Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan

Redesignation Request and Maintenance Plan for the Allegheny, PA SO_2 Nonattainment Area for the 2010 NAAQS

Allegheny County Health Department
Air Quality Planning & Data Assessment Program

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ACRONYMS AND ABBREVIATIONS

ACHD	Allegheny County Health Department
AEO	Annual Energy Outlook
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AERR	Air Emissions Reporting Requirements
AQS	EPA's Air Quality System
BEIS	Biogenic Emission Inventory System
CAA	Clean Air Act
CFR	Code of Federal Regulations
COG	Coke Oven Gas
EGU	Electric Generating Unit
EIA	Energy Information Administration
EJ	Environmental Justice
EJI	Environmental Justice Index
EMP	Emissions Modeling Platform
EPA	United States Environmental Protection Agency
ERC	Emission Reduction Credit
ERTAC	Eastern Regional Technical Advisory Committee
FAA	Federal Aviation Administration
FEM	Federal Equivalent Method
FR	Federal Register
FEM	Federal Equivalent Method
I/M	Inspection and Maintenance
IP	Installation Permit
lb/hr	Pounds per hour
MARAMA	Mid-Atlantic Regional Air Management Association, Inc.
MOVES	Motor Vehicle Emission Simulator model
MVEB	Motor Vehicle Emissions Budget
MVW	Mon Valley Works (U. S. Steel)
MW	Megawatt
$\mu g/m^3$	Microgram per cubic meter
NAAQS	National Ambient Air Quality Standards
NAA	Nonattainment Area
NAICS	North American Industry Classification System
NEI	National Emission Inventory
NH_3	Ammonia
NO_x	Oxides of Nitrogen (generally NO or NO_2)
NNSR	Nonattainment New Source Review
NSR	New Source Review
OP	Operating Permit
PA DEP	Pennsylvania Department of Environmental Protection
PaSDC	Pennsylvania State Data Center
PennDot	Pennsylvania Department of Transportation

$PM_{2.5}$	PM less than or equal to a nominal 2.5 microns in aerodynamic diameter, also referred to as fine particulates
PM_{10}	PM less than or equal to a nominal 10 microns in aerodynamic diameter
ppb	Parts per billion
ppm	Parts per million
PSD	Prevention of Significant Deterioration
psi	Pounds per square inch
RACM	Reasonably Available Control Measure
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
RVP	Reid Vapor Pressure
RWC	Residential Wood Combustion
SCC	Source Classification Code
SCOT	Shell Claus Off-gas Treatment
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPC	Southwestern Planning Commission
TAF	Terminal Area Forecast
tpy	Tons per year (or tons/year)
TSD	Technical Support Document
USS	United States Steel Corporation (or U. S. Steel)
VCU	Vacuum Carbonate Unit
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

1. Overview

Sulfur dioxide (SO_2) is a regulated criteria air pollutant under the Clean Air Act (CAA). Health studies have linked short-term exposures to SO_2 to adverse respiratory effects including bronchoconstriction and increased asthma symptoms.[1]

In 2010, the U.S. Environmental Protection Agency (EPA) promulgated an SO_2 National Ambient Air Quality Standard (NAAQS) of 75 parts per billion (ppb) on a 1-hour basis. The standard was published in the *Federal Register* on June 22, 2010 and became effective August 23, 2010.[2] The level of the standard is based on the 3-year average of yearly 99th percentiles of daily maximum 1-hour SO_2 monitored concentrations (also known as "design values"). In the same action, EPA also revoked both the previous annual and 24-hour SO_2 standards.

EPA designated areas in four different rounds for the 2010 SO_2 NAAQS, with "Round 1" designations focused on existing ambient air quality monitor data. Nonattainment area (NAA) designations for Round 1 areas were set by EPA on August 5, 2013, effective October 4, 2013.[3] Nonattainment was determined by certified ambient air quality monitor data collected during consecutive calendar years 2009-2011 with design values that violated the 75 parts per billion (ppb) 1-hour standard.

Within Allegheny County, a contiguous 22-municipality area in the Monongahela River Valley (Mon Valley) region was designated as the "Allegheny, PA" SO_2 NAA under the Round 1 designations. The extent of the area was based on monitored air quality concentrations as well as other factors including emissions, meteorology, topography, and jurisdictional boundaries.

The Allegheny County Health Department (ACHD) developed an attainment demonstration State Implementation Plan (SIP) for the area, which was submitted to EPA on October 3, 2017 and approved by EPA on April 23, 2020 (see Section 4 of this document). Since the SIP approval, the ACHD official SO_2 monitors have shown monitored attainment of the 2010 NAAQS in the Allegheny, PA NAA. The area is also meeting all SIP obligations for nonattainment areas as required by the CAA[4] and the Code of Federal Regulations (CFR).[5]

The purpose of this document is to request redesignation to attainment for the Allegheny, PA NAA and to provide a maintenance plan to ensure continued attainment of the 2010 SO_2 NAAQS for a 10-year period following redesignation. The maintenance plan portion of this document constitutes a revision to the Allegheny County Portion of the Pennsylvania SIP for SO_2.

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[1] For more information: https://www.epa.gov/so2-pollution

[2] 75 FR 35520: https://www.govinfo.gov/content/pkg/FR-2010-06-22/pdf/2010-13947.pdf

[3] 75 FR 47191: https://www.govinfo.gov/content/pkg/FR-2013-08-05/pdf/2013-18835.pdf

[4] SIP requirements: https://www.epa.gov/air-quality-implementation-plans/sip-requirements-clean-air-act

[5] 40 CFR Chapter I Subchapter C: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C

Section 107(d)(3)(E) of the CAA specifies that a nonattainment area can be redesignated to attainment if the following criteria have been met:

- The area has been determined to have attained the NAAQS.
- The applicable SIP for the area has been fully approved, and the area is meeting all other applicable requirements under CAA Section 110 and Part D.
- The improvement in air quality in the area is due to permanent and enforceable reductions in emissions.
- The area has a fully approved maintenance plan according to CAA Section 175A.

Additionally, Section 175A of the CAA and EPA guidance specify the following elements that are required for an approvable maintenance plan:

- An attainment emissions inventory that corresponds with levels of emissions needed to attain the NAAQS.
- A maintenance demonstration showing that the area is expected to continue to maintain attainment of the NAAQS.
- A monitoring network that is in accordance with EPA requirements.
- A mechanism for verification of continued attainment of the NAAQS.
- Contingency provisions to ensure that the area will maintain attainment of the NAAQS in the event of a violation in the area.

This document shows that the Allegheny, PA NAA is meeting all requirements needed for redesignation, including a maintenance plan that will provide for continued attainment of the NAAQS through 2035. An additional maintenance plan for a subsequent 10-year period following the initial 10-year maintenance period will be developed and submitted to EPA within eight years after redesignation to attainment.

ACHD is also committed to the welfare of vulnerable communities that have been classified as environmental justice (EJ) areas. This maintenance plan provides focus on the surveillance and reduction of SO_2 within these communities (see Section 6.6 of this document).

2. Description of the Area

EPA based the 2010 SO_2 NAAQS Round 1 designation (U.S. EPA, 2013) of the Allegheny, PA NAA on several factors, with focus on existing air quality monitor data that showed monitored nonattainment based on 2009-2011 data.[6] Additional factors included emissions and emissions-related data, meteorology, geography/topography, and jurisdictional boundaries. Additional areas in Allegheny County have also been designated under Round 3 of the 2010 SO_2 NAAQS and under the 1971 SO_2 NAAQS.

The Pittsburgh region can be affected by long-range transport of SO_2 from upwind sources, specifically as a precursor to particulate matter 2.5 microns or less ($PM_{2.5}$), but SO_2 nonattainment has been driven mainly by local sources within Allegheny County. River valley terrain and surface temperature inversions can also trap pollution in areas such as the Monongahela River Valley (Mon Valley), causing more elevated SO_2 concentrations than in other areas.

2.1 Allegheny, PA SO_2 Nonattainment Area

The Allegheny, PA SO_2 NAA includes 22 municipalities in the Mon Valley region in southern Allegheny County. The area is centered roughly 10 miles southeast of downtown Pittsburgh and is made up of complex river valley terrain, including rural land, densely populated neighborhoods, and industrial facilities. Seven municipalities have one or more census tracts that have been classified as environmental justice (EJ) areas by the Commonwealth of Pennsylvania.[7]

Monitored concentrations and source emissions that were considerably higher than the surrounding region, along with localized terrain features and microscale meteorological effects, led to the designation of the Allegheny, PA NAA. The largest sources of SO_2 emissions in the Allegheny, PA NAA are the U. S. Steel (USS) Mon Valley Works (MVW) Clairton, Edgar Thomson, and Irvin Plants, as well as the Guardian Glass Plant (until closure in mid-2015).

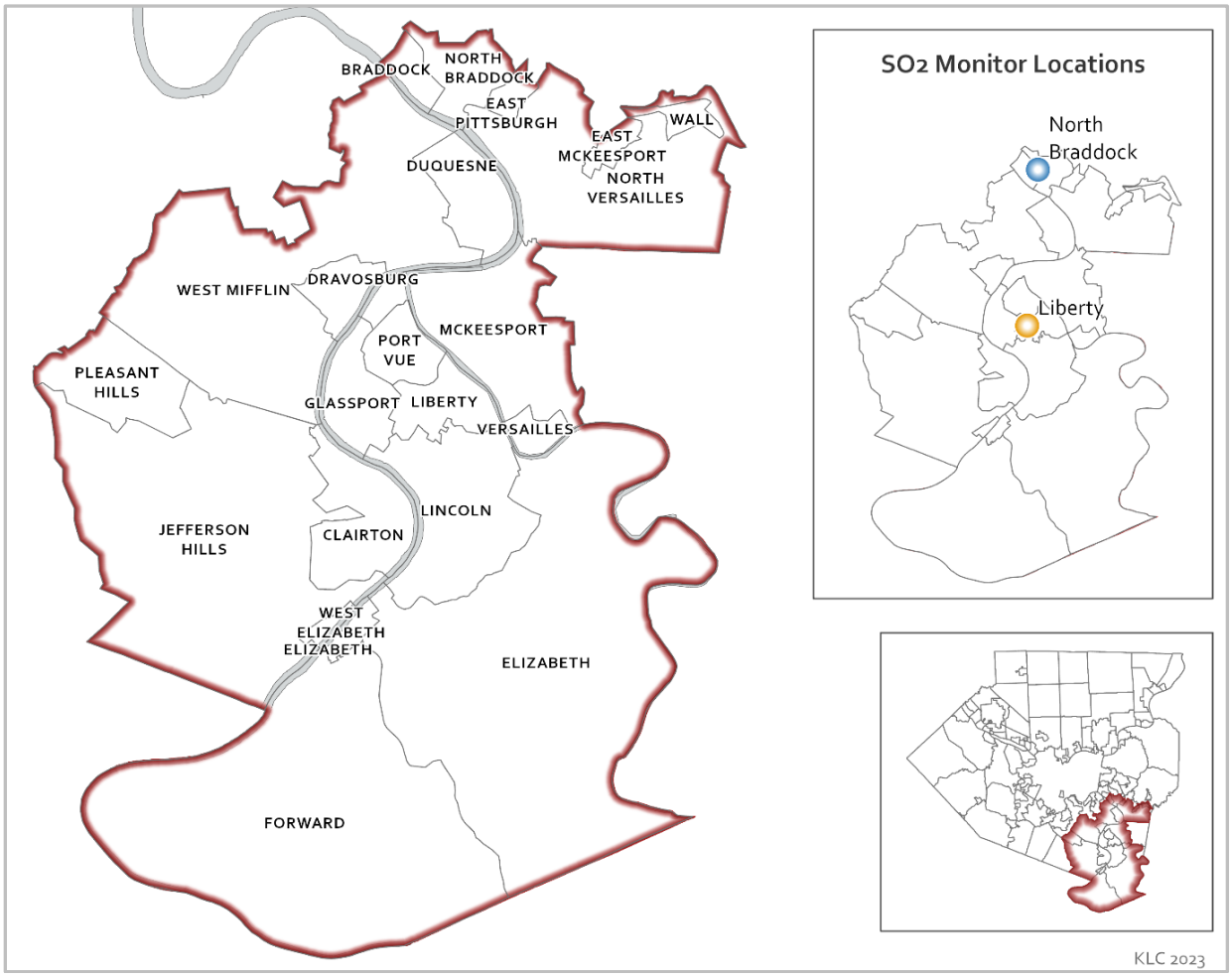
The attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017), approved by EPA in 2020, was developed to demonstrate attainment for the area by 2018. Reductions in SO_2 levels were based on improvements at the largest sources listed above. Source breakdowns in 2017-2019 did not allow for attainment by 2018, and the area later achieved monitored attainment of the 2010 SO_2 NAAQS with 2019-2021 design values (see more in Section 3 of this document).

