

FOR PUBLIC COMMENT

Proposed

Revision

to

**ALLEGHENY COUNTY HEALTH DEPARTMENT RULES AND REGULATIONS
ARTICLE XXI, AIR POLLUTION CONTROL**

§2105.21 Coke Ovens and Coke Oven Gas

and

ALLEGHENY COUNTY'S portion of the
PENNSYLVANIA STATE IMPLEMENTATION PLAN
for the
Attainment and Maintenance of the
National Ambient Air Quality Standards

(Revision Tracking No. 106)

(Document date: March 20, 2025)

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1. Proposed Revision

Coke Ovens and Coke Oven Gas Regulation Revision

Deletions are shown with strikethroughs.
Additions are shown **bolded, enlarged and underlined**.

§2105.21 COKE OVENS AND COKE OVEN GAS

*{Portions effective August 15, 1997, the remainder effective February 1, 1994; Paragraph e.6 added June 22, 1995, effective July 11, 1995 and amended May 14, 2010 effective May 24, 2010; §2105.21.b, e, and h amended effective August 15, 1997; Subsection f amended February 12, 2007 effective April 1, 2007. Subsection i added August 29, 2013, effective September 23, 2013. Paragraph e.6 amended November 13, 2014, effective January 1, 2015. Subsections a through i amended and Subsection j added October 26, 2022, effective November 5, 2022. **Subsections b, e, and h amended mm/dd/2025, effective mm/dd/2025.**}*

- b. **Door Areas.** No person shall operate, or allow to be operated, any battery of coke ovens in such manner that:
1. For Coke Oven Battery C at the U. S. Steel Corporation Mon Valley Works Clairton Plant, at any time, there are visible emissions from more than three percent (3.0%) of the door areas of the operating coke ovens in such battery, excluding the two door areas of the last oven charged and any door areas obstructed from view as calculated in Subparagraph 8.B of this Subsection;
 2. For any batteries installed, replaced, or reconstructed, or at which a major modification was made between the dates of January 1, 1978, and October 31, 2012, at any time, there are visible emissions from more than five percent (5.0%) of the door areas of the operating coke ovens in such battery, excluding the two door areas of the last oven charged and any door areas obstructed from view;
 3. For ~~any of the following batteries~~ **Coke Oven Battery 19 at the U. S. Steel Corporation Mon Valley Works Clairton Plant**, at any time, there are visible emissions from more than eight percent (8.0%) of the door areas of the operating coke ovens in ~~such~~ **the** battery, excluding the two door areas of the last oven charged and any door areas obstructed from view;

~~SPECIFIC COKE OVEN BATTERIES~~

Source Name	Location
A. Coke Battery #1	U. S. Steel Corp. Clairton, PA
B. Coke Battery #2	U. S. Steel Corp. Clairton, PA
C. Coke Battery #3	U. S. Steel Corp. Clairton, PA
D. Coke Battery #19	U. S. Steel Corp. Clairton, PA;

or

4. For Coke Oven Battery C at the U. S. Steel Corporation Mon Valley Works Clairton Plant, emissions from the door areas of any coke oven exceed an opacity of 30% at any time 15 or more minutes after such oven has been charged;
5. Any batteries installed, replaced, or reconstructed, or at which a major modification was made on or after the effective date of this paragraph shall be subject to the applicable requirements under either Section 2102.06 (relating to installation permits for major sources locating in or impacting a nonattainment area) or Section 2102.07 (relating to installation permits for major sources locating in an attainment or unclassified area) of this Article;
6. For any batteries, other than those subject to Paragraphs b.4 or b.5 of this Section, emissions from the door areas of any coke oven exceed an opacity of 40% at any time 15 or more minutes after such oven has been charged; **or**
7. Unless for any of the following batteries at the U. S. Steel Corporation Mon Valley Works Clairton Plant, there is installed big plug doors, or better, on the coke side of each oven by January 1, 2000. Any replacement doors on these batteries, replaced after January 1, 2000, will also be big plug doors. A big plug door is a door that, when installed, contains a plug with minimum dimensions as listed below:

SPECIFIC COKE OVEN BATTERIES			
<u>Source Name</u>		<u>Minimum Width</u>	
<u>Minimum Depth</u>			
A.	Coke Battery #1	18 1/4"	14 1/2"
B.	Coke Battery #2	18 1/4"	14 1/2"
C.	Coke Battery #3	18 1/4"	14 1/2"
D. A.	Coke Battery #19	17"	16 1/4"
E. B.	Coke Battery #20	17"	16 1/4"

- e. **Pushing.** No person shall operate, or allow to be operated, any battery of coke ovens unless there is installed on such battery a pushing emission control device which is designed to reduce fugitive emissions from pushing to the minimum attainable through the use of BACT.

