

**ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

In the Matter of: United States Steel
Corporation — Mon Valley Works
400 State Street
Clairton, PA 15025

Order #190202

ENFORCEMENT ORDER

AND NOW, this 28TH day of February, 2019 (hereinafter “Effective Date”), the Allegheny County Health Department (hereinafter “ACHD” or “Department”) has found as a factual matter and has legally concluded the following:

1. The Director of the ACHD has been delegated authority pursuant to the federal Clean Air Act, 42 U.S.C. Sections 7401 -7671q (hereinafter “CAA”), and the Pennsylvania Air Pollution Control Act, 35 P.S. Sections 4001-4014 (hereinafter “APCA”), and the ACHD is a local health agency organized under the Local Health Administration Law, 19 P.S. §§ 12001-12028, whose powers and duties include the enforcement of laws relating to public health within Allegheny County, including but not limited to, the ACHD’s Rules and Regulations, Article XXI, Air Pollution Control (Allegheny County Code of Ordinances Chapters 505, 507 and 535) (hereinafter “Article XXI”).

2. United States Steel Corporation (“U.S. Steel”) is a corporation organized under the law of the state of Delaware and operates coke ovens at its Clairton Works facility situated in the city of Clairton, Allegheny County, PA.

3. U.S. Steel Clairton Works is the largest by-products coke plant in North America. Clairton Works operates ten coke batteries and produces approximately 10,000 tons of coke per

day from the destructive distillation (carbonization) of more than 16,000 tons of coal. During the carbonization process, approximately 215 million cubic feet of coke oven gas are produced. The volatile products of coal contained in the coke oven gas are recovered in the by-products plant. In addition to the coke oven gas, daily production of these by-products include 145,000 gallons of crude coal tar, 55,000 gallons of light oil, 35 tons of elemental sulfur, and 50 tons of anhydrous ammonia.

4. Clairton Works is located approximately 20 miles south of Pittsburgh on 392 acres along 3.3 miles of the west bank of the Monongahela River. The plant was built by St. Clair Steel Company in 1901 and bought by U.S. Steel in 1904. The first coke batteries were built in 1918. The coke produced is used in the blast furnace operations in the production of molten iron for steel making.

5. On December 24, 2018, the Clairton Works facility experienced a fire that required the immediate shutdown of the No. 2 and No. 5 Control Rooms. The shutdown of those two control rooms resulted in the diversion of coke oven gas away from the desulfurization process of the facility's by-products operation.

6. By virtue of the diversion of the coke oven gas away from the desulfurization process, U.S. Steel caused high sulfur coke oven gas to flow towards its Edgar Thomson and Irvin facilities and allowed for sulfur compounds, including but not limited to sulfur dioxide (SO₂), to be released from various flaring stacks, and into the ambient air.

7. In an effort to mitigate the release of pollutants into the air, U.S. Steel attempted to dilute coke oven gas (which otherwise would have been reintroduced as fuel at its coke ovens, as well as various other processes at its Edgar Thomson and Irvin facilities) with natural gas.

8. Between December 24, 2018 and January 8, 2019, air quality monitors, in areas affected by U.S. Steel's operations, recorded no fewer than six exceedances of the National Ambient Air Quality Standards developed by the U.S. Environmental Protection Agency. In particular, those standards are 75 parts per billion (ppb) on an hourly basis for SO₂. There is also a 24 hour limit of 35µg/m³ for particulate matter 2.5 microns or smaller (PM_{2.5}).

9. While such exceedances are attributable to U.S. Steel's activity at Clairton following the December 24 fire and its attempts to mitigate further exceedances of the standards, the Department understood the emergent nature of the event. Based on information demanded of and received by U.S. Steel, the Department determined that such efforts stood a chance of avoiding further exceedances and mitigate the risk of harm to public health.

10. Then, on February 2, 3 and 4, the air quality monitor situated in the Liberty Borough registered 24 hour averages for PM_{2.5} of no less than 60µg/m³. The monitor stationed at North Braddock registered a one hour exceedance for SO₂ of 82ppb on February 4.