A map of the Allegheny, PA SO_2 NAA is shown in Figure 2-1, with the municipalities labeled. Maps of the SO_2 monitor sites as well as the location of the nonattainment area within Allegheny County are also shown as insets.

[6] SO_2 designations: https://www.epa.gov/sulfur-dioxide-designations

[7] PA Environmental Justice areas (2015): www.dep.pa.gov/EJViewer

Figure 2-1. Allegheny, PA SO_2 Nonattainment Area for the 2010 NAAQS



A motor vehicle emissions budget (MVEB) for transportation conformity purposes was not required for the area. Nonattainment new source review (NNSR) for the area was in effect via Allegheny County's Article XXI Regulations. (See more in Section 4 of this document.)

2.2 Other SO_2 Areas in Allegheny County

The focus of this redesignation request and maintenance plan is on the Round 1 Allegheny, PA NAA for the 2010 SO_2 NAAQS. However, an additional area exists for the remainder of Allegheny County for the 2010 SO_2 NAAQS under Round 3 of the designations. A portion of the county is also a maintenance area through 2024 for the previous 1971 SO_2 NAAQS. No actions are being requested for these areas with this document, and these areas are described below for informational purposes only.

2.2.1 Unclassifiable Area (2010 NAAQS)

As part of the 2010 SO_2 NAAQS designation process, areas with large sources of SO_2 emissions (but without nearby monitors) were required to characterize 1-hour SO_2 concentrations as

prescribed by the accompanying Data Requirements Rule (DRR).[8] The area surrounding the Cheswick power plant in northern Allegheny County was identified as such an area. Agencies that chose to characterize areas with air quality modeling fell under Round 3 of the 2010 SO_2 NAAQS designation schedule.

Air quality modeling was performed for the Cheswick plant and submitted to EPA by the Pennsylvania Department of Environmental Protection (PA DEP) in 2017. While the modeling did show attainment for the surrounding area, EPA found issues with the modeling methodology that was not fully approvable as a regulatory approach.[9] As a result, the portion of Allegheny County surrounding the Round 1 Allegheny, PA NAA was designated as "unclassifiable" for the 2010 SO_2 NAAQS.[10]

As mentioned above, no action is being requested with this document for the Round 3 unclassifiable portion of Allegheny County. The Cheswick plant has since permanently ceased operations in April 2022, and its operating permit has been terminated. Future plans for the property include demolition of all structures and repurposing for uses other than the generation of electricity.

2.2.2 Previous NAAQS (1971)

In 1978, an area of 2-mile radius around the Hazelwood neighborhood of the City of Pittsburgh was designated nonattainment for the 1971 SO_2 NAAQS. Additionally, an area of 8-mile radius surrounding the Mon Valley was designated as an unclassified area. The industrial source that was the driving factor for nonattainment in Hazelwood was permanently closed in 1998. The unclassified area is comparable to the current Allegheny, PA NAA for the 2010 SO_2 NAAQS, which also concurrently revoked the 1971 SO_2 annual and 24-hour standards.

ACHD developed a redesignation request and maintenance plan for the 1971 SO_2 NAAQS areas in 2001, which was approved by EPA in 2004.[11] The monitor in Hazelwood was discontinued at the end of 2007 with EPA approval. The initial 10-year period of maintenance for the areas ended in 2014, and no further action was taken to develop a second maintenance plan for the areas. The maintenance period for these areas for the 1971 SO_2 NAAQS will expire in 2024.

[8] 80 FR 51052: https://www.govinfo.gov/content/pkg/FR-2015-08-21/pdf/2015-20367.pdf

[9] EPA Technical Support Document for PA: https://www.epa.gov/sites/default/files/2017-08/documents/35_pa_so2_rd3-final.pdf

[10] 83 FR 1098: https://www.govinfo.gov/content/pkg/FR-2018-01-09/pdf/2017-28423.pdf

[11] 69 FR 43522: https://www.govinfo.gov/content/pkg/FR-2004-07-21/pdf/04-16568.pdf#page=1

3. Attainment of the NAAQS

To qualify for redesignation, Section 107(d)(3)(E) of the CAA requires the responsible state/local agency to demonstrate that the nonattainment area is attaining the applicable NAAQS. EPA guidance (U.S. EPA, 1992) further clarifies that two components can be considered interdependently for a demonstration of attainment, with focus on areas of the highest concentrations: monitored data and modeled results.

3.1 Monitored SO_2 Data

There are two SO_2 monitor sites in operation within the Allegheny, PA NAA, as shown previously in Figure 2-1. The Liberty site has been in operation since 1969, located on the roof of the South Allegheny High School near the center of the nonattainment area. The North Braddock site has been in operation since 2014, located on the roof of the North Braddock municipal building in the northern portion of the nonattainment area.

The sites include EPA-approved continuous Federal Equivalent Method (FEM) SO_2 monitors that are operated according to 40 CFR Part 58 procedures.[12] Data from these monitors have been fully validated, quality-assured, and submitted to EPA's Air Quality System (AQS).[13] All data through 2022 have been requested by ACHD for certification by EPA.

The 2010 SO_2 NAAQS is based on design values, which are the 3-year averages of the yearly 99th percentile of daily maximum 1-hour concentrations at each site. The 99th percentile is generally the 4th highest daily maximum 1-hour concentration during a year. Both the Liberty and North Braddock sites have shown monitored attainment (i.e., design values equal to or below the NAAQS) with 2019-2021 and 2020-2022 design values.

Figures 3-1 and 3-2 show time series charts of the yearly 99th percentile daily maximum 1-hour and 3-year design value concentrations, respectively, for the Allegheny, PA NAA sites. Note: The timeframe in Figure 3-2 is 2010-2022, from promulgation of the 2010 NAAQS to the most recent design value.[14] The timeframe in Figure 3-1 is 2008-2022, since 2008 and 2009 data are included in 2008-2010 design values.

Monitored data are also given in tabular format in Appendix A of this document, along with AQS reports showing the same data.

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[12] EPA monitor network requirements: https://www.epa.gov/amtic

[13] EPA AQS website: https://www.epa.gov/aqs

[14]The concentrations given in the figures are based on design values extracted from AQS, which includes periods with less than three years of data (e.g., North Braddock for the first two 3-year design values). See the EPA design values website for more information: https://www.epa.gov/air-trends/air-quality-design-values

Figure 3-1. SO_2 Yearly 99th Percentile 1-Hour Concentrations (in ppb), 2008 to 2022

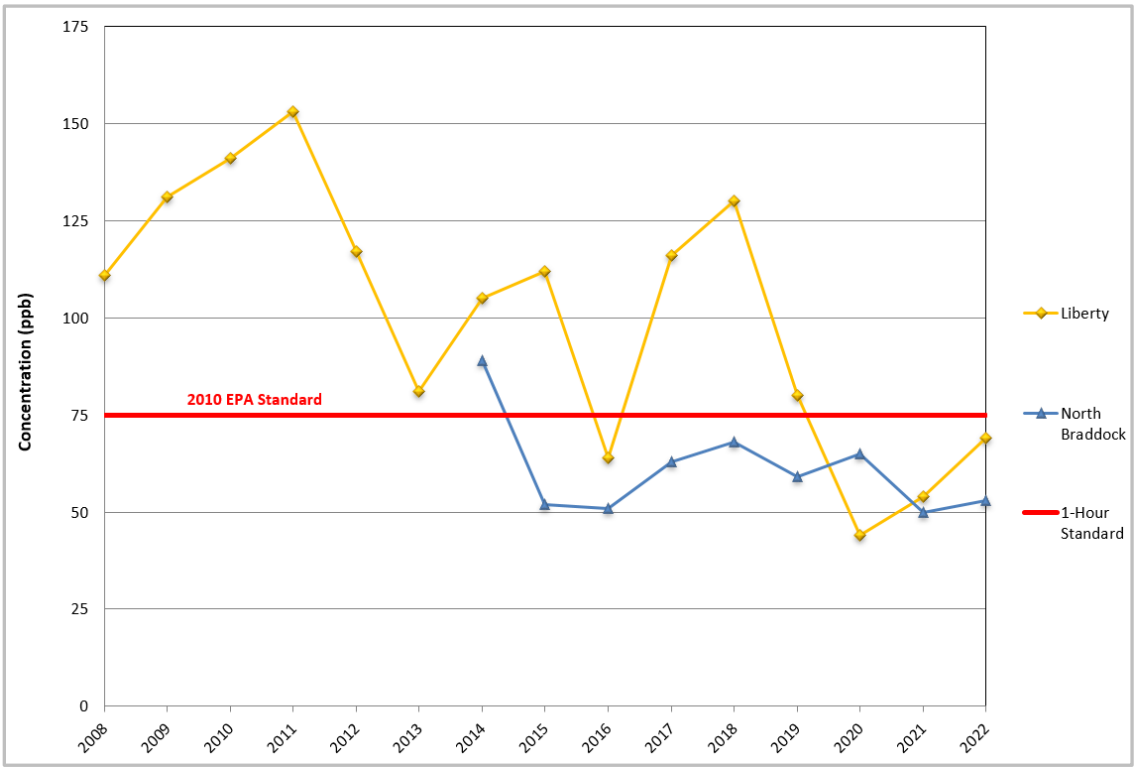
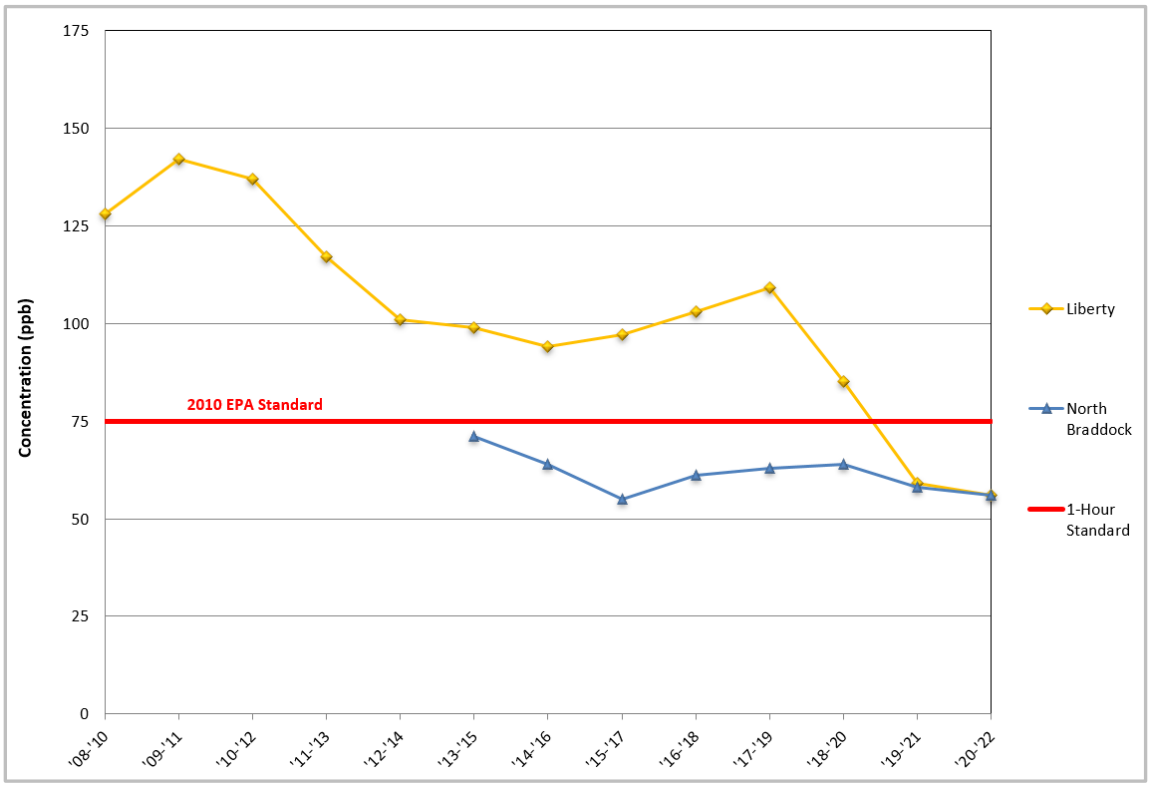


Figure 3-2. SO_2 Design Value Concentrations (in ppb), 2010 to 2022



3.2 Modeled Results

Modeling included in the attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017) featured a detailed simulation of SO_2 concentrations from a base year 2011 to a future case year 2018. The modeling was performed using the American Meteorological Society/ Environmental Protection Agency regulatory model (AERMOD[15]) according to EPA guidance (U.S. EPA, 2014)[16] and the model guideline.[17]

Model receptors were placed every 200 meters throughout the Allegheny, PA NAA, along with receptors every 100 meters (and every 50 meters at fence lines) near the largest industrial sources. Emissions for the future case year 2018 were based on revised maximum allowable limits for processes at the sources within the NAA.