No person may permit the pushing of coke from a coke oven unless the pushing operation is enclosed during the removal of coke from a coke oven and pushing emissions are contained, except for the fugitive pushing emissions, that are allowed by Paragraphs 4 and 5 of this Subsection, nor shall any person operate or allow to be operated any battery of coke ovens in such manner that:

1. At any time, the particulate mass emission rate from the pushing emission control device, for any battery other than those subject to Paragraph e.2 or e.3 of this Section, exceeds a rate determined by an outlet concentration of 0.020 grains per dry standard cubic foot, or the rate determined by the following formula, whichever is greater:

per battery, $A = 0.76W^{0.42}$ where $A =$ allowable mass emission rate in pounds per hour
 and $W =$ actual coke pushing rate in tons of coke per hour
 per battery;

2. At any time, the particulate mass emission rate from the pushing emission control device, for **Coke Oven Battery #19 at the U. S. Steel Corporation Mon Valley Works Clairton Plant** ~~any of the following batteries~~ exceeds a rate determined by an outlet concentration of 0.010 grains per dry standard cubic foot;

SPECIFIC COKE OVEN BATTERIES

<u>Source Name</u>	<u>Location</u>
A. Coke Battery #1	U. S. Steel Corp. Clairton, PA
B. Coke Battery #2	U. S. Steel Corp. Clairton, PA
C. Coke Battery #3	U. S. Steel Corp. Clairton, PA
D. Coke Battery #19	U. S. Steel Corp. Clairton, PA

3. At any time, the particulate mass emission rate from the pushing emission control device for Coke Oven Battery B at the U. S. Steel Corporation Mon Valley Works Clairton Plant exceeds a rate of 0.040 pounds per ton of coke;
4. Fugitive pushing emissions or emissions from the pushing emission control device outlet equal or exceed an opacity of 20% at any time, except if the Department determines in writing, upon written application from the person responsible for the coke ovens setting forth all information needed to make such determination, that such emissions are of only minor significance with respect to causing air pollution and do not prevent or interfere with the attainment or maintenance of any ambient air quality standard (any such determination shall be submitted as a proposed revision to Allegheny County's portion of the SIP);
5. Visible emissions from the transport of hot coke in the open atmosphere exceed ten percent (10%) opacity at any time; or
6. For any of the following batteries, at any time, the hot coke fails to be held under the hood of the pushing emission control (PEC) device for at least 67 seconds immediately after the pusher ram begins to move and the damper to the PEC device is opened or for at least 15 seconds immediately following the fall of the last of the coke into the hot car, whichever is longer:

SPECIFIC COKE OVEN BATTERIES

<u>Source Name</u>	<u>Location</u>
A. Coke Battery #1	U. S. Steel Corp. Clairton, PA
B. Coke Battery #2	U. S. Steel Corp. Clairton, PA
C. Coke Battery #3	U. S. Steel Corp. Clairton, PA
D. A. Coke Battery #13	U. S. Steel Corp. Clairton, PA
E. B. Coke Battery #14	U. S. Steel Corp. Clairton, PA

~~F.~~ ~~Coke Battery #15~~ ~~U. S. Steel Corp. Clairton, PA~~

~~C.~~ Coke Battery #19 U. S. Steel Corp. Clairton, PA

~~D.~~ Coke Battery #20 U. S. Steel Corp. Clairton, PA

except that this Paragraph shall only be effective during the period from 30 days following the issuance of a written notice by the Department to the owner or operator of such battery that EPA has required the implementation of the contingency measures under the portion of the PM-10 SIP for the Liberty Borough/Clairton area, until issuance of a written notice by the Department that such measures are no longer required.