11. The following day, the Department continued conducting its review of U.S. Steel's compliance with the provisions of Article XXI, the March 24, 2016 consent decree (as issued by the Allegheny Court of Common Pleas and agreed upon by the parties), its Title V Operating Permit as issued on March 27, 2012, and the 2018 Enforcement Order (Order No. 180601).

12. The Department also reviewed data concerning U.S. Steel historical coking times. It also requested from U.S. Steel an analysis of the SO₂ and H₂S emissions across its three facilities situated in the Mon Valley; namely, Edgar Thomson, Clairton and Irvin Works.

13. It was only upon a closer review of the emissions data reported by U.S. Steel that the full scope of the problem become apparent. Specifically, U.S. Steel's own emissions data

revealed that just prior to and following the December 24 fire, its H₂S grain loading across its Mon Valley facilities was as follows:

<u>H₂S Source</u>	<u>H₂S Average Daily Grains—4 Days Before Fire (12/20/2018)</u>	<u>H₂S Average Daily Grains -- 36 Days After Fire (1/29/2019)</u>
Batteries 1 through 3, 13-15	4.83	100.28
Batteries 19, 20, B, C	6.08	161.97

14. U.S. Steel’s Clairton Installation Permit #0052-I011b (Condition IV.27), Edgar Thomson’s Installation Permit #0051-I006 (Condition IV.27), and Irvin’s Installation Permit #0050-I008 (Condition IV.25) impose a site wide limit for sulfur compound emissions to no more than 35 grains/100 dscf. However, as a part of the breakdown report it submitted following the December 24 fire, U.S. Steel has acknowledged an exceedance of the H₂S limit of 35 grains/100 dscf (grains per hundred dry standard cubic feet).

15. Also notable is the full scope of the emission of SO₂ into the air despite attempted mitigation efforts. Indeed, U.S. Steel’s SO₂ emissions skyrocketed after the fire as noted in the chart below:

<u>SO₂ Source</u>	<u>SO₂ (lbs./day)—4 Days Before Fire (12/20/2018)</u>	<u>SO₂ (lbs./day)--36 Days After Fire (1/29/2019)</u>

Underfire for Batteries 1 through 3, 13-15	414.83	8,166.31
Underfire for Batteries 19, 20, B, C	597.47	15,082.00
Edgar Thomson Boilers, and "Misc"	224.88	4605.98
Irvin HSM (Hot Strip Mill) Boilers 1 through 4	237.09	2,109.48
Irvin Galvanizing Line, HPH (High Pressure Hydrogen), OCA (Open Coil Annealing), CA (continuous Annealing)	85.71	271.92
Clairton Boilers (A Line)	257.76	3,731.33
Clairton Boilers (B Line)	142.64	0
Irvin COG (Coke Oven Flares) Flares	157.80	40,132.79

16. Of grave concern, beyond the NAAQS exceedances experienced at the monitors, are the calculated emissions from U.S. Steel itself.

17. Specifically, U.S. Steel's calculations indicate that on January 29, 2019, the flaring of coke oven gas which took place at the Irvin facility and which was intended to dilute the emission of SO₂, in fact, pushed approximately *20 tons of SO₂ into the atmosphere.*

18. Notwithstanding the fact that U.S. Steel is subject to a grain loading standard of 35 grains/100 dscf, as of January 29, 2019, Batteries 1-3, 13-15, and Batteries 19, 20, B, and C averaged 100.28 and 161.97 grains/100 dscf, respectively.

19. Based on the foregoing information provided by U.S. Steel concerning its SO₂ emissions across all three of its Mon-Valley facilities, the Department concludes that the current pollution mitigation strategy is not working.

