

**ALLEGHENY COUNTY HEALTH
DEPARTMENT AIR QUALITY PROGRAM**

In the Matter of:

United States Steel Corporation
Clairton Plant
400 State Street
Clairton, PA 15025

Violation No. [Insert #]

Violations of Article XXI (“Air
Pollution Control”) at property:

United States Steel
Corporation
Mon Valley Works
400 State Street
Clairton, PA 15025

ENFORCEMENT ORDER

NOW, this 29 day of December, 2023, the Allegheny County Health Department (hereinafter "ACHD") issues this Enforcement Order after it has found and determined the following:

I. AUTHORITY

1. The Director of the ACHD has been delegated authority pursuant to the federal Clean Air Act, 42 U.S.C. §§ 7401-7671q (hereinafter “CAA”), and the Pennsylvania Air Pollution Control Act, 35 P.S. §§ 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 Regulations” (Allegheny County Code of Ordinances Chapters 505, 507, and 535) (hereinafter “Article XXI”).

II. BACKGROUND

2. United States Steel Corporation (hereinafter “U. S. Steel”) owns and operates a

facility in Clairton, Allegheny County, Pennsylvania (hereinafter “Clairton Coke Plant”).

3. The Clairton Coke Plant currently operates seven coke batteries (Batteries 13, 14, 15, 19, 20, B, and C) and produces approximately 8,600 tons of coke per day from the destructive distillation (carbonization) of approximately 11,700 tons of coal.

4. During the carbonization process, approximately 150 million cubic feet of coke oven gas are produced. The volatile constituents of vaporized 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 includes approximately 95,000 gallons of crude tar and 33 tons of elemental sulfur.

5. Until March 31, 2023, the Clairton Coke Plant operated ten coke oven batteries (Batteries 1, 2, 3, 13, 14, 15, 19, 20, B, and C). On or about April 1, 2023, pursuant to Condition IV.35. of the renewed Major Source Operating Permit No. 0052 for the Clairton Coke Plant (hereinafter “2022 Clairton Operating Permit”), U. S. Steel permanently shut down Batteries 1, 2, and 3 at the Clairton Coke Plant.

III. FINDINGS OF VIOLATIONS

6. On March 27, 2012, the ACHD issued Operating Permit No. 0052 to U. S. Steel for the Clairton Coke Plant (hereinafter “2012 Clairton Operating Permit”).

7. On April 6, 2018, the ACHD issued Installation Permit Amendment No. 0052-I011b (hereinafter “IP-011b”) to U.S. Steel for the construction of C Battery.

8. On November 21, 2022, ACHD issued the 2022 Clairton Operating Permit to U. S. Steel for the Clairton Coke Plant.

9. The Pennsylvania “Air Resources” regulations establish that the ambient air quality standard for hydrogen sulfide (“H₂S”) is a maximum concentration of 0.005 parts per

million by volume-dry (“ppm”) averaged over a 24-hour period. 25 Pa. Code § 131.3.

10. A Program Clarification Memorandum (“PCM”) issued on February 23, 2021, by the Pennsylvania Department of Environmental Protection (hereinafter “PA DEP”), Bureau of Air Quality, states:

Because the standard in 25 Pa. Code §131.3 does not specify a calendar day, calculations should use the more protective interpretation of the 24-hour standard; namely, the 24-hour averages used for comparison against the standards should be based upon rolling 24-hour averages, rather than calendar days. In this way, no 24-hour average above the state standard is excluded from comparison to the standard.

11. Per PA DEP’s conditional approval of the ACHD Air Quality Program, ACHD is to implement PA DEP air quality regulations and to follow PA DEP air quality “guidance documents and technical interpretations.” PA DEP, *Allegheny County Air Quality Program Approval with Conditions*, at 1 – 2, §§ I.b., h. (October 30, 1998).

12. Article XXI § 2101.10.a. (“Ambient Air Quality Standards”), incorporates the ambient air quality standards for H₂S set forth in 25 Pa. Code § 131.3:

All final national and state ambient air quality standards, promulgated by EPA under the Clean Air Act at 40 CFR part 50, and by the state under the Air Pollution Control Act at 25 Pa. Code Chapter 131, respectively, are hereby incorporated by reference into this Article.