- h. **Coke oven gas.** Except as provided for in this Section, no person shall operate, or allow to be operated, any source in such manner that unburned coke oven gas is emitted into the open air. In addition, no person shall flare, mix, or combust coke oven gas, or allow such gas to be flared, mixed, or combusted, unless the concentration of sulfur compounds, measured as hydrogen sulfide, in such gas is less than or equal to the following concentrations:

1. **For purposes of this Subsection 2105.21.h, “24-hour average” means the arithmetic average of hourly average concentrations of hydrogen sulfide in COG, represented in units of grains per hundred dry standard cubic feet of COG, over a calendar day, where a “calendar day” means the period of elapsed time that begins at midnight on a certain date and ends 24 hours later at midnight of the next day;**

21. Where the rated production capacity of the coke plant producing such gas is less than 70 million standard cubic feet of coke oven gas per day, a concentration of ~~70~~ **25** grains per hundred dry standard cubic feet of coke oven gas, **based on a 24-hour average as defined in Paragraph h.1 above,** or the concentration determined by the following formula whichever is less:

$A = 156E^{-0.27}$ where A = allowable hydrogen sulfide content in grains per hundred dry standard cubic feet of coke oven gas, and
E = maximum coke oven gas production rate in millions of cubic feet per day

32. For all coke batteries installed, replaced, or reconstructed, or at which a major modification was made on or after January 1, 1978, where the rated production capacity of the coke plant producing such gas is equal to or more than 70 million standard cubic feet of coke oven gas per day, a concentration of ten (10) grains per hundred dry standard cubic feet of coke oven gas;

43. The standard set forth in Paragraph ~~h.2~~ **h.3** of this Section for the following coke oven batteries designated 13, 14, ~~15~~, 20, and B at the U. S. Steel Corporation

Mon Valley Works Clairton Plant shall be deemed satisfied for such batteries if the coke oven gas from the following batteries and treated by the Clairton Plant coke oven gas desulfurization system in existence as of June 24, 1993, has a sulfur compound concentration, measured as H₂S, of no greater than ~~35~~ **25** grains per hundred dry standard cubic feet of coke oven gas, **based on a 24-hour average as defined in Paragraph h.1 above,** produced by the Clairton Works, when all sulfur emissions from its Claus Sulfur Recovery Plant and the tail gas cleaning equipment thereon, expressed as equivalent H₂S, are added to the measured H₂S:

SPECIFIC COKE OVEN BATTERIES

Source Name	Location
A. Coke Battery #1	U. S. Steel Corp. Clairton, PA
B. Coke Battery #2	U. S. Steel Corp. Clairton, PA
C. Coke Battery #3	U. S. Steel Corp. Clairton, PA
D. Coke Battery #13	U. S. Steel Corp. Clairton, PA
E. Coke Battery #14	U. S. Steel Corp. Clairton, PA
F. Coke Battery #15	U. S. Steel Corp. Clairton, PA
G. Coke Battery #19	U. S. Steel Corp. Clairton, PA
H. Coke Battery #20	U. S. Steel Corp. Clairton, PA
I. Coke Battery B	U. S. Steel Corp. Clairton, PA

and

- 54.** For all other coke batteries, where the rated production capacity of the coke plant producing such gas is equal to or more than 70 million standard cubic feet of coke oven gas per day, other than those subject to Paragraph ~~h.2~~ **h.3** of this **Sub**section, a concentration of ~~fifty~~ **twenty-five** (~~50~~) (**25**) grains per hundred dry standard cubic feet of coke oven gas, **based on a 24-hour average as defined in Paragraph h.1 above.**

The concentration of sulfur compounds specified by this Subsection shall include ~~tail gas~~ **tail gas** sulfur, measured as hydrogen sulfide, emitted from sulfur removal equipment.

End of Regulation Change

2. Technical Support Document

Coke Ovens and Coke Oven Gas

This submittal affects the Allegheny County Health Department (ACHD) Air Pollution Control Regulations, Article XXI, §2105.21, “Coke Ovens and Coke Oven Gas,” in particular, Subsection “h,” as it addresses the concentration of sulfur compounds measured as hydrogen sulfide in coke oven gas at various coke oven gas production rates and for various coke oven batteries or groupings of batteries.