PERMIT VIOLATIONS CONSTITTUTING VIOLATIONS OF ARTICLE XXI

20. Article XXI of the Allegheny County Health Department Rules and Regulations contains numerous provisions requiring U.S. Steel's compliance with respect to the terms of its operating and installation permits. Specifically, Section 2101.11 provides as follows:

§2101.11 PROHIBITION OF AIR POLLUTION

It shall be a violation of this Article to fail to comply with, or to cause or assist in the violation of, any requirement of this Article, or any order or permit issued pursuant to authority granted by this Article. No person shall willfully, negligently, or through the failure to provide and operate necessary control equipment or to take necessary precautions, operate any source of air contaminants in such manner that emissions from such source:

1.Exceed the amounts permitted by this Article or by any order or permit issued pursuant to this Article:

21. Section 2102.03.c likewise provides as follows:

§2102.03 PERMITS GENERALLY *{Paragraph a.1 & d.2 & Subsections i & j amended, and k & l added
September 6, 1995, effective October 20, 1995}*

* * *

c. **Conditions.** It shall be a violation of this Article giving rise to the remedies provided by Part I of this Article for any person to fail to comply with any terms or conditions set forth in any permit issued pursuant to this Part.

22. As noted above, U.S. Steel's Clairton, Edgar Thomson and Irvin facilities are subject to a H₂S grain loading standard of 35grains/100 dscf.

23. U.S. Steel has acknowledged H₂S values at each facility in excess of the 35grains/100 dscf standard.

24. As a consequence of its exceedance of the 35grains/100 dscf permit limit, U.S. Steel has violated the conditions of its various permit and therefore, is in violation of Article XXI.

**VIOLATIONS OF ARTICLE XXI FOR EXCEEDANCES OF THE NATIONAL
AMBIENT AIR QUALITY STANDARDS**

25. Article XXI, Section 2101.10 of the Allegheny County Health Department Rules and Regulations specifically incorporates by reference the national ambient air quality standards promulgated by the federal EPA.

26. Section 2101.11 (Prohibition of Air Pollution) states that it "shall be a violation of this Article to fail to comply with ... any requirement of this Article." Moreover, it proscribes that no one shall "through the failure to provide and operate the necessary control equipment or to take the necessary precautions, operate any source of air contaminants in such manner that emissions from such source ... cause an exceedance of the ambient air quality standards established by § 2101.10 of this Article [or] may reasonably be anticipated to endanger the public health, safety or welfare."

27. Article XXI contemplates further the Department's broad authority to take a wide array of actions as deemed necessary to aid in the enforcement of its provisions. Specifically, Article XXI, Section 2109.02 affords the following, in relevant part:

§2109.02 REMEDIES *{Paragraphs a.3 & 6 amended September 6, 1995, effective October 20, 1995. Paragraphs a.5, 6, & 7 amended August 29, 2013, effective September 23, 2013.}*

a. **General.** In addition to any remedy specifically authorized by any other provision of this Article or the laws of the Commonwealth or the United States, the Department may pursue any one or more of the following remedies for the violation of any requirement of this Article:

1. The issuance of an Enforcement Order as authorized by §§2109.03, 2109.04, and 2109.05 of this Article, including Emergency Orders to restrain or enjoin immediately and effectively any person from engaging in any activity in violation of a regulation or permit that is presenting an imminent and substantial endangerment to the public health or welfare, or the environment;

* * *

d. **Remedies Concurrent.** It is expressly declared that the remedies authorized by this Article shall be concurrent and that the existence of pendency of any remedy shall not in any manner prevent the Department from seeking or exercising any other remedy, whether authorized by this Article or otherwise existing at law or in equity.

28. Insofar as Article XXI authorizes the issuance of enforcement orders, it expounds on that authority to acknowledge the following:

§2109.03 ENFORCEMENT ORDERS

{Paragraph b.5 amended September 6, 1995, effective October 20, 1995. Subsection d, and Paragraphs b.1 and d.1 amended August 29, 2013, effective September 23, 2013.}

a. **General.** Whenever the Department finds, on the basis of any information available to it, that any source is being operated in violation of any provision of this Article, including any provision of any permit or license issued pursuant to this Article, it may order the person responsible for the source to comply with this Article or it may order the immediate shutdown of the source or any part thereof. The issuance of an order to

address any violations, including of permit conditions, need not be preceded by the revocation of a permit.