13. Article XXI § 2101.11.a.2. (“Prohibition of Air Pollution”) and General Condition III.1.b. of the 2012 and 2022 Clairton Operating Permits prohibit the operation of the Clairton Coke Plant “in such manner that emissions from such source . . . [c]ause an exceedance of the ambient air quality standards established by § 2101.10 of” Article XXI.

14. The Clairton Coke Plant is a significant source of H₂S emissions. In the two most recent emission inventory submittals for the Clairton Coke Plant, for 2021, U. S. Steel reported to ACHD 159.6 tons of H₂S emissions, and, for 2022, 110.9 tons of H₂S emissions. These emissions

result from multiple processes at the plant, including but not limited to:

- Dampering coke ovens from the gas collection system and opening standpipe caps prior to pushing coke from the ovens (“soaking”);
- Battery door leaks;
- Water quenching of incandescent coke (although this process appears to emit significant amounts of H₂S, U. S. Steel has historically not reported H₂S emissions from this process);
- By-product plant sources (including tar and flushing liquor decanters, flushing liquor surge tanks, flushing liquor pumphouse sumps, and by-product pitch traps);
- Gooseneck leaks (where gas is removed from each oven before passing into the collector main);
- Miscellaneous battery fugitives (including bleeder stacks, battery pitch traps, and flushing liquor return vents); and
- SCOT (Shell Claus Off-gas Treating) plant tail gas incinerator.

15. ACHD operates an air monitoring station in Liberty Borough (hereinafter “Liberty Monitor”) which records ambient air concentrations of H₂S. The U. S. Steel Clairton Coke Plant is located approximately two miles south-southwest of the Liberty Monitor.

16. ACHD conducted analyses of the potential sources of H₂S and identified U. S. Steel’s Clairton Coke Plant as the cause of the exceedances of the H₂S ambient air concentration standard of 0.005 ppm, calculated as a 24-hour rolling average, at the Liberty Monitor. ACHD, *Analysis and Attribution of Hydrogen Sulfide (H₂S) Exceedances at the Liberty Monitoring Site from January 1, 2020 through March 1, 2022*, (March 3 2022) (updated

August 3, 2022) available online at https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/H2S_Report_updated_08052022.pdf (hereinafter *Liberty Monitor H₂S Exceedances Analysis*).

17. Through its *Liberty Monitor H₂S Exceedances Analysis*, ACHD did not identify evidence of any other sources contributing to the H₂S exceedances. This conclusion is based on the following findings, as stated in the *Analysis*:

- ACHD compared H₂S concentrations measured at the Liberty monitor originating from all measured wind directions under different meteorological conditions including wind speeds, strong inversions, and stagnant air events. ACHD concluded that measurable concentrations of H₂S originate from one direction, south-southwest of the Liberty Monitor; no sources from any other direction contributed to H₂S concentrations causing exceedances at ACHD’s Liberty monitor;
- The ACHD receives annual emissions inventory statements from larger permitted air emission sources within Allegheny County. These statements are submitted by a source as a summary of emitted pollutants from their facilities. In 2019 and 2020, the U. S. Steel Clairton Coke Plant and Allegheny County Sanitary Authority (“ALCOSAN”) submitted air emissions inventory statements that included H₂S. At the time, the Clairton Coke Plant was the only source that (a) is located south-southwest of the Liberty monitor and (b) submitted an air emissions inventory statement that includes H₂S.
- Another potential source of H₂S located south-southwest of the Liberty monitor is

the Clairton Wastewater Treatment Plant (“Treatment Plant”), which is owned by the Clairton Municipal Authority. To determine if the Treatment Plant contributed to measurable ambient air concentrations, portable gas sensors (Acrulog H₂S Parts Per Billion Monitors) were installed on multiple sides of its property line to capture upwind and downwind concentrations. ACHD’s analysis of the meteorological data, combined with concentrations of H₂S at the fence line of the property, indicated that the Treatment Plant did not contribute to H₂S exceedances at the Liberty monitor;

