COUNTY OF ALLEGHENY
RICH FITZGERALD
COUNTY EXECUTIVE

**Meeting of the Board of Health**
**Agenda for May 5, 2021**

Call to Order

Approval of Minutes – March 3, 2021

Public Comments on Agenda Items (3-minutes maximum per speaker)

Old Business

COVID-19 Update

New Business

Revisions to Article XXI: Mon Valley Air Pollution Episode Rule

Clean Air Fund Request: Allegheny Alerts Informational Campaign

PM10 Second Maintenance Plan

Revisions to Article XV: Site Work & Restroom Fixture Counts

Formulation of Article XXIV: Paid Sick Leave

Public Comments on Non-Agenda Items (3-minutes maximum per speaker)

Adjournment

Next Meeting of the Board of Health:
Wednesday, July 14, 2021

DEBRA L. BOGEN, MD, DIRECTOR
**ALLEGHENY COUNTY HEALTH DEPARTMENT**
542 FOURTH AVENUE • PITTSBURGH, PA 15219
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**ALLEGHENY COUNTY BOARD OF HEALTH**
**MINUTES**
**March 3, 2021**

Present: William Youngblood, Vice Chair
Debra Bogen, MD, Secretary
Anthony Ferraro
Edith Shapira, MD
Donald Burke, MD
Caroline Mitchell
Kotayya Kondaveeti, MD

Absent: Lee Harrison, MD, Chair
Ellen Stewart, MD
Joylette Portlock, PhD

1. **Call to Order**

Due to the emergency order issued by Governor Wolf in relation to COVID-19, the meeting was held virtually. The meeting was livestreamed online, in order to enable the public to observe the meeting. Public comments were submitted in writing in advance and were read during the meeting by Todd Bogdanovich.

Mr. Youngblood called the meeting to order.

2. **Approval of Minutes from January 6, 2021**

Mr. Youngblood asked if there were any comments or questions about the minutes. There were none.

**Action:** Dr. Shapira moved to approve the minutes, Mr. Ferraro seconded the motion.
**Motion passed unanimously.**

3. **Public Comments on Agenda Items**

1. Barbara Miller wrote about the need for friendly scheduling.
2. Lorraine Starsky urged greater equity in vaccinations.
3. Jamil Bey suggested reducing the eligible age for Black people to receive the vaccine.
4. Joy Midgley requested that social distancing restrictions be loosened for children.
5. Alison Fujito wrote about the need for greater awareness of vitamin D deficiency.

**4. New Business**

**A. Environmental Health Fund Request: XRF Analyzer Repair**

In 2020, ACHD's Housing & Community Environment program requested approval for a $4,000 expenditure from the Environmental Health Fund. Mr. Brian Kelly, an Environmental Health Administrator explained that ACHD performed 86 lead risk assessments in the homes of children with elevated blood lead levels. The main tool used during those assessments is the portable x-ray Fluorescence (XRF) Niton XLp 300 Analyzer, which is used for non-destructive analysis of painted structural components and consumer goods. In January, field staff began receiving error messages, and the detector is beginning to fail. The return of the analyzer to Niton for repair is necessary to maintain services to County residents. ACHD requested $4,000 from the Environmental Health Fund to pay for repair costs.

**Action:** Dr. Burke moved to approve the expenditure of $4,000 from the Environmental Health Fund for repair of the XRF analyzer. Dr. Shapira seconded the motion.
**Motion passed unanimously.**

**B. Air Permit Fee Schedule**

ACHD's Air Quality program requested approval of: 1) a revised permitting fee schedule and 2) proposed changes to permit fee regulations to accommodate new effective dates as well as reassignment of certain fees to the Title V Air Quality Fund.

Mr. Kelly, ACHD Deputy Director for Environmental Health, explained the need for the proposed changes. He reviewed the workforce analysis conducted to understand the extensive amount of personnel time dedicated to each type of permit and that with two exceptions, one for General Permits and one for Minor Sources. He outlined how fee schedule aligns with that of the Commonwealth of Pennsylvania. He explained that the reassignment of the fees to the Title V Air Quality Fund would keep ACHD compliant with federal regulations.

The board engaged this discussion with some expressing concerns that the fees were increased too much at one time and suggested that the fees be incrementally increased. Others stated that these changes were overdue and simply bringing Allegheny County in line with the other counties as well as the state. After a lively discussion, Mr. Kelly requested on behalf of ACHD support for the two actions.