1. The Department may also issue any such other orders as are necessary to aid in the enforcement of the provisions of this Article. These orders shall include, but shall not be limited to, orders modifying, suspending, terminating or revoking any permits, orders requiring persons to cease unlawful activities or cease operation of a facility or air contaminant source which, in the course of its operation, is in violation of any provision of this Article, or any permit, orders to take corrective action or to abate a public nuisance or to allow access to a source by the Department or a third party to take such action, orders requiring the testing, sampling, or monitoring of any air contaminant source, and orders requiring production of information. Such an order may be issued if the Department finds that any condition existing in or on the facility or source involved is causing, contributing to, or creating danger of air pollution, or if it finds that the permittee or any person is in violation of any provision of this Article.

2. The Department may, in its order, require compliance with such conditions as are necessary to prevent or abate air pollution or effect the purposes of this Article.

29. In addition to the power to shutdown a facility, Article XXI grants the Department the authority to establish, by enforcement order, an additional or more stringent standard as follows:

§2109.04 ORDERS ESTABLISHING AN ADDITIONAL OR MORE RESTRICTIVE STANDARD

á. **General.** Whenever the Department finds, on the basis of any information available to it, that emissions from any source are causing or significantly contributing to the exceedance of any ambient air quality standard established by §2101.10 of this Article at any location within the Commonwealth, that such emissions violate the requirements of §2101.12 of this Article relating to interstate pollution, or that such emissions may otherwise reasonably be anticipated to endanger the public health, safety or welfare, it may order the person responsible for such source to comply with an additional or more stringent emission limitation than established by this Article or it may order the immediate shutdown of the source or any part thereof.

30. As a consequence of its violation of Article XXI and due to the inability of its mitigation strategy to control the emission of SO₂ and PM_{2.5}, the Department hereby orders U.S. Steel to take the specific corrective actions as set forth below.

PENALTY ASSESSMENT

NOW THEREFORE, pursuant to the authority granted to the ACHD by Article XXI §2109.03.a.1 and the Local Health Administration Law, 19 P.S. §12010, it is hereby **ORDERED** that:

1. Starting March 1, 2019, U.S. Steel shall extend coking time across all batteries by no less than an additional fifteen minutes every day until such time it has reached the Minimum Required Coking Time as set forth below:

Battery	Minimum Required Coking Time (in hours)
1	30
2	30
3	30
13	36
14	36
15	36
19	36
20	36
B	30
C	30

2. U.S. Steel shall achieve these Minimum Required Coking Times no later than March 29, 2019 and shall maintain 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.

3. Nothing in the foregoing shall be construed to preclude U.S. Steel from achieving the Minimum Required Coking Times set forth in Paragraph 1, *supra*, prior to March 29, 2019. If U.S. Steel can achieve the Minimum Required Coking Times as set forth in Paragraph 1, *supra*, before March 29, 2019, it shall do so.

4. To mitigate the emission of SO₂ from the boilers situated at the Edgar Thomson facility, U.S. Steel shall lower its use of coke oven gas to no more than 0.148% from the 2-3% reported in its February 1, 2019 letter to the Department. Reduction of coke oven gas shall be complete no later than seven (7) days from the date of this Order.

5. U.S. Steel shall reduce its SO₂ emissions coming from its coke oven batteries, boilers and emission stacks across all Mon Valley facilities (specifically, Edgar Thomson, Irvin, and Clairton) including the “peachtree” flaring stack to no more than an aggregate 13,597.59 pounds per day across all three facilities. To accomplish this, U.S. Steel shall elect one or more of the following:

- a) Within seven (7) calendar days of the date of this Order, U.S. Steel shall reduce the volume of coal in each coke oven such that the resulting