The modeling demonstration showed that all locations within the Allegheny, PA NAA would achieve attainment of the 2010 SO_2 NAAQS at maximum possible operating conditions for the sources in the NAA. Note: The modeled scenario was based on maximum emissions with controls in place and was not designed to account for breakdowns of control equipment or other unexpected occurrences.

[15] EPA models: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[16] EPA SO_2 SIP Guidance: https://www.epa.gov/sites/default/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf

[17] EPA's Guideline on Air Quality Models: https://www3.epa.gov/ttn/scram/guidance/guide/appw_05.pdf

4. SIP Approvals and Other CAA Requirements

For an area to be redesignated to attainment, Section 107(d)(3)(E) of the CAA requires that an applicable state implementation plan (SIP) has been fully approved by EPA for the area according to Section 110(k) of the CAA (relating to EPA's action on plans). Additionally, the area should be satisfying all other applicable requirements of Section 110 and Part D of the CAA that pertain to attainment plans for particulate matter.

As described below, the Allegheny, PA NAA is meeting all SIP requirements for the 2010 SO_2 NAAQS.

4.1 SIP Approval

On September 14, 2017, ACHD finalized the attainment demonstration SIP for the Allegheny, PA NAA for the 2010 SO_2 NAAQS (ACHD, 2017). This SIP was submitted by PA DEP to EPA Region III on behalf of ACHD on September 29, 2017. The SIP was proposed for approval by EPA on November 19, 2018,[18] and the SIP received final approval by EPA on April 23, 2020.[19]

A clean data determination (CDD) of monitored data for the NAA has not been made by EPA to date. Since monitored attainment was not achieved by the SIP attainment date of October 4, 2018, a determination of attainment by the attainment date cannot be made for the NAA.

The approved SIP elements include a 2011 base year emissions inventory, a control strategy and air quality modeling demonstration, a reasonably available control measures/reasonably available control technology (RACM/RACT) analysis, a reasonable further progress (RFP) analysis, contingency measures, and nonattainment new source review (NNSR) regulations.

4.2 Base Year Emissions Inventory

A comprehensive base year emissions inventory is required by 40 CFR § 51.1008 for any nonattainment area in order to meet requirements under Section 172(c)(3) of the CAA.

Emissions inventories are compiled by ACHD and PA DEP according to EPA Air Emissions Reporting Requirements (AERR)[20] and related emissions inventory guidance documents. Source groups (or "data categories") in the emissions inventory include stationary point sources, stationary nonpoint (area) sources, nonroad mobile sources, and onroad mobile sources. Fire and biogenic emissions are also included in the inventory as area sources or as separate data categories.

[18] 83 FR 58206: https://www.govinfo.gov/content/pkg/FR-2018-11-19/pdf/2018-25079.pdf

[19] 85 FR 22593: https://www.govinfo.gov/content/pkg/FR-2020-04-23/pdf/2020-08573.pdf

[20] EPA AERR: https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr

Emissions are inventoried in terms of actual values, based on pollutant emission factors and throughputs or capacities of each emission source. Emissions do not represent permitted or maximum allowable limits, like those used in the SO_2 SIP modeling demonstration.

Data categories used for the emissions inventories are described below.

- Stationary point ("point") sources are industrial or commercial sources for which ACHD collects individual annual emissions and emissions-related information. These include major and minor sources, generally with the potential to emit 25 tons/year or more of any criteria pollutant.[21] Note: The point source inventory can also include airport and helipad emissions, as developed by EPA for the triennial National Emissions Inventory (NEI).[22]

- Stationary nonpoint (or "area") sources are industrial, commercial, and residential sources that are too small or too numerous to be inventoried individually. Examples include commercial and residential fuel combustion, solvent utilization, onshore oil and gas production, agricultural activity, and other sources. Commercial diesel marine vessels and railroad locomotives have also been included in the area source inventory (and not listed separately or as part of the nonroad mobile source inventory). PA DEP compiles nonroad mobile source emissions on a county-level basis every three years (matching NEI years).

- Nonroad mobile (or "nonroad") sources encompass a diverse collection of off-highway engines, including (but not limited to) outdoor power equipment, recreational vehicles, farm and construction machinery, lawn and garden equipment, industrial equipment, and other sources. PA DEP compiles nonroad mobile source emissions on a county-level basis every three years (matching NEI years).

- Onroad mobile (or "onroad") sources include passenger cars, light-duty trucks, heavy-duty trucks, buses, and motorcycles. The Motor Vehicle Emissions Simulator (MOVES)[23] model is used to generate emissions based on traffic counts, vehicle speeds, vehicle population growth, and other factors. PA DEP compiles onroad mobile source emissions on a county-level basis every three years (matching NEI years).

- Natural fire and biogenic sources are additional emissions compiled by EPA on a county-level basis. Fire emissions from inadvertent (wildfire) biomass burning are taken from

[21] ACHD yearly point source inventories through 2020 can be found at the following website: https://www.dep.pa.gov/DataandTools/Reports/Pages/Air-Quality-Reports.aspx

[22] EPA NEI: https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

[23] EPA MOVES: https://www.epa.gov/moves

EPA's Fires[24] inventory. Biogenic (non-anthropogenic) emissions from vegetation and soils are estimated by the Biogenic Emission Inventory System (BEIS)[25] model.

The approved 2011 base year emissions inventory for the Allegheny, PA area for the 2010 SO_2 NAAQS is shown below in Table 4-1, with emissions given by data category, in tons/year.

Table 4-1. 2011 Base Year SO_2 Emissions Inventory for the Allegheny, PA NAA

Allegheny, PA NAA (2011)	**SO_2 (tons/year)**
Point Sources	3,249
Area Sources	159
Nonroad Mobile Sources	1
Onroad Mobile Sources	8
Fires	0
Biogenics	0
Total	**3,418**

Notes on the base year emissions inventory:

- Emissions for area and mobile sources are allocated to the county level in NEI. For the Allegheny, PA NAA, the population percentage of the area was used to scale down emissions from the county-level totals. The Allegheny, PA NAA represents about 10% of the total county population, based on U.S. Census Bureau counts from 2010 to 2020 as well as for population estimates through 2035. (See Appendix B of this document for more information.)

- For all emissions inventory tables in this document, the sum of different data categories may not match the total emissions, due to rounding to whole numbers.

4.3 Transportation Conformity

Section 176(c)(4) of the CAA requires each state to establish a transportation conformity process. The Commonwealth of Pennsylvania adopted a conformity SIP, which was approved by EPA with an effective date of June 29, 2009. This SIP satisfies all applicable transportation conformity process requirements for designated nonattainment and maintenance areas under the NAAQS for ozone, particulate matter, and carbon monoxide.

Transportation conformity ensures that allocated vehicle emissions from highway transportation projects fall below emissions levels that are included in attainment plans. According to 40 CFR § 93.118, conformity applies to areas in which transportation related $PM_{2.5}$ and precursor

[24] EPA Fires: https://www3.epa.gov/ttn/chief/ap42/ch13/related/firerept.pdf

[25] EPA BEIS: https://www.epa.gov/air-emissions-modeling/biogenic-emission-inventory-system-beis

emissions are significant contributors to the area. Pursuant to 40 CFR 93.102(b)(2)(v), there has been no determination by EPA of transportation related SO_2 as a significant contributor to $PM_{2.5}$ nonattainment, and there is no established budget for SO_2 in Allegheny County.

Furthermore, federal transportation conformity requirements in 40 CFR Part 93.109 allow for pollutants to be exempt from conformity analysis if motor vehicle emissions are found to be insignificant based on the following factors:

- The percentage of motor vehicle emissions in the context of the total SIP inventory
- The current state of air quality as determined by monitoring data
- The absence of SIP motor vehicle control measures
- Historical trends and future projections of the growth of motor vehicle emissions

Based on the analysis of the above factors in the SO_2 attainment demonstration SIP (ACHD, 2017), ACHD concluded that the onroad mobile data category is an insignificant contributor to nonattainment of the 2010 SO_2 NAAQS in the Allegheny, PA NAA. Transportation conformity in general for the Allegheny, PA NAA will continue to follow procedures such as interagency consultation, according to the EPA Transportation Conformity Rule.

4.4 Other CAA Requirements

The Allegheny, PA NAA is meeting all other requirements of Section 110 and Part D of the CAA that have not already been addressed in the above sections of this document.

4.4.1 Section 110(a)

Section 110(a) of the CAA contains the general requirements for SIP submittals. The applicable requirements for nonattainment areas, including Section 110(a)(2), are satisfied by Allegheny County's portion of the PA SIP approved in 1981 and its subsequent amendments.

Also included in Section 110(a) is the requirement to satisfy Part C of the CAA, related to the prevention of significant deterioration (PSD) for air quality in areas of attainment. The Allegheny County portion of the PA SIP was revised in October 1983 by the addition of Section 809 to Article XX, Allegheny County Health Department's Rules and Regulations for Air Pollution Control. Section 809 of Article XX adopted in entirety, and incorporated by reference, the PSD requirements of 40 CFR Part 52.

4.4.2 Section 172(c)

Section 172(c) of the CAA contains the general provisions required for a SIP for a nonattainment area. These provisions include attainment demonstrations, reasonably available control measures, reasonable further progress, inventory data, and permitting requirements.

As described in Section 4.1 above, EPA has approved the ACHD attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017). ACHD will retain all elements of the SIP and ensure that all requirements of the SIP are met.

Section 172(c)(5) of the CAA also requires that a nonattainment plan includes provisions that shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area to be in accordance with Section 173 (under NNSR requirements). EPA approved the NNSR regulations for Allegheny County in 2015,[26] which would apply to new major sources of SO_2.

4.4.3 Section 173

Section 173 of the CAA includes requirements related to permitting of air pollution sources in nonattainment areas. ACHD's Article XXI Rules and Regulations for Air Pollution Control[27] addresses all required provisions for the permitting of sources in nonattainment areas, including NNSR. ACHD's existing NNSR program will ensure that the reactivation, construction, and/or modification of major stationary sources of SO_2 will not interfere with attainment of the 2010 SO_2 NAAQS.

4.4.4 Section 179

Section 179 of the CAA applies to failures to submit plans or to attain the NAAQS for nonattainment areas in general. If an area fails to meet the requirements of Section 179, the deficiencies must be corrected within 18 months of a finding of failure by EPA.

Due to technical complications for the completion of a comprehensive attainment demonstration SIP, ACHD was unable to submit a SIP to EPA by the original due date of April 18, 2015 (which was 18 months after the nonattainment designation, as required by Section 191 of the CAA). EPA published a finding of failure to submit the SIP for the area on March 18, 2016,[28] which required that a complete SIP be submitted by October 18, 2017. PA DEP submitted the SIP to EPA on behalf of ACHD on September 29, 2017.

4.4.5 Sections 191-192

Sections 191 and 192 of the CAA apply to the SIP submittal and attainment dates, respectively. As mentioned above regarding the SIP submittal, ACHD was unable to submit the attainment demonstration SIP within 18 months of the designation as required by Section 191 but was able to submit the SIP within 18 months of the finding of failure to submit. The attainment date of the SIP was within five years of the nonattainment designation, as required by Section 192.

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[26] 80 FR 16568: https://www.govinfo.gov/content/pkg/FR-2015-03-30/pdf/2015-07106.pdf

[27] ACHD Article XXI: https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Article-21-Air-Pollution-Control.pdf

[28] 81 FR 14736: https://www.govinfo.gov/content/pkg/FR-2016-03-18/html/2016-06063.htm

5. Permanent and Enforceable Control Measures

For redesignation for an area, Section 107(d)(3)(E) of the CAA requires that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable SIP controls, federal and state rules and regulations, and other permanent and enforceable reductions.

As further clarified in EPA guidance (U.S. EPA, 1992), the state/local agency should estimate the percent reduction (from the year that was used to determine the design value for designation and classification) achieved from the applicable regulations and control measures that have been adopted and implemented. The reductions should also not be a result of temporary economic conditions or unusually favorable meteorology.

This section provides descriptions of the controls in place and estimates of the emissions reductions for the Allegheny, PA NAA for the 2010 SO_2 NAAQS.

5.1 Attainment Timeframe

The Liberty site has been the determining site for attainment in the Allegheny, PA NAA since promulgation of the 2010 SO_2 NAAQS. The NAA was designated nonattainment based on the 2009-2011 monitored design value of 142 ppb at Liberty, and the NAA achieved clean data based on the 2019-2021 monitored design value of 59 ppb at Liberty. The North Braddock monitor, since it began operation in 2014, has shown clean data for all periods with complete design values (i.e., three consecutive full years of monitor data).

The modeling analysis in the attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017) predicted attainment of the NAAQS by 2018, but an extended breakdown of equipment at the USS Clairton Plant in 2018-2019 led to excess emissions that were not accounted for in the demonstration. Along with reasons discussed in more detail in Section 6.1 of this document, year 2017 is the most appropriate year to use as a "control" year for the examination of SIP reductions, despite the NAA having not achieved monitored attainment. Therefore, the SIP attainment timeframe for the Allegheny, PA NAA for the 2010 SO_2 NAAQS is best represented as 2011 through 2017.

