/2019	25.00	25.00	25.00	25.00	26.00
3/21/2019	25.25	25.25	25.25	25.25	26.00
3/22/2019	25.50	25.50	25.50	25.50	26.00
3/23/2019	25.75	25.75	25.75	25.75	26.00
3/24/2019	26.00	26.00	26.00	26.00	26.00
3/25/2019	26.25	26.25	26.25	26.25	26.25
3/26/2019	26.50	26.50	26.50	26.50	26.50
3/27/2019	26.75	26.75	26.75	26.75	26.75
3/28/2019	27.00	27.00	27.00	27.00	27.00

The coking times will be extended using the above schedule as a guide with appropriate adjustments being made as necessary to minimize potential for safety issues and to maximize environmental performance of the facility. This action will reduce the coke production to approximately 8,000 tons per day from approximately 11,000 tons per day

under normal operating conditions. To reduce the MNCT further could jeopardize the scheduled restart of the No. 2 and 5 Control Rooms.

Once this level is achieved, the plant would work to stabilize the batteries from a heating/patching and gas balance perspective in order to minimize the impact of extending the MNCT on stack and soaking performance. In addition, stabilizing the batteries will help minimize the potential for safety and environmental issues during the restart.

The Plant will then set the date for the restart which is anticipated to be on or before April 15, 2019. The plan is to restart 6 vacuum machines in the No. 2 Control Room. At 8,000 tons per day, the No. 2 and 5 Control Rooms will be able to process all of the raw coke oven gas generated under normal operating conditions at that production level. We would adjust coking times only after we are certain that any increase in coke oven gas can be processed.

CONCLUSION

Because of the stringent time constraints and the complex nature of the issues explained herein, U. S. Steel would be pleased to meet with the Department to address any questions it may have. We propose meeting with the Department during the morning of March 11th to address any questions the Department may have and to more fully discuss our mitigation efforts and alternate mitigation plan.

Respectfully submitted,

Michael S. Rhoads
Plant Manager
Mon Valley Works – Clairton Plant

David W. Hacker
Senior Counsel - Environmental