SO₂ emissions are reduced to an amount not to exceed 13,597.59 pounds per day;

b) Extend and maintain coking time beyond the Minimum Required Coking Time as set forth above;

c) Hot idle as many coke oven batteries as are necessary to achieve compliance with the H₂S standard. For purposes of enforcing the terms of this Order, the term “hot idle” is to be understood as the cessation of all charging, soaking and pushing of metallurgical coke in applicable batteries. Hot idling, if selected by U.S. Steel, shall be complete no later than 35 days from the date of this Order. Underfiring of coke ovens shall continue until June 30, 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. Because compliance with this provision will take more than 7 calendar days, U.S. Steel must advise the Department within 5 days of the date of this Order as to its decision to hot idle any of its batteries; and/or

d) Within 5 days of the date of this Order, U.S. Steel shall submit to the Department a proposed plan along with supporting calculations as to how it intends to reduce the amount of SO₂ emissions from its facilities to an amount not to exceed an aggregate of 13,597.59 pounds per day across Clairton, Edgar Thomson and Irvin Works. Said plan shall contemplate a complete reduction of SO₂ emission no later than ten (10) days from the date of the plan submission.

Reporting

U. S. Steel shall report its election within five (5) calendar days from the date of this order. In order to determine compliance with this paragraph, U.S. Steel shall provide the Department with a weekly report of daily SO₂ emission (expressed on a pounds/day basis), supporting calculations and data attributable to each of its Clairton, Irvin and Edgar Thomson facilities. Said weekly report shall retain the format of the spreadsheet U.S. Steel provided in the February 4, 2019 email to Jayme Graham except the battery temperature information need not be submitted. U.S. Steel shall further provide a second weekly report to the Department, providing the daily total flow rate for each fuel type, the daily average H₂S grain loading, and the SO₂ emissions (expressed on a pound/day basis) from December 24, 2018 and with respect to each emission point listed below:

CLAIRTON COKE WORKS

Boiler 1
Boiler 2
Boiler R1
Boiler R2
Boiler T1
Boiler T2
Battery 1 (Underfiring)
Battery 2 (Underfiring)
Battery 3 (Underfiring)
Battery 13 (Underfiring)

Battery 14 (Underfiring)
Battery 15 (Underfiring)
Battery 19 (Underfiring)
Battery 20 (Underfiring)
B Battery (Underfiring)
C Battery (Underfiring)

IRVIN WORKS

Boiler #1
Boiler #2
Boilers #3-4 (aggregate)
80" Hot Strip Mill (aggregate)
HPH Annealing Furnaces (aggregate)
Open Coil Annealing (aggregate)
Continuous Annealing
Peachtree A & B Flare
Coke Oven Gas Flares #1 through #3

EDGAR THOMSON WORKS

Riley Boiler 1
Riley Boiler 2
Riley Boiler 3
Blast Furnace 1 Stoves
Blast Furnace 3 Stoves

U. S. Steel shall transmit weekly reports beginning the first Monday following implementation of its elected corrective action as set forth, *supra*, and shall continue transmissions until June 30, 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.

6. The 13,597.59 pound per day limit is based on the following:
 - a) On February 4, 2019, U.S. Steel reported to the Department there was a total of 2,118.166 pounds of SO₂ emitted from the listed sources on December 20, 2018.
 - b) On December 20, 2018, there were two listed numbers for daily average grains of 4.825 and 6.079 grains (presumably grains / 100 dry standard cubic feet). 4.825 was for the Unit 1 Underfire which is stated to include batteries 1-3 and 13-15 and 6.079 was for the Unit 2 Underfire which is stated to include batteries 19, 20, B, and C.
 - c) The average of these 2 numbers is 5.452 grains / 100 dscf.
 - d) If U.S. Steel had been emitting at 35 grains / 100 dscf, it would have emitted 13,597.59 pounds, as detailed in the following expression:

$$2,118.166 \text{ pounds of } SO_2 \times \frac{35 \text{ grains} / 100 \text{ dscf}}{5.452 \text{ grains} / 100 \text{ dscf}}$$

- e) Again, on February 4, 2019, U.S. Steel reported a total of 74,099.81 pounds of SO₂ emitted from the listed sources on January 29, 2019.
- f) The amount of emitted SO₂ in exceedance of the limit as of January 29, 2019 was 60,502.22 pounds (stated differently, 74,099.81 pounds – 13,597.59 pounds).
- g) Because of the exceedances at the monitor and the exceedances of the 35 grains / 100 dry standard cubic feet limits, USS must reduce their emissions at the listed sources by 60,502.22 pounds of SO₂ on a daily basis and must emit no more than 13,597.59 pounds of SO₂ at the listed sources on any given day.