5.2 Implemented Controls

Adopted and implemented controls that have contributed to the reductions of SO_2 levels are described in this section.

Stationary point sources in Allegheny County require an operating permit (OP) in order to conduct operations and an installation permit (IP) in order to install new equipment or to expand processes. These permits are federally enforceable via 40 CFR §52.2020, regarding EPA-approved ACHD regulations. Conditions of IPs and all other applicable regulations are incorporated into OPs, and all OPs are renewed every five years.

For a source that permanently ceases all operations, the corresponding operating permit becomes inactive, either by termination or expiration. After a permit is inactive, any future operation at the source property requires a new permit application along with new source review (NSR). ACHD enforcement staff conducts follow-up inspections at these sources to ensure continued inactivity and/or demolition at these properties.

Sources with shutdowns of either the entire facility or specific processes may apply for emissions reduction credits (ERCs) through the PA DEP's ERC registry.[29] However, these credits can be purchased for use at any location in PA and some surrounding states. ACHD also assumes that ERC emissions are unlikely to be utilized at the same source property and at the same emission rates and source parameters. Therefore, ERCs are not included in future emissions inventory projections.

Note that the controls mentioned here have been previously discussed in detail in the attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017).

5.2.1 Stationary Point Source Controls

The following permanent and federally enforceable control measures were implemented at the USS Mon Valley Works plants:

- Upgrades to the Vacuum Carbonate Unit (VCU) equipment at the desulfurization facility of the USS Clairton Plant were implemented to reduce the content of hydrogen sulfide (H_2S) in the coke oven gas (COG) lines utilized at all USS Mon Valley Works plants. The 100 VCU upgrade was completed in 2016, with a redundant 600 VCU upgrade that was completed in 2018.

- A tail gas recycling project was implemented at the USS Clairton Plant in 2018. This project reroutes sulfur-rich gases at the Shell Claus Off-gas Treatment (SCOT) facility back to the by-product facility during planned outages or unplanned breakdowns at the desulfurization facility.

- A new stack and a combined flue system for Boilers 1, 2 and 3 were installed at the USS Edgar Thomson Plant in 2018 for enhanced dispersion of SO_2.

Controls at the USS Mon Valley Works plants coincided with lower permitted (allowable) SO_2 emissions rates for nearly all processes. Harsco (Braddock Recovery), located on the property of USS Edgar Thomson, was also given a lower permitted rate. The controls and lower limits led to substantial decreases in both SO_2 emissions and concentrations in the Allegheny, PA NAA.

[29] August 26, 2022 version of the ERC registry: http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Permits/erc/ERC_PA_Report.pdf

5.2.2 Stationary Point Source Shutdown

The Guardian Glass Plant ceased operations in August 2015, with its operating permit terminated in November 2015. Any future operation at this location would require a new permit and new source review. Emissions Reduction Credits (ERCs) were not requested for this source, and all previous equipment has been removed from the property.

5.3 Emissions Reductions

This section provides quantifications of the emissions reductions achieved in the NAA during the SIP attainment timeframe of 2011 to 2017.

The Allegheny, PA NAA achieved clean monitored data for 2010 SO_2 NAAQS based on 2019-2021 design values, but as discussed in Section 6.1 of this document, 2017 is a more appropriate year for use as a control year than any year in the 2019-2021 timeframe. Therefore, emissions reductions have been examined for years 2011 to 2017. Year 2017 is also being used as the attainment inventory year in the maintenance plan of this document (see Section 6).

Similar to the 2011 base year inventory, area and mobile source emissions in 2017 were scaled from the county level based on population percentage (10%). Emissions for the 2017 inventory were taken from 2017 NEI (U.S. EPA, 2021) and MOVES output, with corrections to NEI as noted in Appendix B of this document.

Table 5-1 shows the total emissions reduction from the 2011 base year inventory to the 2017 control/attainment year inventory for the Allegheny, PA NAA, with the reduction shown as a negative value in tons/year. The percent change from base year to control year is also given. (Note: the inventories by data category are also given above in Table 4-1 for 2011 and below in Table 6-1 for 2017.)

Table 5-1. SO_2 SIP Emissions Reduction for the Allegheny, PA NAA

Allegheny, PA NAA Totals	SO_2 (tons/year)
2011 Base Year	3,418
2017 Control Year	2,583
Reduction, Base to Control Year	-835
Percent Change	-25%

The Allegheny, PA NAA showed a considerable reduction in SO_2 emissions during the attainment timeframe of 2011-2017, primarily from the upgrade of the 100 VCU equipment at the desulfurization facility of the USS Clairton Plant.

5.4 Conditions During Attainment

Attainment of SO_2 in the Allegheny, PA NAA was not a result of temporary economic conditions or unusually favorable meteorology during the SIP attainment timeframe of 2011-2017. Additionally, economic and meteorological conditions have not been the determining factors for the design values during which monitored attainment has been achieved in 2019-2022.

In general, since the 2010 SO_2 NAAQS is a 1-hour standard, attainment of SO_2 is less affected by prolonged economic or meteorological conditions than other pollutants such as ozone or $PM_{2.5}$. Attainment of the NAAQS has been achieved as a result of permanent controls of SO_2 emissions for stationary point sources.

5.4.1 Economic Conditions

Year 2020 was a low year for emissions due to the COVID pandemic, with lower region-wide emissions from nearly all data categories, and the Liberty 99th percentile value was a record low for the site. However, concentrations in 2021 and 2022 also remained below the NAAQS, when production levels and anthropogenic activity (motor vehicle use, employment levels, etc.) were more typical of levels prior to the pandemic. Additionally, without breakdowns at the USS Clairton Plant in 2017-2019 (see more below in Section 6.1), attainment might have been achieved prior to the pandemic.

5.4.2 Meteorology

As discussed in the meteorological analysis provided in the attainment demonstration SIP for the 2010 SO_2 NAAQS (ACHD, 2017), periods of elevated short-term SO_2 concentrations at the Liberty site generally coincide with the presence of surface temperature inversions during light southwesterly winds. Other meteorological factors can also affect SO_2 concentrations in general but to a lesser extent than inversions and winds.

During the monitored attainment timeframe of 2019-2022, the frequency of temperature inversions was near average, and wind speeds and directions at Liberty were typical of winds in previous years. There was some variation in other meteorological factors in 2019-2022, with both above and below average statistics for temperature and precipitation. Overall, the meteorological conditions would not have been expected to lead to unusually low SO_2 concentrations.

Appendix A of this document shows monitored data and meteorological statistics for years 2008-2022, along with a wind rose for years 2019-2022 at Liberty.

6. Maintenance Plan

For an area to be redesignated, Section 175A of the CAA requires a fully approved maintenance plan for the nonattainment area to be in place. The maintenance plan should be devised to provide for continued attainment of the applicable NAAQS for a period of 10 years following the redesignation to attainment.

EPA guidance (U.S. EPA, 1992) further specifies that an approvable maintenance plan should include the following elements:

- Attainment inventory
- Maintenance demonstration
- Monitoring network
- Verification of continued attainment
- Contingency provisions

This section provides the required elements for a maintenance plan for the 2010 SO_2 NAAQS for the Allegheny, PA NAA.

6.1 Attainment Emissions Inventory

EPA guidance (U.S. EPA, 1992) specifies that the state/local agency should develop an attainment emissions inventory to identify the level of emissions in the area which is sufficient to attain the NAAQS. This inventory should be consistent with EPA's most recent guidance on emission inventories for nonattainment areas available at the time and should include the emissions during the timeframe associated with the monitoring data showing attainment.

6.1.1 Attainment Year

For the attainment emissions inventory for this maintenance plan, year 2017 was selected for the Allegheny, PA NAA. Point and area source emissions have been taken directly from 2017 NEI, except for corrections noted in Appendix B of this document. Nonroad and onroad mobile source emissions were taken from MOVES model output. MOVES was run by PA DEP and Michael Baker International[30] for the nonroad and onroad mobile source emissions, respectively, for 2017 (and projected years 2026 and 2035). Since this MOVES modeling is an update to data included in the 2017 NEI, the MOVES output was used for the 2017 attainment inventory. (See more below in Section 6.2 of this document.)

The Allegheny, PA NAA achieved monitored attainment of the 2010 SO_2 NAAQS with 2019-2021 design values. In general, years that fall within an attaining design value period can be considered representative of emissions levels that led to attainment of the NAAQS. Additionally, 2018 and 2022 could also be evaluated, since 2018 was used as the attainment year in the SIP, and 2022 was another year in which monitored attainment was achieved.

[30] Michael Baker International: https://mbakerintl.com/

However, 2017 is the most appropriate year for the attainment inventory for the following reasons, as described below for each year:

- 2017 was the first year in which emissions were at levels needed to demonstrate attainment of the 2010 SO_2 NAAQS and included most of the controls needed for attainment. Year 2017 was expected to show monitored data near or below the NAAQS at Liberty (based on the 99th percentile daily maximum 1-hour concentration) if not for intermittent breakdowns at the USS Clairton Plant desulfurization facility during frequent surface temperature inversions. 2017 is also a fully reviewed NEI year, with emissions calculated for all data categories. Any year other than 2017 (or 2020) would require projected emissions for area and mobile sources for the attainment year, which could lead to less accurate emissions data for the attainment year than directly compiled data.

- 2018 was used for the projected emissions inventory in the attainment demonstration SIP (ACHD, 2017), and it included all controls implemented by the SIP attainment date of Oct. 4, 2018. This 2018 projected inventory was similar to the 2017 actual inventory for point source SO_2 emissions. However, the 2018 actual inventory included excess emissions from the USS Mon Valley Works plants due to an extended equipment breakdown at the USS Clairton Plant desulfurization facility (from December 2018 to April 2019). These excess emissions were not representative of emissions with controls in place and were not accounted for in the SIP demonstration.

- 2019, similar to 2018, included excess emissions from USS Mon Valley Works plants during the extended breakdown, including emissions that exceeded permitted limits. The use of 2018 or 2019 emissions data would add high bias to the attainment inventory that would not coincide with emissions levels that are representative of attainment conditions.

- 2020, like 2017, is an NEI year that features emissions for all data categories. However, it is inappropriate for use as an attainment inventory year due to low and/or atypical regional and local emissions during the COVID pandemic.

- 2021 features emissions that are more typical of conditions prior to the COVID pandemic, and it did show monitored data below the NAAQS at all sites. However, Coke Battery 15 at the USS Clairton Plant was not operating in 2021. Projections using a 2021 attainment year would be missing these emissions in the future case maintenance scenarios. As mentioned above (for year 2017), year 2021 would also require projections for area and mobile sources for the attainment year.

- 2022 is a year in which monitored data was below the NAAQS at all sites, but emissions for this year are not fully compiled for point sources at this time.

Appendix B includes more information on emissions from the USS Mon Valley Works plants during the 2018-2021 timeframe.

6.1.2 Attainment Inventory

The 2017 attainment SO_2 emissions inventory for the Allegheny, PA NAA is shown below in Table 6-1, based on reported 2017 NEI and modeled MOVES emissions, in tons/year.

Table 6-1. 2017 Attainment SO_2 Emissions Inventory for the Allegheny, PA NAA

Allegheny, PA NAA (2017)	SO_2 (tons/year)
Point Sources	2,556
Area Sources	22
Nonroad Mobile Sources	0
Onroad Mobile Sources	5
Fires	0
Biogenics	0
Total	**2,583**

Detailed emissions by facility/process or source sector/description for the attainment inventory can be found in Appendix B of this document.

6.2 Maintenance Demonstration

According to Section 175A of the CAA and EPA guidance (U.S. EPA, 1992), a state/local agency may demonstrate maintenance of the NAAQS by either showing that future emissions of SO_2 will not exceed the level of the attainment inventory for the area or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS in the area.

To demonstrate maintenance of the 2010 NAAQS for the Allegheny, PA NAA, future case SO_2 emissions have been projected to an interim year 2026 and a maintenance year 2035. The maintenance year 2035 represents a period of 10 years after 2025 and a period of 18 years after the attainment inventory year 2017. The future case projections take economic, population, and travel growth factors into account.

Since projected emissions are expected to remain below the attainment inventory emissions, modeling has not been performed for this demonstration.

6.2.1 Projection Methodologies

To demonstrate maintenance, inventory projections should show that SO_2 emissions will remain at levels that will provide for continued attainment of the 2010 NAAQS for at least 10 years following redesignation. Like described in earlier sections, area and mobile sources emissions projections for the Allegheny, PA NAA were based on a percentage of the Allegheny County

emissions projections, according to population. Emissions have been projected based on the following methodologies, summarized by data category below.