**Action:** Dr. Shapira moved to approve the proposed air quality fee amounts. Dr. Burke seconded the motion.
**Mr. Youngblood, Dr. Shapira, Dr. Burke, and Ms. Mitchell voted in favor of the motion. Mr. Ferraro and Dr. Kondaveeti voted against the motion.**

**The motion passed by a vote of 4-2.**

**Action:** Mr. Ferraro moved to approve the proposed permit fee regulation changes, as recommended by Mr. Kelly. Dr. Shapira seconded the motion.
**The motion passed unanimously.**

**C. Clean Air Fund Request: Spend 5% of Fund for Operational Costs**

Mr. Kelly requested the Board's approval to expend up to five percent of the Clean Air Funds available on December 31, 2020 for the purposes of operational costs for the Air Quality Program. On December 31,2020 the ending balance of the CAF was $11,573,680, five percent of which is $578,684. Mr. Kelly provided an estimated budget of how the $578,684 will be spent including that approximately half of this money is expected to be spent on legal support. On behalf of ACHD Mr. Kelly requested approval of the use of funds from the Clean Air Fund.

**Action:** Mr. Youngblood moved to approve the expenditure of up to $578,684 from the Clean Air Fund for the Air Quality Program's operational costs, Dr. Kondaveeti seconded the motion.
**The motion passed unanimously.**

**D. Vector Control Presentation**

Leah Lamonte, ACHD's Vector Control Program Coordinator, presented a lively update on the Vector Control Program. Ms. Lamonte explained that the program receives grant funding from the Department of Environmental Protection and consists of one full-time employee and two seasonal field staff.

From May through September 2020, the team conducted surveillance of mosquitos for West Nile Virus. She also talked about the Asian Tiger Mosquito and the need for persistent code enforcement to reduce the Asian Tiger Mosquito's breeding grounds. From April to August, the program participated in the second year of a statewide five-year study collecting Ixodes scapularis nymphs. The collections occurred in Highland and Schenley Parks, and the individual nymphs were tested for Lyme, Anaplasma, and Babesia. The tick surveillance efforts discovered the first documented environmental collection of the Asian Longhorned Tick in Western Pennsylvania.

The board thanked Ms. Lamonte for her very informative presentation.

5. **Old Business**

**A. COVID-19 Update**

Dr. Bogen provided an overview of the phases of the pandemic. During the first phase, March to May 2020, there were many unknowns about the virus, no treatments, a lack of PPE, limited testing, and the first mitigation strategies. The second phase was June – Aug when a summer surge occurred after entering PA's "green phase" of reopening – which led to new mitigation strategies focused on travel and food and beverages, and the building of testing capacity. The third phase was the relatively quiet months of September and October, which entailed learning to live with masks and physical distancing while preparing for an expected winter surge. The fourth phase was in November and December, which saw the largest surge yet, many deaths,

new mitigation strategies, and vaccines appearing on the horizon. January saw the new year, the arrival of vaccines, and of variants of the disease.

Dr. Bogen shared data with the Board from the state's dashboard and the county dashboard. Dr. Bogen indicated that we are not yet out of the woods and not quite ready to remove our masks.

Three vaccines are currently available, and Dr. Bogen stated that all are very effective at preventing severe disease. The Pfizer vaccine was released in early December, the Moderna vaccine was released the following week, and the Jansen vaccine was released last week.

The Pennsylvania Department of Health changed its vaccine distribution phase groups in the middle of January, and ACHD adopted the state plan.

Dr. Bogen reviewed the vaccine distribution to the county from the state and federal programs. ACHD has received approximately 10-12% of Allegheny County's total doses. Challenges for the vaccination campaign include limited supply, limited local control of distribution, the registration system, vaccine hesitancy and equitable distribution. Demand for vaccines has been far greater than supply.

Dr. Bogen thanked Allegheny County Emergency Services and Chief Matt Brown, the United Way's 2-1-1, the Department of Human Services, and all of Allegheny County government. She stated that more people must be vaccinated and urged everyone to please continue with distancing, masking, and limiting gatherings.

6. **Public Comments on Non-Agenda Items**

1. Cynthia Hebestreit wrote requesting ACHD offer or require TB testing for schools.
2. Danielle Walker wrote about her personal frustration regarding air quality issues.
3. David Bertenthal suggested US Steel be held accountable for polluting our air.
4. Matt Nemeth demanded action to improve air quality.
5. Katie Kulandaivel requested that major polluters be held accountable to Clean Air Standards.
6. Alex Downing urged continued action for attainment of EPA's standards.
7. Walt Haim wrote in support of clean air.
8. Art Thomas requested testing of Clairton resident's health issues as well as continuous monitoring of air quality.
9. Ellen Conrad called for stronger laws to enforce air quality.
10. Gloria Ford wrote calling for more stringent controls should be put on the coke works.
11. Alexis Thompson about her personal concerns regarding air quality.
12. Steven Martinez wrote requesting stronger regulation of coke oven emissions.

13. Angelo Taranto wrote requesting additional air monitoring in the Neville Island area

7. **Adjournment**

Dr. Burke moved to adjourn the meeting, Dr. Kondaveeti seconded the adjournment.

# Mon Valley PM2.5 Episode Control Proposed Regulation

Board of Health
May 5, 2021



The Liberty monitor occasionally exceeds the federal standard of 35 µg/m3 for fine particulates ($PM_{2.5}$). This proposed regulation is to minimize these days.