- To determine if there are unknown regional sources of H₂S that may contribute to high background concentrations of H₂S, ACHD analyzed data from a regulatory H₂S monitor that was located at the Avalon site. Prior to the plant’s closure in 2016, the Avalon H₂S monitor monitored emissions of H₂S from Shenango Coke Works. Additionally, the Avalon H₂S monitor was located downwind of a significant number of abandoned mine sites and wastewater treatment plants. The Avalon H₂S monitor was also located near ALCOSAN, the largest wastewater treatment facility in Allegheny County. The Avalon H₂S monitor was still operating during fifteen of the H₂S exceedance days measured in 2020 at the Liberty Monitor. At the Avalon monitor, the 24-hour averages of H₂S ambient air concentrations during those fifteen overlapping exceedance days measured 0.000 ppm;
- There was no evidence that small, non-inventoried sources affect the Liberty Monitor H₂S concentrations at any level, including exceedance levels. Therefore, based on all available data and resources, H₂S exceedances measured at the

Liberty Monitor during the period of January 1, 2020, through March 1, 2022, were attributed to emissions originating at U. S. Steel's Clairton Coke Plant.

18. ACHD determined that, during the period January 1, 2020, through March 1, 2022, emissions from U. S. Steel's Clairton Coke Plant caused exceedances of the H₂S ambient air concentration standard of 0.005 parts per million by volume-dry ("ppm") averaged over a 24-hour period at the Liberty Monitor. Consequently, on March 7, 2022, ACHD issued an Enforcement Order against U. S. Steel. 25 Pa. Code § 131.3; Article XXI § 2101.10; ACHD Enforcement Order No. 220302 (March 7, 2022). U. S. Steel subsequently appealed Enforcement Order No. 220302 and has yet to remedy the issue of exceedances of the H₂S ambient air concentration standard measured at the Liberty Monitor.

19. Starting in 2021, ACHD has required that larger permitted air emissions sources report H₂S in their emission inventory statements. Kelly Run Sanitation is a landfill operating in Elizabeth Township located south-southwest of the Liberty monitor. Kelly Run reported to ACHD 0.11 tons of H₂S emissions and for 2022 0.12 tons of H₂S emissions. This is a small, inventoried source of H₂S.

20. Additionally, in July 2022, Ramboll US Consulting, Inc., completed for ACHD a study reported in a document entitled *Assessment of Sources of Elevated Measured H₂S Concentrations in Allegheny County* (hereinafter "*Ramboll Assessment*").

21. In conducting its study, "Ramboll analyzed the available H₂S measurement and meteorological data to determine potential locations of sources that contributed to measured high H₂S concentrations . . . [;] conducted a literature review of potential H₂S emission sources and developed a preliminary H₂S emissions inventory for the region;" and "performed several types of analysis using air quality measurements, emissions, meteorological and other data to

estimate the sources that cause elevated H₂S concentrations in the Monongahela (Mon) Valley region.” *Ramboll Assessment* at 4, 47.

22. In its “[a]nalysis using wind and pollution roses and residence time (RT) and concentration weighted residence time (CWRT) analyses,” the Ramboll study determined that “there is a weight of evidence that the [Clairton Coke Plant] is the major contributor to high elevated H₂S concentrations at [the] Liberty [Monitor]” *Ramboll Assessment* at 47.

23. In conducting the Ramboll study,

[a] Potential Source Contribution (PSC) to measured H₂S concentrations above 2 ppb at Liberty was calculated by summing the CWRT WEP [(Weighted Emissions Potential)] and RT [(Residence Time)] WEP across all 444-m grid cells in the Mon Valley region to obtain an estimate of the percent contribution of each of the five source sectors to elevated H₂S concentrations at Liberty. The PSC analysis indicated that a vast majority (99.9%) of the high H₂S concentrations at Liberty were due to H₂S emissions from the [Clairton Coke Plant]. PSC sensitivity modeling to H₂S emissions was conducted that increased the non-[Clairton Coke Plant]source sectors’ H₂S emissions by a factor of 10, reduced the H₂S emissions at the [Clairton Coke Plant]to the value in the NEI, and the combination of these two effects. Even with the combination of increasing non-[Clairton Coke Plant]source sector H₂S emissions and decreasing [Clairton Coke Plant] H₂S emissions the PSC analysis still indicated that [the Clairton Coke Plant] contributed a vast majority (~98%) of the measured high H₂S concentrations at Liberty.