Stationary (Point and Area) Sources

For point and area sources, growth factors developed by the Mid-Atlantic Regional Air Management Association, Inc. (MARAMA) and other sources have been used to project emissions from the attainment year 2017 to the future years 2026 and 2035. Resources that were used to derive growth factors include the following (and other) databases and tools:

- Energy Information Administration (EIA) Annual Energy Outlook (AEO) 2022
- Pennsylvania Industry Employment 2018-2028 Long-Term Projections
- National Inventory Collaborative 2016v1 Emissions Modeling Platform (EMP)
- Federal Aviation Administration (FAA) Terminal Area Forecast (TAF)

For point sources with enforceable controls or shutdowns that occurred since the 2017 attainment inventory, the resulting emissions reductions have been incorporated into the future case point source emissions projections. These reductions apply to the following point source facilities:

- The Koppers Clairton tar refining facility, located adjacent to the USS Clairton Plant, ceased operations in 2017. All equipment was removed from the site in 2019, and the permit expired in 2021. This facility was excluded from the projected inventories.

- The USS Clairton Plant ceased operation of its Coke Batteries 1, 2, and 3 in March 2023. This is a permanent retirement of the batteries and associated processes that will be reflected in a future revision to the Title V operating permit for the plant. Batteries 1-3 and associated processes were excluded from the projected inventories.

One new major point source (Invenergy Allegheny Energy Center (AEC)) has been proposed for construction in Elizabeth Township. This facility would be a 639 MW natural gas-fired combined-cycle power plant. Invenergy has gone through the nonattainment new source review process for this proposed plant, and ACHD issued an installation permit (IP #0959-I001) for the plant on October 5, 2021. For a high-end estimate of the possible future case emissions, the permitted SO_2 emissions limit (plant-wide) for the Invenergy plant has been added as emissions to the projected inventories.

Appendices B and C of this document contain more information on the projected inventories and the methodologies used for the stationary point and area sources, including growth factors for specific processes/sectors.

Mobile (Nonroad and Onroad) Sources

The EPA MOVES3 model (v3.0.3, 20220105) was used to generate nonroad and onroad mobile source emissions for years 2017, 2026, and 2035. PA DEP performed the nonroad modeling, and Michael Baker International performed the onroad modeling. The methodology for the modeling was consistent with EPA technical guidance (U.S. EPA, 2020). More details on the MOVES modeling can be found in the documentation in Appendix D of this document.

For year 2017, Allegheny County was required to use a summertime (May through September) gasoline fuel with a Reid Vapor Pressure (RVP)[31] of 7.8 pounds per square inch (psi). This was reflected in the model by modifying the MOVES3 input database to account for the lower RVP fuel use requirement. The future year 2026 and 2035 model runs assumed the use of federal conventional gasoline with summer and winter RVP (plus the 1.0 psi RVP waiver for ethanol blends) in Allegheny County.

For the nonroad mobile source modeling, default Allegheny County equipment populations and activity data incorporated into the nonroad equipment component of MOVES3 were used to estimate emissions. The modeling used local temperatures, relative humidity, and fuel specifications identical to those used for MOVES modeling of the highway vehicle emissions. MOVES3 includes county-specific future growth factors and estimates daily emissions for nonroad diesel, conventional gasoline, liquefied petroleum gas, and compressed natural gas-fueled nonroad equipment types on typical weekday and weekend days for each month of the analysis year.

The model was configured to generate both weekday and weekend daily nonroad emissions for each month of the year, aggregated by Source Classification Code (SCC) using post-processing scripts included with MOVES3. The daily emissions outputs in grams per given day were then multiplied by the number of respective weekdays or weekend days in the given month for the analysis year. The resultant emissions were converted to tons and summed to estimate annual emissions of pollutants for each nonroad SCC. 2017 local meteorological data was used for the 2017 base year analysis, and 2020 local meteorological data was used for the future years 2026 and 2035.

Natural (Fire and Biogenic) Sources

Based on EPA methodology, fire and biogenic sources are generally not projected to future case scenarios, since their emissions can be dependent on meteorology. These emissions have been held constant from 2017 through the 2026 and 2035 projection years.

[31] EPA RVP: https://www.epa.gov/gasoline-standards/gasoline-reid-vapor-pressure

6.2.2 Projected Emissions Inventories

Tables 6-2 and 6-3 show the projected emissions inventories by data category for the Allegheny, PA NAA for the 2026 interim and 2035 maintenance years, respectively. Projections were based on the methodologies described above in Section 6.2.1 and in Appendices B through D of this document.

Table 6-2. 2026 Interim SO_2 Emissions Inventory for the Allegheny, PA NAA

Allegheny, PA NAA (2026)	SO_2 (tons/year)
Point Sources	2,511
Area Sources	26
Nonroad Mobile Sources	0
Onroad Mobile Sources	2
Fires	0
Biogenics	0
Total	**2,539**

Table 6-3. 2035 Maintenance SO_2 Emissions Inventory for the Allegheny, PA NAA

Allegheny, PA NAA (2035)	SO_2 (tons/year)
Point Sources	2,472
Area Sources	27
Nonroad Mobile Sources	0
Onroad Mobile Sources	2
Fires	0
Biogenics	0
Total	**2,501**

These projected inventories for 2026 and 2035 for Allegheny, PA NAA are shown in detail by facility/process or source sector/description in Appendix B of this document.

6.2.3 Maintenance Test

Maintenance of the NAAQS can be demonstrated if projected emissions inventories are lower than the attainment inventory. This "test" is similar in methodology to the calculation of the SIP-based emissions reductions due to the permanent control measures (see Section 5.3 of this document). The inventory totals for the Allegheny, PA NAA are given in Table 6-4, along with the reductions of the projected year totals from the attainment year total, shown as negative values in tons/year.

Table 6-4. SO_2 Projected Emissions Totals and Reductions for the Allegheny, PA NAA

Allegheny, PA NAA Totals/Reductions	SO_2 (tons/year)
2017 Attainment Year	2,583
2026 Interim Year	2,539
2035 Maintenance Year	2,501
Reduction, Attainment to Interim Year	-44
Reduction, Attainment to Maintenance Year	-82

The projected inventories for both the interim year 2026 and maintenance year 2035 show lower emissions than the attainment year 2017, indicating that the area passes the maintenance test for this demonstration.

6.2.4 Supporting Evidence

In addition to emissions data, several other factors support the expectation that attainment of the 2010 SO_2 NAAQS will be maintained in the Allegheny, PA NAA. These factors include other controls that were not included as SIP controls or in the projected future case inventories.

ACHD Mon Valley Episode Regulation

On Sept. 25, 2021, ACHD finalized a new Article XXI regulation for the control of $PM_{2.5}$ episodes in the Mon Valley. This episode regulation (§2106.06, Mon Valley Air Pollution Episode) has been designed to effectively reduce short-term $PM_{2.5}$ emissions during unfavorable meteorological conditions. While this regulation was designed for $PM_{2.5}$, it should also contribute to reductions of SO_2 from the largest sources in the Allegheny, PA NAA.

Other ACHD Regulations and Programs

In addition to the episode regulation, several regulations in ACHD's Article XXI will remain in place for the control of SO_2, including those regarding specific industrial operations, fuel usage, and other sources of SO_2. Article XXI is regularly reviewed and revised for effectiveness of the control of air quality in Allegheny County. ACHD also maintains a Clean Air Fund that offers funding for non-regulatory air quality projects.

Population and Employment

The Pittsburgh region is unique in comparison to other U.S. metropolitan areas in the fact that population has been generally declining in recent years. This is especially the case in the Allegheny, PA NAA, which saw a decrease from 126,934 residents in 2010 to

122,699 residents in 2020, for a decrease of about 3.3%. The most recent U.S. census estimate (as of July 1, 2022) shows a decrease of about 1.4% from the 2020 census for all of Allegheny County.[32] The overall declining population has led to less anthropogenic emissions from power consumption, wood burning, motor vehicles, and other sources of SO_2.

Population projections through 2035 in SPC's Cycle 11 Forecast of Population, Households, and Employment (SPC, 2019)[33] show increases of about 0.3% per year for the Allegheny, PA NAA since the 2020 census, which would still be a moderate increase compared to expected increases in other metropolitan areas. Population growth in Allegheny County has occurred mostly in suburban areas, away from the industrial valleys such as the Mon Valley.[34]

In addition to population forecasts, SPC provides forecasts for types of workplace employment in the Cycle 11 report. From 2020 through 2035, a projected increase of 3.1% is expected for the service employment sector along with decreases in the manufacturing (-2.0%), retail (-0.2%), and other (-0.9%) employment sectors in the Allegheny, PA NAA. This shift in employment would likely correlate with continued decreases in SO_2 emissions from point sources.

Surrounding Power Plant Shutdowns

While sources within the Allegheny, PA NAA have been the driving factors of SO_2 nonattainment for the 2010 NAAQS, surrounding sources can contribute to background concentrations of SO_2. Several fossil-fueled power plants in PA and surrounding states have permanently retired their facilities,[35] leading to less potentially transported SO_2 emissions in southwestern PA.

Federal and State Rules and Regulations

Several planned federal and state rules and regulations should also lead to lesser SO_2 emissions from all data categories in southwestern PA. These rules and regulations include the reconsideration of the $PM_{2.5}$ NAAQS, the Regional Greenhouse Gas Initiative (RGGI), clean vehicles programs, and others.

[32] U.S. Census Bureau information for Allegheny County and its municipalities: https://www.census.gov/quickfacts/alleghenycountypennsylvania

[33] SPC Cycle 11 Forecast: https://www.spcregion.org/resources-tools/regional-data-center/prebuilt-tables/

[34] Pennsylvania State Data Center (PaSDC) for PA population: https://pasdc.hbg.psu.edu/

[35] For more information: https://www.pjm.com/planning/services-requests/gen-deactivations

6.3 Monitor Network

EPA guidance (U.S. EPA, 1992) specifies that once an area has been redesignated, the state/local agency should continue to operate an appropriate air quality monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the area. The maintenance plan should also contain provisions for continued operation of air quality monitors that will provide such verification.

ACHD will continue to operate its SO_2 air monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the Allegheny, PA NAA for the 2010 NAAQS. No reductions in the number of sites from those in the existing network will be made unless pre-approved by EPA. The monitoring network is reviewed on an annual basis, along with a monitoring network assessment compiled every five years.

6.4 Verification of Continued Attainment

EPA guidance (U.S. EPA, 1992) further specifies that the state/local agency can utilize monitored air quality concentrations, source emissions data, and/or modeling to track the attainment and maintenance of the NAAQS for an area. These factors would be used as follows:

- Monitored data would verify continued monitored attainment of the NAAQS.
- Updated emissions inventories would verify that contemporary emissions are lower than the attainment emissions inventory.
- Modeling assumptions would be examined to verify the adequacy of modeled projections.

As mentioned in Section 6.3 above, ACHD will continue to operate the SO_2 air monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the NAA, with no changes to the existing network unless pre-approved by EPA. Monitored concentrations will be the primary mechanism for verification of continued attainment for the NAA and will also serve as the triggering indicators for contingency measures (see more in Section 6.5 of this document).

Periodic emissions inventories (developed annually by ACHD for point sources and triennially by PA DEP for area and mobile sources) will be examined for comparison to the 2017 attainment inventory for the Allegheny, PA NAA (given in Section 6.1.2 of this document). As shown in the maintenance demonstration in Section 6.2 of this document, ACHD expects that future conditions will reflect emissions levels that will remain below the levels of the attainment inventory.

If periodic emissions inventories (or portions thereof) should exceed the levels given in the attainment inventory, ACHD will conduct a study to determine if the emissions increases have potentially led to increased monitored concentrations in the NAA. ACHD may consider whether any further emission control measures should be implemented and/or if supplemental information for this maintenance plan should be provided to EPA.

Note that emissions data will not be relied upon as triggering indicators for contingency measures for two reasons. First, increases in emissions data may not necessarily have an influence on monitored concentrations. Levels of SO_2 can also be affected by meteorological conditions, especially in the Mon Valley. Second, the reporting of emissions inventories involves considerably more time (up to one year following each calendar year) than the reporting of monitored data (within three months following each calendar quarter). The use of emissions data as triggers would not allow for a prompt response to exceedances or violations of the NAAQS.

Since modeling was not performed for this maintenance demonstration, and since assumptions from the SIP modeling for the 2010 NAAQS (ACHD, 2017) are expected to remain valid, a review of modeling assumptions will not be conducted unless significant changes to modeling methodologies are developed by EPA during the maintenance timeframe.

Last, under ACHD's new source review (NSR) program, major new sources and modifications that affect emissions must demonstrate via a modeling demonstration for the new or modified source and nearby background sources that emission changes will not cause or contribute to a violation of the SO_2 NAAQS and increment(s). New minor sources of SO_2 sources would also be evaluated to ensure maintenance of the NAA. ACHD will not approve modifications that would lead to modeled values greater than the NAAQS in the NAA.

6.5 Contingency Provisions

Section 175A of the CAA requires a maintenance plan to contain contingency provisions so that any violation of the NAAQS which occurs after redesignation will be promptly corrected. These provisions should include measures that will lead to additional emission reductions, beyond those included in the SIP that were needed for attainment of the area. The provisions should also require that all measures contained in the attainment demonstration SIP will continue to be implemented.