As part of a 2024 Consent Decree and Order in the case of *PennEnvironment, Inc., and Clean Air Council, and Allegheny County Health Department v. United States Steel Corporation*, Civil Action No. 2:19-cv-00484, in the United States District Court for the Western District of Pennsylvania, the Parties thereto agreed in Section 13 of the Consent Decree and Order, titled “COG Hydrogen Sulfide Limit,” to the following:

- a. As of the effective date of the decree, all COG flared, mixed, or combusted at the Facilities [(defined as the Clairton, Edgar Thomson and Irvin Plants)] shall contain concentrations of sulfur compounds, measured as hydrogen sulfide...of no more than 25 grains of hydrogen sulfide per hundred dscf COG on a 24-Hour Average (the “25 Grains Limit”).
- b. . . . ***ACHD agrees to undertake rulemaking and promulgate revisions to its Article XXI Rules and Regulations to establish the 25 Grains Limit in lieu of higher hydrogen sulfide concentration limits for COG applicable Facilities. {Italics and bold face added.}***

ACHD’s motivation to agree to a reduction to the 25 Grains Limit stemmed from its interests of (1) bringing the standard into better alignment with LAER, and (2) addressing a past error regarding the calculation of the plant-wide coke oven gas standard for the U.S. Steel Corporation Mon Valley Works Clairton Plant. In a recent rulemaking attempt, to address the past error, ACHD had recalculated and sought to reduce the standard under Subsection 2105.21.h. Mutually agreeing in the Consent Decree to reduce the Grains Limit to 25 grains per hundred dry standard cubic feet of coke oven gas is consistent with ACHD’s interests of bringing the standard into better alignment with LAER and addressing the past calculation error.

Given the agreement described above in italics from Section 13.b of the Consent Decree, the ACHD proposes the revisions to Article XXI, §2105.21.h denoted in Part 1 of this SIP Revision submittal. Most notably, a new paragraph “h.1” is being proposed to be added as follows:

1. *For purposes of this Subsection 2105.21.h, “24-hour average” means the arithmetic average of hourly average concentrations of hydrogen sulfide in COG, represented in units of grains per hundred dry standard cubic feet of COG, over a calendar day, where a “calendar day” means the period of elapsed time that begins at midnight on a certain date and ends 24 hours later at midnight of the next day;*

The Department notes that, while this proposed regulatory language is now providing the specific, written, time frame basis for the H₂S grain limit, it represents the Department’s historical approach to determining the H₂S grain concentration. It does not represent a departure from past practice.

Historically, the H2S grain limit was always determined on a 24-hour calendar day basis for purposes of reporting and compliance.

In addition to the changes described above, the ACHD Air Quality Program is amending §2105.21 by removing references to coke oven batteries Numbers 1, 2, 3 and 15, because they have been permanently idled. Finally, ACHD is making minor, non-substantive grammatical edits.

The following portions of Article XXI will be submitted as a SIP Revision:

§2105.21.b, e, and h (“Coke Ovens and Coke Oven Gas”)

The following table provides further explanation for the amendments to Article XXI, §2105.21:

Section	Explanation for Change
§2105.21.b.3.A-D, b.7.A-C; §2105.21.e.2.A-D, e.6.A-C, & F; §2105.21.h.3.A-C, & F	The ACHD is deleting the references to Coke Battery Nos. 1, 2, 3 and 15 because the batteries have been permanently idled.
Proposed new §2105.21.h.1	A proposed new Paragraph h.1. is being added to include the definitions of “24-hour average” and “calendar day” from the January 29, 2024 Consent Decree and Order. The added definitions of “24-hour average” and “calendar day” come from the Consent Decree and Order and apply only to Subsection 2105.21.h.
§2105.21.h.1 (to be changed to §2105.21.h.2)	Per the January 29, 2024 Consent Decree and Order, the coke oven gas concentration is being revised from 70 grains per hundred dry standard cubic feet of coke oven gas to 25 grains with the proviso that it is based on a 24-hour average as defined in Paragraph h.1.
§2105.21.h.3 (to be changed to §2105.21.h.4)	Per the January 29, 2024 Consent Decree and Order, the coke oven gas concentration is being revised from 35 grains per hundred dry standard cubic feet of coke oven gas to 25 grains with the proviso that it is based on a 24-hour average as defined in Paragraph h.1.
§2105.21.h.4 (to be changed to §2105.21.h.5)	Per the January 29, 2024 Consent Decree and Order, the coke oven gas concentration is being revised from 50 grains per hundred dry standard cubic feet of coke oven gas to 25 grains with the proviso that it is based on a 24-hour average as defined in Paragraph h.1.

3.

Documentation of Public Hearing and Certifications (all “later”)

Notice of Public Hearing
Transmittals of hearing notice to EPA & PA DEP
Proof of publication of notice of hearing
Certification of hearing
Summary of Comments and responses
Certification of approval and adoption