Ramboll Assessment at 49.

24. The *Ramboll Assessment* concluded that “even when accounting for other H₂S sources in the region the study estimates that the exceedances and violations of the state 24-hour 5 ppb H₂S standard would occur due to H₂S emissions from the [Clairton Coke Plant] alone.”

Ramboll Assessment at 48 – 49.

25. Since ACHD issued Enforcement Order No. 220302, and since its 2022 analyses were completed, there have been no new H₂S emissions sources constructed or identified outside of the Clairton Coke Plant that would account for any exceedances of the H₂S ambient

air concentration standard recorded at the Liberty Monitor. Additionally, there have been no changes to topography or land use that would account for any such exceedances.

26. During the period of March 2, 2022, through November 30, 2023, the Liberty Monitor recorded hourly exceedances of the H₂S ambient air concentration standard of 0.005 ppm averaged over a 24-hour period. Updated bivariate polar plots of H₂S concentrations and wind directions and speeds through November 30, 2023, have shown nearly identical results to those presented in the 2022 analyses.

27. In light of the previous studies and analyses and the absence of any subsequent, intervening causes, ACHD has identified U. S. Steel's Clairton Coke Plant as the cause of the exceedances of the H₂S ambient air concentration standard of 0.005 ppm, calculated as a 24-hour rolling average, at the Liberty Monitor, during the period of March 2, 2022, through November 30, 2023.

28. Each calendar day that ACHD determines a source caused an exceedance of the 24-hour rolling average of the H₂S ambient air concentration standard constitutes a violation of the prohibition established in Article XXI §§ 2101.10, 2101.11.a.2 and applicable permit conditions. ACHD finds that, from March 2, 2022, through November 30, 2023, on 159 calendar days, the U. S. Steel Clairton Coke Plant violated the prohibition established in Article XXI §§ 2101.10, 2101.11.a.2 and General Condition III.1.b. of the 2012 and 2022 Clairton Operating Permits. The total number of violations are summarized by year in the following table:

Year	Violations
March 2, 2022 – December 31, 2022	65
January 1, 2023 – November 30,2023	94
Total Violations	159

IV. ORDER

NOW THEREFORE, pursuant to the authority granted to the ACHD by Article XXI §§ 2109.02, 2109.03, and 2109.06, and the Local Health Administration Law, 19 P.S. § 12010, it is hereby ORDERED that:

Compliance Schedule and Plan

29. Within thirty (30) days, U. S. Steel shall take action to prevent future exceedances of the H₂S ambient air concentration standard from occurring and provide ACHD with a plan to achieve and maintain compliance with its requirement to not cause exceedances of the H₂S ambient air concentration standard. The compliance plan shall be subject to ACHD approval. Upon notification of ACHD's approval of the compliance plan, U. S. Steel shall immediately begin implementing the plan and complete implementation within forty-five (45) days following approval. U. S. Steel shall submit a report to ACHD within sixty (60) days following approval detailing actions completed and completion dates.

30. If ACHD determines that the compliance plan is ineffective in eliminating exceedances of the H₂S ambient air concentration standard, ACHD may require U.S. Steel to submit a revised compliance plan and/or may pursue remedies available to ACHD under Article XXI §§ 2109.02, 2109.03, and 2109.06 for failure to comply with this Order. Such remedies may include but are not limited to imposing a compliance schedule and plan on the U. S. Steel Clairton Coke Plant.

31. Nothing in this Order shall prohibit ACHD from taking further enforcement action for exceedances of the H₂S ambient air concentration standard not specifically identified in this Order.

32. Please be advised that failure to comply with this Order within the times specified

herein is a violation of Article XXI giving rise to the remedies provided by Article XXI § 2109.02, including but not limited to civil penalties of up to \$25,000 per violation per day under Article XXI § 2109.06.