From EPA guidance (U.S. EPA, 1992), contingency provisions for a maintenance area are not required to include fully adopted contingency measures. However, the contingency provisions are an enforceable part of the maintenance plan and should ensure that contingency measures are adopted expeditiously if needed to maintain attainment. Furthermore, contingency provisions should clearly identify the measures to be adopted, a schedule and procedures for adoption and implementation, and specific indicators (or triggers) which will be used to determine the need for contingency measures. The contingency provisions can also identify levels of response that might allow for early action to be taken in order to quickly correct a violation after it occurs.

ACHD will continue to implement all applicable requirements that were included in the attainment demonstration SIP for the Allegheny, PA NAA (ACHD, 2017), even after redesignation of the area. The contingency measures identified here are measures that have not been used previously to meet SIP requirements or any other air quality planning purpose.

6.5.1 Triggering Indicators

The official SO_2 monitored data in the Allegheny, PA NAA will serve as the indicators for the triggering of contingency measures. Monitored data used for the indicators will be based on fully validated and quality-assured results from all EPA-approved SO_2 monitors operated and maintained by ACHD in the NAA.[36] Responses to the triggers are also identified in terms of warning or action levels as described below. As mentioned earlier in Section 6.4 of this document in regard to verification of continued attainment, periodic emissions inventories will be reviewed for comparison to the attainment inventories but will not be used as direct indicators of attainment.

<u>Warning Level Responses</u>

A first-level warning will be prompted if the following occurs:

- The 99th percentile daily maximum 1-hour SO_2 concentration exceeds 75 ppb at any monitor site in the Allegheny, PA NAA in a single calendar year.

A first-level warning response will consist of an ACHD study to determine whether the trigger described above indicates a trend toward higher SO_2 levels in the NAA. If there appears to be an increasing trend in SO_2 levels, the study will evaluate whether the trend is likely to continue and, if so, the necessary and appropriate control measures that may reverse the trend. ACHD may then consider the early adoption of measures so that the measures can be implemented as expeditiously as practicable in the event of a violation.

A second-level warning will be prompted if the following occurs:

- The average of consecutive two years of 99th percentile daily maximum 1-hour SO_2 concentrations exceeds 75 ppb at any monitor site in the Allegheny, PA NAA.

For a second-level warning response, ACHD will evaluate the probability of a violation of the NAAQS to occur and the need for additional control measures to be implemented. ACHD will analyze the conditions leading to the SO_2 levels and evaluate what measures might be most effective in correcting the SO_2 levels. ACHD will also analyze the potential effects of federal, state, and other local measures that may have been adopted but not yet implemented at the time the second-level response is triggered. ACHD may then begin the process of adopting measures that are necessary and appropriate so that the measures can be implemented as expeditiously as practicable in the event of a violation.

[36] Monitored data may or may not be fully certified at the time of the triggering, due to the time required for certification. Additionally, the data would not include any data for which exceptional event exclusion has been requested.

Action Level Response

An action level will be prompted if the following occurs:

- The 1-hour design value, based on the average of three consecutive years of 99th percentile daily maximum 1-hour SO_2 concentrations, violates the 2010 1-hour SO_2 NAAQS (75 ppb) at any monitor site in the Allegheny, PA NAA.

For an action-level response following a violation in the area, ACHD will adopt and implement additional control measures, as necessary and appropriate, in order to correct the violation as expeditiously as practicable in accordance with the implementation schedules given below. If regulatory measures are selected for implementation, ACHD will follow all requirements and procedures of the CAA, the Pennsylvania Air Pollution Control Act, the Pennsylvania Local Health Administration Law and the Allegheny County Home Rule Charter, the Allegheny County Council, the Allegheny County Board of Health, and the ACHD Article XXI Rules and Regulations for the adoption and implementation of the measures.

6.5.2 Implementation Schedule

If triggered as an action-level response following a violation of the NAAQS, ACHD will select, adopt, and implement contingency measures according to the following schedules for non-regulatory and regulatory measures (with the durations given from the time of ACHD's determination of a violation of the NAAQS, based on fully validated and quality-assured monitored data). The implementation of either non-regulatory or regulatory measures would be expected for completion within one year following a violation of the NAAQS.

For non-regulatory measures:

- Within one month, ACHD will select one or more measures to be implemented and will obtain approval to initiate the process for the new non-regulatory measures for the Allegheny, PA NAA.
- Within three months, ACHD will develop a program for the non-regulatory measures, including sources of funding, agreements with third parties, and other components.
- Within five months, ACHD will present the program to all stakeholders involved for review and approval. The program may be refined as necessary based on stakeholder and public participation.
- Within seven months, ACHD will forward the final non-regulatory measures to be approved for implementation via executive action by the Allegheny County Executive.

For regulatory measures:

- Within one month, ACHD will select one or more measures to be implemented and will obtain approval to initiate the process for a new regulatory action (or set of actions) for the Allegheny, PA NAA.
- Within three months, ACHD will develop and present the proposed regulatory action(s) to the Allegheny County Air Advisory Committee for review.

- Within five months, after review and recommendations from the Air Advisory Committee, and upon approval from the Allegheny County Board of Health to proceed to public comment, ACHD will hold a public comment period for the proposed regulatory action(s).
- Within seven months, following public comment, ACHD will present the final regulatory action(s) to the Air Advisory Committee for recommendation of adoption.
- Within eight months, if recommended by the Air Advisory Committee, ACHD will present to the regulatory action(s) to the Board of Health for adoption.
- Within nine months, if adopted by the Board of Health, ACHD will present to the regulatory action(s) to the Allegheny County Council for enactment.
- Within ten months, if enacted by County Council, ACHD will forward the regulatory action(s) to be approved for implementation via executive action by the Allegheny County Executive.

If triggered as a first-level or second-level warning response, contingency measures could be selected and adopted at any time prior to an actual violation. The procedures for adoption would be similar to those given above for an action-level response. However, the measures would only need to be ready for implementation, and full implementation would not be required until after a violation of the NAAQS occurs. In this case, a timeframe of 30 to 90 days, depending on the nature of the measures, would be incorporated into the measures for full implementation to occur following a violation.

6.5.3 Contingency Measures Selection

The selection of the contingency measures to be adopted and implemented in the event of a violation of the NAAQS would be based on the following criteria:

- Air quality analysis indicating the nature of violation (causes, locations, sources).
- The degree of the violation (i.e., amount above the NAAQS).
- Emission reduction potential, including the extent from specific sources or source types.
- Timeliness of implementation in terms of the potential to return the area to attainment as expeditiously as practicable.
- Costs and cost-effectiveness.

ACHD has identified several potential non-regulatory and regulatory contingency measures for this maintenance plan, listed and grouped below as area-wide measures and USS Mon Valley Works measures. Depending on the nature of the violation, measures could be selected individually or in combination, in complete or partial fashion, area-wide and/or at the USS Mon Valley Works. Different measures or combinations of measures could also be implemented at different times during the maintenance period.

Note: The measures identified here are not exclusive to the potential use as contingency measures for SO_2 maintenance. Furthermore, if ACHD chooses to adopt one or more of the above measures without the triggering of contingency measures for this maintenance plan, those same measures would then be inapplicable for use as future contingency measures.

Area-Wide Measures

These measures would be applicable to the entire NAA and, depending on the nature of the violation, could be selected individually or in combination with one another and/or with USS Mon Valley Works measures.

- Non-regulatory measures:
  - New woodstove changeout, fireplace conversion, or other wood burning-related programs.
  - Additional promotion of alternative fuels for fleets, home heating, and/or agricultural use.
- Other non-regulatory (or regulatory) measures not identified at this time, based on the selection criteria listed above in this section.

USS Mon Valley Works Measures

These measures would be applicable to the USS Mon Valley Works and associated sources if the USS Mon Valley Works is shown to have contributed to a violation. Depending on the nature of the violation, measures could be selected individually or in combination with one another and/or with area-wide measures.

- Regulatory measures:
  - Additional desulfurization controls for coke oven gas (COG) at the USS Clairton Plant.
  - Increased baffle washing for one or more quench towers at the USS Clairton Plant.
  - Additional fugitive controls at the USS Mon Valley Works plants.
  - Restrictions for fuel usage and/or redistribution of fuels for processes at the USS Mon Valley Works plants.
  - Additional permanent shutdown of processes and production output at the USS Mon Valley Works plants.
- Other regulatory (or non-regulatory) measures not identified at this time, based on the selection criteria listed above in this section.

6.6 Environmental Justice Considerations

EPA's Legal Tools to Advance Environmental Justice (U.S. EPA, 2022)[37] identifies a "broad range of EPA legal authorities to advance environmental justice and equity in agency actions consistent with the statutes EPA administers." Under these authorities, the CAA grants EPA discretion to disapprove an air quality plan, including a maintenance plan, if the plan raises environmental justice concerns.

ACHD acknowledges the importance of environmental justice (EJ) concerns in Allegheny County, specifically within nonattainment areas. As mentioned above in Section 2.1, seven municipalities in the Allegheny, PA NAA have one or more census tracts that have been classified as EJ areas by the Commonwealth of Pennsylvania.[38]

ACHD's Bureau of Assessment, Statistics & Epidemiology has developed an Environmental Justice Index (EJI) (ACHD, 2019) to help further identify and serve areas of need in Allegheny County.[39] The EJI promotes strategic placement of air monitors for further studies centered around public health and encourages public participation from the EJ communities. ACHD often schedules air quality public hearings that are held within these communities.

The EJI was created to expand upon existing efforts from state and federal agencies that only identified areas of environmental inequity by race and income alone. The EJI uses Allegheny County-specific factors that impact issues of environmental justice, based on the following indicators: race, education, median household income, housing vacancy, lead paint risk, greenness, air quality, and flood risk. These indicators were carefully selected to reduce collinearity between indicators and to capture locally important issues. The EJI can be used as a tool for county programs and community-based organizations to focus efforts on areas with higher environmental health risks.

Based on the ACHD EJI, six municipalities in the Allegheny, PA NAA were identified as "highest need" areas within Allegheny County, and an additional seven municipalities in the Allegheny, PA NAA were identified as "high need" areas within Allegheny County. Figure 6-1 shows a map of the municipalities based on the ACHD EJI, along with the boundary of the NAA and the SO_2 monitor locations.

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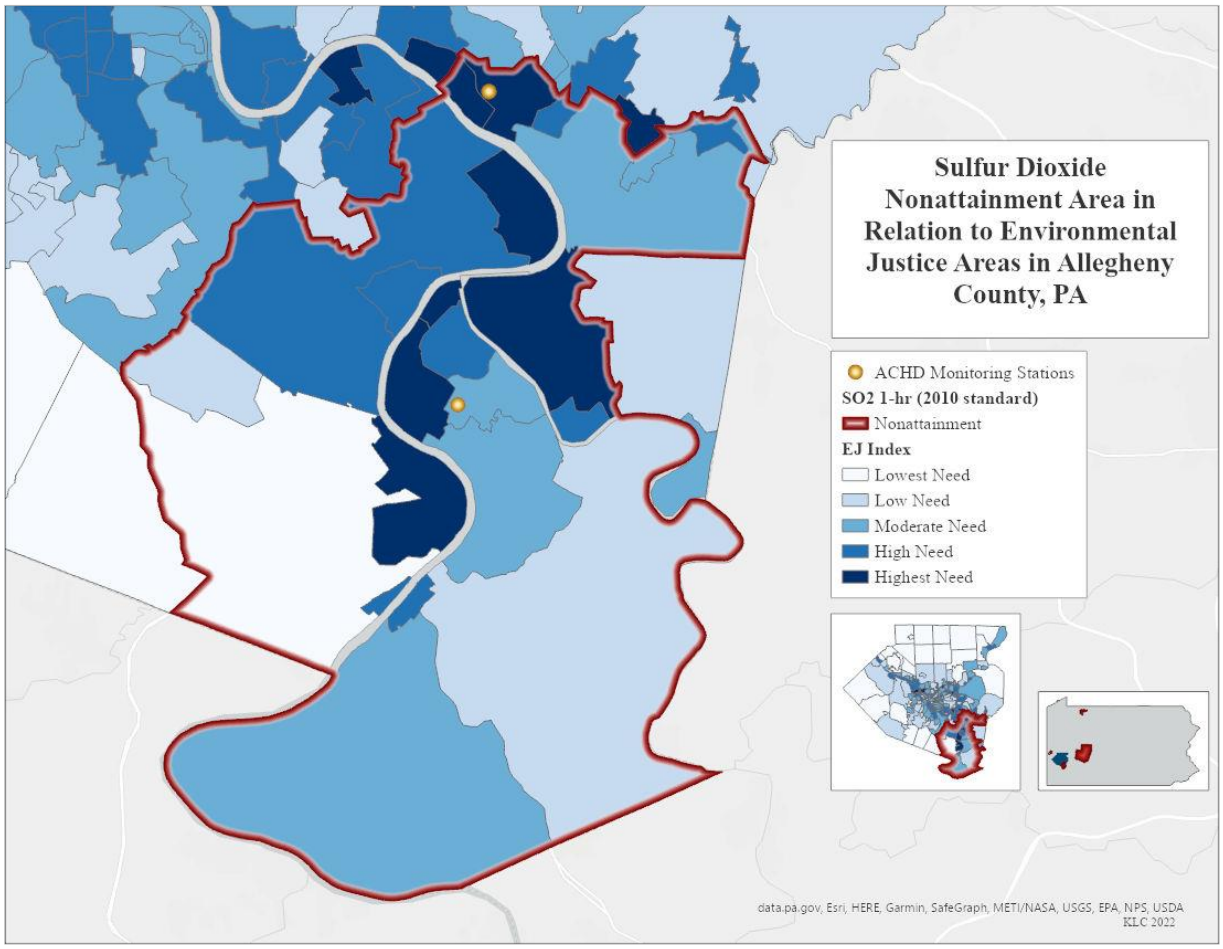
[37] EPA Legal Tools: https://www.epa.gov/system/files/documents/2022-05/EJ%20Legal%20Tools%20May%202022%20FINAL.pdf

[38] These municipalities are as follows: Braddock, Clairton, Duquesne, East Pittsburgh, McKeesport, North Braddock, and North Versailles.