7. In the event that U.S. Steel fails to comply with paragraph 5 of this Penalty Assessment within the time afforded, it shall, following written notice from ACHD, hot idle all batteries situated at the Clairton Works facility. Hot idling shall be completed no later than 35 days from the date of notice issued by the Department and shall continue until June 30, 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.

8. The requirements of this Order are intended to supplement legal requirements to which U.S. Steel is already subject. If there is a conflict between any requirement of this Order and other statutory or regulatory requirements, the more stringent requirement shall control. If

U.S. Steel believes that a conflict between the requirements of this 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 or if compliance is made materially impossible due to conditions outside of U.S. Steel's control, then U.S. Steel shall provide the ACHD with an explanation of such conflict or material impossibility in writing no later than five days from the date of this Order. The ACHD may notify U.S. Steel whether ACHD concurs with its position and whether such provision in this Order is modified, suspended, terminated, or continues in effect.

9. The imposition of any requirement contained in this Enforcement Order is not intended and in no way releases U.S. Steel from any obligations imposed by or to which it is subject under Article XXI or other final determination. Moreover, although no civil penalty is included with this Enforcement Order, a civil penalty will be calculated for all violations to Article XXI, U.S. Steel's operating and installation permits, and any existing and relevant orders already in existence as of December 24, 2018. Any civil penalty attributable to the violations addressed by this Order shall contemplate the benefit of non-compliance with Article XXI and its operating and installation permits.

10. Any documentation required by this Order and correspondence with the ACHD shall be sent to the following:

Jayne Graham
Air Quality Program Manager
Allegheny County Health Department
301 39th Street, Bldg. No. 7
Pittsburgh, PA 15201-1811
Tel: 412-578-8103
Fax: 412-578-8144
E-Mail: jayne.graham@alleghenycounty.us

11. Pursuant to Article XI, Allegheny County Health Department Rules and Regulations, Hearings and Appeals, you are notified that if you are aggrieved by this Order you have (30) days in which to file an appeal from the receipt of this Order. Such a Notice of Appeal shall be filed in the Office of the Director at 542 4th Avenue, Pittsburgh, PA 15219. In the absence of a timely appeal, the terms of this Order shall become final.

12. This Order is enforceable upon issuance and any appeal of this Order shall not act as a stay unless the Director of the ACHD so orders.

13. Failure to comply with this Order within the time specified herein is a violation of Article XXI giving rise to the remedies provided by Article XXI § 2109.02.

14. The provisions of this Order shall apply to, be binding upon, and inure to the benefit of the ACHD and U.S. Steel and upon their respective officers, directors, agents, contractors, employees, servants, successors, and assigns.

15. The duties and obligations under this Order shall not be modified, diminished, terminated, or otherwise altered by the transfer of any legal or equitable interest in the Facility or any part thereof.

16. The ACHD may, upon U.S. Steel's request, agree to modify or terminate U.S. Steel's duties and obligations under this Order upon transfer of the property. Pursuant to Article XI of the ACHD's Rules and Regulations for Hearings and Appeals, U.S. Steel may challenge any

decision made by the ACHD in response to any of U.S. Steel's request for a modification of this Order due to a transfer of all or part of the property.

17. The imposition of this Enforcement Order shall not, in any manner, prohibit or preclude the Department from exercising its authority to enforce the regulations under Article XXI of the Allegheny County Health Department Rules and Regulations. Moreover, the imposition and any resolution of this civil penalty shall not, in any manner, prohibit or preclude any other party or governmental agency or entity from pursuing legal action (civil or criminal) against U.S. Steel for conduct that is the subject of this enforcement order.

DONE and **ENTERED** this 28th day of February, 2019, in Allegheny County, Pennsylvania.

For:

ALLEGHENY COUNTY HEALTH DEPARTMENT



Jim Kelly
Deputy Director, Environmental Health

2/28/19
Date