Civil Penalty

33. For the violations set forth in the preceding paragraphs, U. S. Steel is hereby assessed a civil penalty of **TWO MILLION TWO HUNDRED TWO THOUSAND EIGHT HUNDRED TWENTY-FIVE DOLLARS**. The civil penalty is as follows:

A. Gravity Based Component

Violation	Gravity Based Penalty	Number of Violations	Total Gravity Penalty
Prohibition of Pollution Article XXI, § 2101.11			
Low Severity ¹	\$ 1,100.00	40	\$44,000.00
Moderate Severity ²	\$ 4,750.00	37	\$ 175,750.00
Major Severity ³	\$ 9,000.00	82	\$ 738,000.00
GRAVITY COMPONENT SUBTOTAL			\$957,750.00

B. Adjustment Factors

Degree of Cooperation: \$95,775.00

Compliance History: 8 enforcement actions in last 2 years \$957,750.00

Title V Source: \$ 191,550.00

TOTAL CIVIL PENALTY \$ 2,202,825.00

¹Low Severity: H₂S concentration greater than or equal to 0.0055 ppm and less than 0.0066 ppm.

²Moderate Severity: H₂S concentration greater than or equal to 0.0066 ppm and less than or equal to 0.00825 ppm.

³Major Severity: H₂S concentration greater than 0.00825 ppm.

34. U. S. Steel shall pay the civil penalty amount within thirty (30) days of receipt of this Order. Payment shall be made by corporate or certified check, or the like, made payable to the “Allegheny County Clean Air Fund”, and sent to Air Quality Program Manager, Allegheny

County Health Department, 836 Fulton Street, Pittsburgh, PA 15233.

35. ACHD has determined the above civil penalty to be in accordance with Article XXI § 2109.06.b., reflecting relevant factors, including but not limited to: the nature, severity and frequency of the alleged violations; the maximum amount of civil and criminal penalties authorized by law; the willfulness of such violations; the impact of such violations on the public and the environment; the deterrence of future violations; the actions taken by U. S. Steel to minimize such violations and to prevent future violations; and U. S. Steel's compliance history.

36. The gravity-based component of the civil penalty reflects the severity of the violation and the potential harm to the public or environment from the violation. The gravity-based component may be adjusted for factors and circumstances unique to the violator.

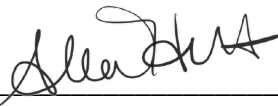
37. The ACHD determined that a 0.1 adjustment factor for degree of cooperation is appropriate. Following the issuance of Enforcement Order No. 220302 March 7, 2022 1, U. S. Steel did not take any corrective actions to try to minimize or stop the exceedances of the H₂S standard caused by the Clairton Coke Plant. U. S. Steel subsequently appealed Enforcement Order No. 220302.

38. Pursuant to Article XI § 1104.A ("Hearings and Appeals"), of the Allegheny County Health Department Rules and Regulations, and Article XXI §§ 2109.03.d. and 2109.06.a, you are notified that if you are aggrieved by this Order, a Notice of Appeal shall be filed no later than thirty (30) days after receipt of written notice or issuance of this Order. Such a Notice of Appeal shall be filed in the Office of the Director at 542 Fourth Avenue, Pittsburgh, PA 15219. This Order is enforceable upon issuance, and any appeal of this Order shall not act as a stay unless the Director or Hearing Officer of the ACHD so orders. In the absence of a timely appeal, the terms of this Order shall become final, and the civil penalty shall become collectible.

39. Please be aware that if you wish to appeal this Order, you are required within 30 days of receipt of this Order to either (a) forward the penalty amount to the ACHD for placement in an escrow account, (b) post an appeal bond to the ACHD in the amount of the penalty, or (c) claim an inability to prepay the penalty or post the bond. When filing the appeal, failure to also forward the money, post the bond, or claim an inability to do either shall result in a waiver of all legal rights to contest the violation or the amount of the civil penalty. If you allege financial inability to prepay the penalty or post a bond, then you have the burden to prove it. Please review the specific requirements for prepaying the penalty or posting the appeal bond found in Article XXI §§ 2109.06.a.2-3. A copy of Article XI and Article XXI may be found at <https://www.alleghenycounty.us/Government/Departments-and-Offices/Department-Directory/Health-Department/Legal/Health-Department-Regulations>.

DONE and **ENTERED** this ___ day of December 2023, in Allegheny County, Pennsylvania.

12/29/2023
Date



Allason Holt
ACHD Air Quality Program Manager,
Enforcement