[39] More information on environmental justice in Allegheny County be found at the following website: https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Chronic-Disease-Epidemiology/Resources,-Reports,-and-Publications.aspx

Figure 6-1. Map of Environmental Justice Communities in the Allegheny, PA NAA



While there are many complex environmental justice factors at play in the Mon Valley region, the environmental and health impacts for this region have been attributed to poor air quality influenced by the local topography/meteorology and the presence of industrial sources.

The ACHD air monitoring network has been designed to provide enhanced surveillance in vulnerable communities like the Mon Valley. Annual Air Monitoring Network Plans and Five-Year Network Assessments provide a regular review of the monitor site locations to ensure adequate exposure of monitors. The two current SO_2 sites in the Allegheny, PA NAA are located within or directly adjacent/downwind of areas of highest need. Another SO_2 monitor is planned for deployment in Clairton. ACHD has also conducted special studies to examine the impacts of air pollution on vulnerable communities and will continue studies for SO_2-related pollutants such as H_2S.

Additionally, the controls included in the SO_2 attainment demonstration SIP (ACHD, 2017), as well as the shutdowns listed above in the maintenance demonstration (see Section 6.2), showed the greatest emissions reductions in the areas of highest need. The modeling analysis in the SO_2 attainment demonstration SIP also showed that all municipalities within the Allegheny, PA NAA would be in attainment of the 2010 NAAQS at maximum allowable SO_2 levels.

7. Legal Documents

7.1 Notice of Public Hearing and Comment Period

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING AND PUBLIC COMMENT PERIOD FOR THE PROPOSED REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE ALLEGHENY, PA SO2 NONATTAINMENT AREA FOR THE 2010 NAAQS

The Allegheny County Health Department (ACHD) will hold a public hearing on Thursday, September 14, 2023, at 5:30 PM at the Clairton Municipal Building, 551 Ravensburg Boulevard, Clairton PA, 15025 to take testimony on the proposed Redesignation Request and Maintenance Plan for the Allegheny, PA SO2 Nonattainment Area for the 2010 National Ambient Air Quality Standards (NAAQS).

The Redesignation Request and Maintenance Plan will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the Attainment and Maintenance of the Sulfur Dioxide (SO2) NAAQS. The Redesignation Request and Maintenance Plan is available on the ACHD Air Quality website at www.alleghenycounty.us/regs-sips. Written copies may be obtained by calling 412-578-8103. • Persons wishing to present testimony at the hearing must register by going to the ACHD Air Quality website at www.alleghenycounty.us/regs-sips. Persons who do not have access to the internet may register by calling 412-578-8103. • You must register to present testimony no less than 24 hours in advance of the hearing. • Testimony is limited to 3 minutes. Witnesses are requested to submit written copies of the testimony by email to aqcomments@alleghenycounty.us. ACHD will also accept written comments, beginning on Tuesday, August 15, 2023 and concluding on Friday, September 15, 2023 at 4:00 PM, by mail to ACHD Air Quality, 301 39th Street, Bldg. #7, Pittsburgh, PA 15201-1811, or by email to aqcomments@alleghenycounty.us.

Please call 412-578-8103 if you have any questions or if you have any difficulty registering for the hearing.

As appeared in the Post-Gazette on August 13, 2023

7.2 Transmittals of Public Hearing Notice to PA DEP and EPA Region 3

COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

August 14, 2023

Mr. Mark Hammond, Director
Bureau of Air Quality
Department of Environmental Protection
Rachel Carson Building
400 Market Street
P O Box 8468
Harrisburg, PA 17105-8468

Dear Mr. Hammond:

Attached is a Notice of Public Hearing for a proposed Redesignation Request and Maintenance Plan for the Allegheny, PA SO_2 Nonattainment Area for the 2010 National Ambient Air Quality Standards (NAAQS). This Redesignation Request and Maintenance Plan will be submitted as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan under our Revision Tracking Number 101.

The Notice of Public Hearing was published in the *Pittsburgh Post-Gazette* on August 13, 2023. The public comment period begins on August 15, 2023, and concludes on September 15, 2023, at 4:00 PM. The public hearing will be held on September 14, 2023, at 5:30 PM. Your comments are welcome. More information regarding the proposed SIP revision may be found on the ACHD website at: www.alleghenycounty.us/regs-sips.

Sincerely,

Jason Maranche, Manager
ACHD Air Quality Planning and Data Assessment Program

cc: Kirit Dalal (PA DEP)
Steve Hepler (PA DEP)

Attachments:
- Public Hearing Notice
- Proposed Redesignation Request and Maintenance Plan

ALLEGHENY COUNTY HEALTH DEPARTMENT • AIR QUALITY
301 39TH STREET BUILDING #7 • PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144

COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

August 14, 2023

Ms. Christina Fernandez, Director
Air Protection Division
Region III (3AP00)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Ms. Fernandez:

Attached is a Notice of Public Hearing for a proposed Redesignation Request and Maintenance Plan for the Allegheny, PA SO_2 Nonattainment Area for the 2010 National Ambient Air Quality Standards (NAAQS). This Redesignation Request and Maintenance Plan will be submitted as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan under our Revision Tracking Number 101.

The Notice of Public Hearing was published in the *Pittsburgh Post-Gazette* on August 13, 2023. The public comment period begins on August 15, 2023, and concludes on September 15, 2023, at 4:00 PM. The public hearing will be held on September 14, 2023, at 5:30 PM. Your comments are welcome. More information regarding the proposed SIP revision may be found on the ACHD website at: www.alleghenycounty.us/regs-sips.

Sincerely,

Jason Maranche, Manager
ACHD Air Quality Planning and Data Assessment Program

cc: Michael Gordon (EPA)
Megan Goold (EPA)

Attachments:
- Public Hearing Notice
- Proposed Redesignation Request and Maintenance Plan

ALLEGHENY COUNTY HEALTH DEPARTMENT • AIR QUALITY
301 39TH STREET BUILDING #7 • PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144

7.3 Proof of Publication of Notice

No. _____ Term, _____

Proof of Publication of Notice in Pittsburgh Post-Gazette

Under Act No 587, Approved May 16, 1929, PL 1784, as last amended by Act No 409 of September 29, 1951

Commonwealth of Pennsylvania, County of Allegheny, ss D. Rullo, being duly sworn, deposes and says that the Pittsburgh Post-Gazette, a newspaper of general circulation published in the City of Pittsburgh, County and Commonwealth aforesaid, was established in 1993 by the merging of the Pittsburgh Post-Gazette and Sun-Telegraph and The Pittsburgh Press and the Pittsburgh Post-Gazette and Sun-Telegraph was established in 1960 and the Pittsburgh Post-Gazette was established in 1927 by the merging of the Pittsburgh Gazette established in 1786 and the Pittsburgh Post, established in 1842, since which date the said Pittsburgh Post-Gazette has been regularly issued in said County and that a copy of said printed notice or publication is attached hereto exactly as the same was printed and published in the regular editions and issues of the said Pittsburgh Post-Gazette a newspaper of general circulation on the following dates, viz:

13 of August, 2023

Affiant further deposes that he/she is an agent for the PG Publishing Company, a corporation and publisher of the Pittsburgh Post-Gazette, that, as such agent, affiant is duly authorized to verify the foregoing statement under oath, that affiant is not interested in the subject matter of the afore said notice or publication, and that all allegations in the foregoing statement as to time, place and character of publication are true.

PG Publishing Company

Sworn to and subscribed before me this day of:
August 14, 2023

Amy McCay

Commonwealth of Pennsylvania - Notary Seal
Amy McCay, Notary Public
Allegheny County
My commission expires January 24, 2026
Commission number 1323004
Member, Pennsylvania Association of Notaries

STATEMENT OF ADVERTISING COSTS

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Total ---------- $112.50

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PG PUBLISHING COMPANY, publisher of the Pittsburgh Post-Gazette, a newspaper of general circulation, hereby acknowledges receipt of the aforesaid advertising and publication costs and certifies that the same have been fully paid.

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I hereby certify that the foregoing is the original Proof of Publication and receipt for the Advertising costs in the subject matter of said notice.

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Attorney For

COPY OF NOTICE OR PUBLICATION

NOTICE OF PUBLIC HEARING AND PUBLIC COMMENT PERIOD

FOR THE PROPOSED REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE ALLEGHENY, PA SO2 NONATTAINMENT AREA FOR THE 2010 NAAQS

The Allegheny County Health Department (ACHD) will hold a public hearing on Thursday, September 14, 2023, at 5:30 PM at the Clairton Municipal Building, 551 Ravensburg Boulevard, Clairton PA, 15025 to take testimony on the proposed Redesignation Request and Maintenance Plan for the Allegheny, PA SO2 Nonattainment Area for the 2010 National Ambient Air Quality Standards (NAAQS).

The Redesignation Request and Maintenance Plan will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the Attainment and Maintenance of the Sulfur Dioxide (SO2) NAAQS. The Redesignation Request and Maintenance Plan is available on the ACHD Air Quality website at www.alleghenycounty.us/regs-slps. Written copies may be obtained by calling 412-578-8103. • Persons wishing to present testimony at the hearing must register by going to the ACHD Air Quality website at www.alleghenycounty.us/regs-slps. Persons who do not have access to the internet may register by calling 412-578-8103. • You must register to present testimony no less than 24 hours in advance of the hearing. • Testimony is limited to 3 minutes. Witnesses are requested to submit written copies of the testimony by email to aqcomments@alleghenycounty.us. ACHD will also accept written comments, beginning on Tuesday, August 15, 2023 and concluding on Friday, September 15, 2023 at 4:00 PM, by mail to ACHD Air Quality, 301 39th Street, Bldg #7, Pittsburgh, PA 15201-1811, or by email to aqcomments@alleghenycounty.us.

Please call 412-578-8103 if you have any questions or if you have any difficulty registering for the hearing.

7.4 Certification of Public Hearing

Revision 101

Redesignation Request and Maintenance Plan for the Allegheny County, PA SO_2 Nonattainment Area for the 2010 NAAQS

Certification of Hearing

Jason Maranche deposes and says that he is an Air Quality Manager in the Air Quality Planning and Data Assessment Program of the Allegheny County Health Department and hereby certifies that a Public Hearing was held on September 14, 2023 on a proposed Redesignation Request and Maintenance Plan for the Allegheny, PA SO_2 Nonattainment Area for the 2010 National Ambient Air Quality Standards; that the Redesignation Request and Maintenance Plan will be incorporated as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan for the Attainment and Maintenance of the SO_2 National Ambient Air Quality Standards; that the opportunity for written comments was given in accordance with the requirements of 40 CFR 51.102; that notice of such hearing was given by publication in a newspaper of general circulation on August 13, 2023; and, to the best of his knowledge, belief, and understanding, such proceedings were in full compliance with all applicable state and federal laws, regulations, and other requirements.

9/14/2023

Jason Maranche — Date
Air Quality Manager
Planning and Data Assessment Program
Allegheny County Health Department

7.5 Summary of Comments and Responses

Notice of the opportunity for public comment appeared in the legal section of the Pittsburgh Post-Gazette on August 13, 2023. The public comment period started on August 15, 2023, and ended on September 15, 2023, with a public hearing held on September 14, 2023.

Monitor Network
Comments related to the monitor network and verification of continued attainment in the Maintenance Plan.

1. **Comment:** If granted, EPA's redesignation of Allegheny as a sulfur dioxide attainment area would signify a significant step forward for cleaner air locally. But this is only a step, and EPA and ACHD should remain steadfast in their surveillance and monitoring of SO_2, especially in our most vulnerable communities that are environmental justice areas. In 2022 there were no exceedances in North Braddock, and one exceedance at Liberty. However, so far in 2023 there have been two exceedances at North Braddock, and one exceedance at Liberty.

   Response: ACHD will continue to operate its SO_2 monitor network in accordance with EPA requirements. Each exceedance of the NAAQS is carefully assessed by ACHD. As mentioned in Section 6.5 (Contingency Provisions), measures may be developed and implemented to prevent or correct violations as expeditiously as practicable.

2. **Comment:** ACHD relies on its Air Monitoring Network Plan ("AMNP") to verify continued attainment and to support its efforts to address environmental justice concerns, and yet it has failed to conduct the federally required annual review of the AMNP that was due on July 1, 2023. Furthermore, because the updated AMNP plan has not been finalized, it cannot be evaluated whether any changes in the plan would impact this Redesignation Request.

   Response: The AMNP has been drafted and is under final review and being prepared for public comment soon. As indicated in Section 6.3 (Monitor Network), ACHD will continue to operate its SO_2 network in accordance with EPA requirements, and no reductions to the network will be made unless pre-approved by EPA. There are no reductions proposed at this time, and as noted in Appendix A, an additional monitor for the Allegheny, PA NAA is planned for deployment at the current Clairton site.

Controls
Comments related to the emissions controls included in the in the Maintenance Plan.

3. **Comment:** ACHD prematurely relies on U.S. Steel's recent shutdown of Batteries 1-3 at Clairton Coke Works despite the shutdown currently being neither permanent nor enforceable. Longstanding EPA guidance expressly states that any emission reductions stemming from the shutdown of a source may only be included in a maintenance demonstration "to the extent that those shutdowns have been reflected in the SIP and all applicable permits have been modified accordingly."

Response: The permanent shutdown of Coke Batteries 1-3 at the USS Clairton Plant occurred at the end of March 2023. The Title V operating permit for the USS Clairton Plant, issued on November 21, 2022, included as condition IV.35 that U. S. Steel "shall permanently shutdown Coke Oven Batteries 1, 2, and 3 no later than June 1, 2023."

4. **Comment:** ACHD's projected inventories ignore the pattern of repeated breakdowns of USS equipment in Mon Valley. ACHD acknowledges the significance of breakdown events on resulting monitored data in 2017-2019. Recent power outages at the USS Clairton have led to continued excess SO_2 emissions. Unless ACHD can point to permanent and enforceable measures that it has taken to change USS's pattern of excessive emissions and violations due to a pattern of poor maintenance and equipment breakdowns, it needs to account for the likelihood of future incidents in its future inventory projections.

   Response: ACHD acknowledges the potential effect of breakdowns on elevated SO_2 emissions, especially during unfavorable meteorological conditions. The attainment demonstration SIP controls (ACHD, 2017) included a tail gas recycling project that rerouted sulfur-rich gases during outages/breakdowns at the USS Clairton desulfurization facility. As mentioned in Section 6.5 (Contingency Provisions), ACHD would potentially develop measures, including those that may be unidentified at this time, to remedy exceedances/violations that might be attributed to repeated breakdowns. However, it is not possible to account for every unforeseen event – such as the extended breakdown of the desulfurization facility in 2018-2019 – in the projected inventories. Furthermore, emissions that exceed permitted limits during breakdown periods may lead to enforcement actions which may warrant additional controls. The general methodology for SIPs and maintenance plans is to project future case emissions to a controlled scenario as would be expected from the implemented measures. ACHD will continue to assess all SO_2 exceedances in the NAA and evaluate any control measures that may be needed.

5. **Comment:** ACHD should strengthen its maintenance plan for SO_2 by making sure that the contingency measures for SO_2 exceedances are specific and will lead to effective corrective action. The currently proposed contingency measures are insufficient.

   Response: The contingency measures meet EPA and Clean Air Act requirements for maintenance plans. ACHD identified specific contingency measures that could be selected, depending on the nature of the violation, along with specific triggers and schedules for implementation should contingency measures be necessitated. The contingency provisions also allow for currently unidentified measures to be considered, which can account for uncertainties during the 10-year maintenance period.

<u>Supporting Evidence</u>
Comments related to the supporting evidence included in the Maintenance Plan.

6. **Comment:** ACHD should better explain how regulations and programs it cites as supporting evidence for its expectation of continued attainment actually contribute to attainment of the 2010 SO_2 NAAQS. EPA guidance expressly states that any emission reductions stemming from the shutdown of a source may only be included in a maintenance demonstration "to the

extent that those shutdowns have been reflected in the SIP and all applicable permits have been modified accordingly."

Response: Section 6.2.4 (Supporting Evidence) was provided for informational purposes, above and beyond the maintenance plan requirements, to support the expectation that attainment would be maintained in the Allegheny, PA NAA. This evidence included regulations and programs, other controls, and population and employment projections, along with brief explanations of the possible reductions due to these factors. No regulations or controls mentioned in this section were included as SIP controls or in the projected future case inventories.

Modeling

Comments related to the modeling used in the Maintenance Plan.

7. **Comment:** ACHD conducted the mobile source modeling in the Maintenance Plan with an outdated version of the MOVES model. The model used is version 3.0.3, introduced in January 2022. Version 3.0.4 was a patch introduced in August 2022 which did not substantially change onroad emissions. The current version 3.1.0 was a minor revision introduced in November 2022, which changed emission rates for certain vehicles, but not substantially changing them at a county scale. The model updates were not considered new models for SIP and transportation conformity purposes; nevertheless, ACHD may want to consider re-running the model with version 3.1.0 to verify whether the updated software yields any substantive changes.

   Response: MOVES4.0.0 is currently the most recent version of the EPA MOVES modeling system, released in August 2023. All versions of MOVES3 since MOVES3.0.3 were either patches or minor revisions and were voluntary for use in regulatory analyses. As indicated by the commenter, updated versions of MOVES3 did not substantially change onroad criteria emissions rates at the county scale and were not considered new models for SIP or transportation conformity purposes.[40] There was therefore no substantive reason to model with an updated version of MOVES3. Considering the overall low SO_2 emissions from the mobile source data categories for the Allegheny, PA NAA, newer versions would likely show little differences from the MOVES3.0.3 results.

8. **Comment:** A more comprehensive future emissions inventory might necessitate additional modeling. ACHD states that it did not perform modeling for the maintenance demonstration since projected emissions are expected to remain below the attainment inventory emissions. However, ACHD should have included emissions from Batteries 1-3 at Clairton Coke Works and accounted for the pattern of excessive emissions from equipment breakdowns at USS facilities. If the Department had done so, the projected emissions would have been higher, and perhaps would have exceeded the attainment inventory emissions.

   Response: As mentioned in previous responses, the shutdown of Coke Batteries 1-3 has been included as a permanent control for the projected years, and non-specific, unknown, and

[40] More information of the MOVES model versions can be found at the following website: https://github.com/USEPA/EPA_MOVES_Model/releases

yet to occur breakdowns would be difficult to account for in future case scenarios. Since employment projections for the steel industry are decreasing in future years, updated emissions projections that would include Coke Batteries 1-3 would likely still show decreasing emissions in future years. Furthermore, any updated modeling effort would likely follow procedures that are identical to those included in the attainment demonstration SIP (ACHD, 2017), and no substantial differences would be expected.

Attainment Conditions

Comments related to the conditions during which attainment has been monitored.

9. **Comment:** ACHD's attainment demonstration improperly relies on nonrepresentative years during a global pandemic. ACHD understands that it may not rely on emission reductions potentially caused by temporary economic circumstances to demonstrate attainment, yet it relied on years with depressed economic activity due to the global COVID pandemic. ACHD acknowledges that 2020 was a low year for emissions, but it then asserts without support that economic activity was more typical of levels prior to the pandemic in 2021 and 2022. The 2021 annual financial report by Pittsburgh's City Controller noted that the "City's finances remained impacted by the pandemic." USS's own 2022 report mentions "multiple recent challenges starting with the pandemic and followed by supply chain disruptions and inflationary pressures." At minimum, ACHD has access to production data from the main sources of SO_2, and it should evaluate that data to gauge whether production was in fact back to pre-production levels at USS. Additionally, ACHD's reliance on 2021 is inappropriate because Battery 15 at Clairton Coke Works was not in operation.

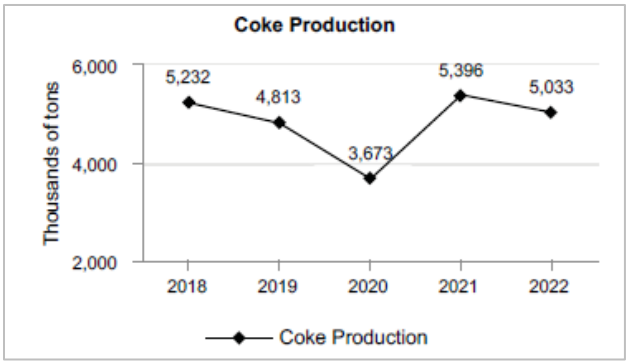
   Response: Based on emissions, production levels, and monitored concentrations, ACHD contends that economic activity in the Allegheny, PA NAA in 2021-2022 is more typical of years prior to the pandemic. (It should be noted that the NAA does not include any portion of the City of Pittsburgh.)

   The table below shows the production level of the USS Clairton Plant for 2018-2022, based on tons of coal charged per year, as compiled from ACHD emissions inventory information.

Year	Production Level (tons of coal charged)
2018	5,035,264
2019	4,670,961
2020	3,397,808
2021	4,942,994
2022	4,839,506

   This is similarly reflected in the USS 2022 Annual Report for all USS facilities, as shown in the chart below in terms of coke production per year.[41]

[41] USS 2022 Annual Report: https://investors.ussteel.com/sec-filings/all-sec-filings/content/0001104659-23-030780/tm231813d6_ars.pdf



The commenter excludes the full statement included in the USS 2022 Environmental, Social, and Governance (ESG) Report, which states: "Our processes have helped us overcome multiple recent challenges starting with the pandemic and followed by supply chain disruptions and inflationary pressures."

Regarding Battery 15, the idling of this battery has shown little effect on total production and emissions from the USS Clairton Plant.

<u>Public Participation</u>
Comments related to public participation for air quality plans.

10. Comment: ACHD should increase its efforts to meaningfully engage members of environmental justice communities in the regulatory process and should consider conducting further outreach and extending the comment period for this Redesignation Request. Despite numerous members of Mon Valley communities expressing concern to Clean Air Council (the Council) regarding this redesignation request, no community members attended the public hearing on September 14, 2023. The Council encourages ACHD to attempt to employ measures such as the following, some of which ACHD may already be doing at times, either in the future or in re-noticing and re-opening the comment period for this Redesignation Request:

- Make information publicly available in multiple formats and widely accessible
- Provide all information that the public needs to effectively evaluate a proposal
- Determine logistics of public gatherings by consulting the communities
- Ensure that live public testimony is possible when attending meetings virtually
- Provide regular updates and trainings on the SIP and permitting processes
- Conduct public trainings regarding rulemaking and permitting processes
- Consider compensating members of the public under a certain income level for expenses related to their participation
- Provide support to the public including technical assistance and plain language explanations of relevant information

Response: ACHD makes public participation a priority for all programs, including air quality, with focus on environmental justice communities. Air quality plans, regulations, permits, and monitored data are posted to the ACHD website for public review, including

dashboards of real-time data.[42] The website also features announcements of public hearings and Air Pollution Control Advisory Committee meetings, along with other resources for air quality and health effects. Members of the public are welcome to request further information by contacting ACHD and/or by submitting a Right-to-Know request. Additionally, ACHD often utilizes social media for outreach and informational purposes.

The notice of public hearing and comment period for this redesignation request and maintenance plan was published in a general circulation local newspaper and was accessible to those citizens without internet access. The public notice included a phone number to use to request written (paper) copies of those materials. The logistics of the public hearing were considered, and ACHD engaged the cooperation of the City of Clairton for meeting space for the hearing.

Plain language discussions of air quality plans generally occur at the Advisory Committee meetings and its subcommittees, which include virtual access. ACHD discussed the public hearing and comment period for this redesignation request and maintenance plan at the August 14, 2023, Advisory Committee meeting. Although formal "trainings" are not offered by ACHD, efforts are taken to explain the complicated regulatory and SIP-related actions that are under consideration. Technical support documents (TSDs) and presentations are often provided for explanatory purposes.

Commenters:

A summary of the individuals, organizations, or agencies that provided comments during the public comment period is given below. Copies of the submitted comments, including the transcript of proceedings at the public hearing, are available upon request.

- Residents of Allegheny County
  - 23 commenters (submitting identical written comments)

- Clean Air Council, submitted by the individuals below:
  - Joseph Otis Minott, Esq., Executive Director
  - Jay Ting Walker, Outreach Coordinator (verbal testimony)

- Patrick Campbell, Executive Director, Group Against Smog and Pollution (GASP) (verbal testimony)

[42] https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Air-Quality.aspx

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