## Average 24-Hour $PM_{2.5}$ Concentrations (µg/m³) on Liberty Exceedance Days, by Site, 2016-2020

| Exceedance Scenario | Liberty | North Braddock | Parkway East | Lawrenceville | South Fayette |
|---|---|---|---|---|---|
| Any Liberty Exceedance Day | 44.7 | 23.1 | 21.8 | 18.4 | 12.8 |
| Consecutive Liberty Exceedance Days | 48.7 | 25.4 | 24.5 | 22.1 | 12.7 |

# Mon Valley Air Pollution Episodes

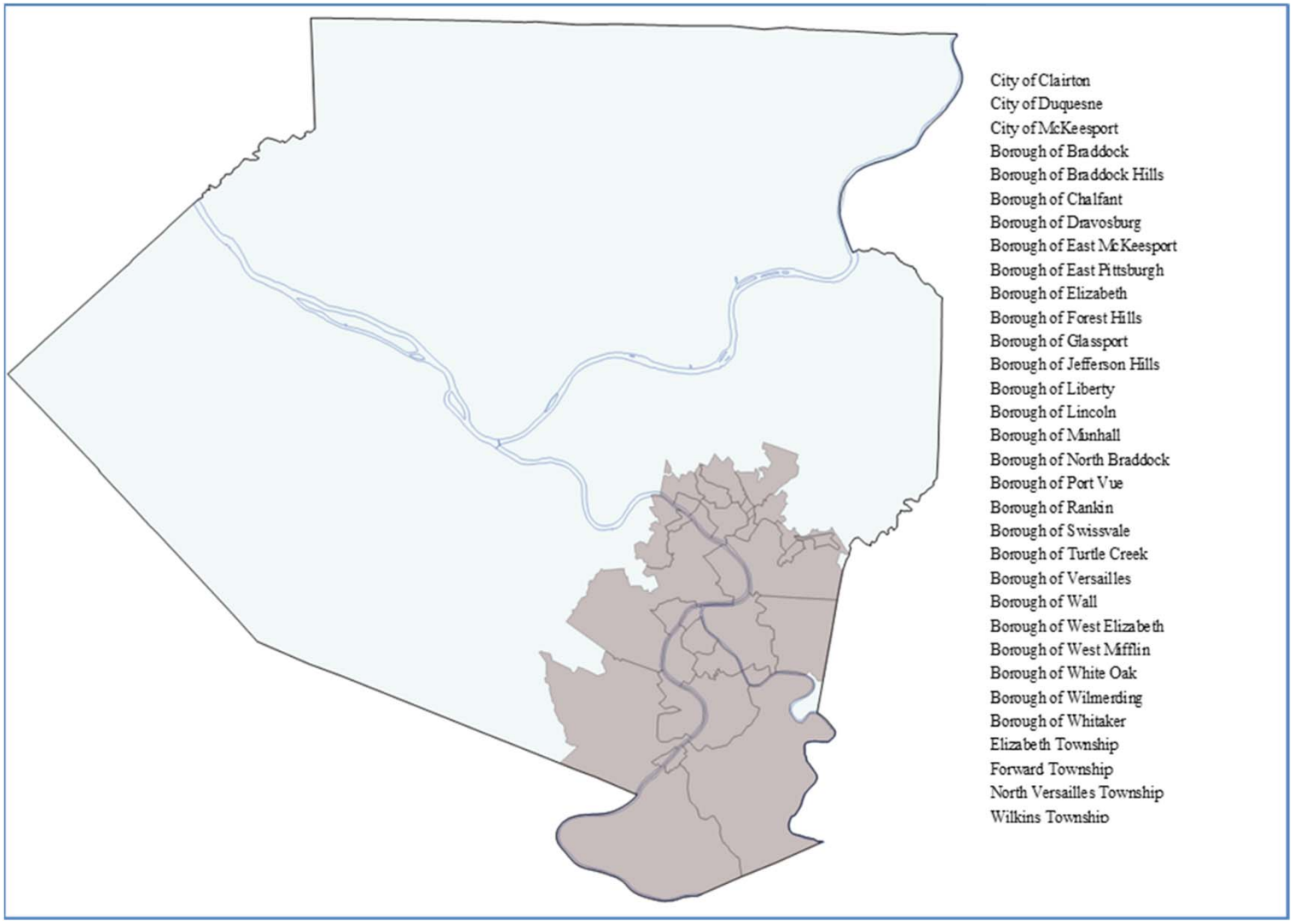
**Mon Valley Air Pollution <u>Watch</u>**

- ACHD declares a Watch if the next day air quality is *forecasted* to exceed the Mon Valley $PM_{2.5}$ threshold level

**Mon Valley Air Pollution <u>Warning</u>**

- ACHD issues a Warning if:
  - During a rolling 24-hour averaging period, the Mon Valley $PM_{2.5}$ threshold level *is exceeded*
  - The Department determines atmospheric conditions will continue for 24 hours

# Map of Proposed Mon Valley Air Pollution Episode Area



## Episode Rule Applies To

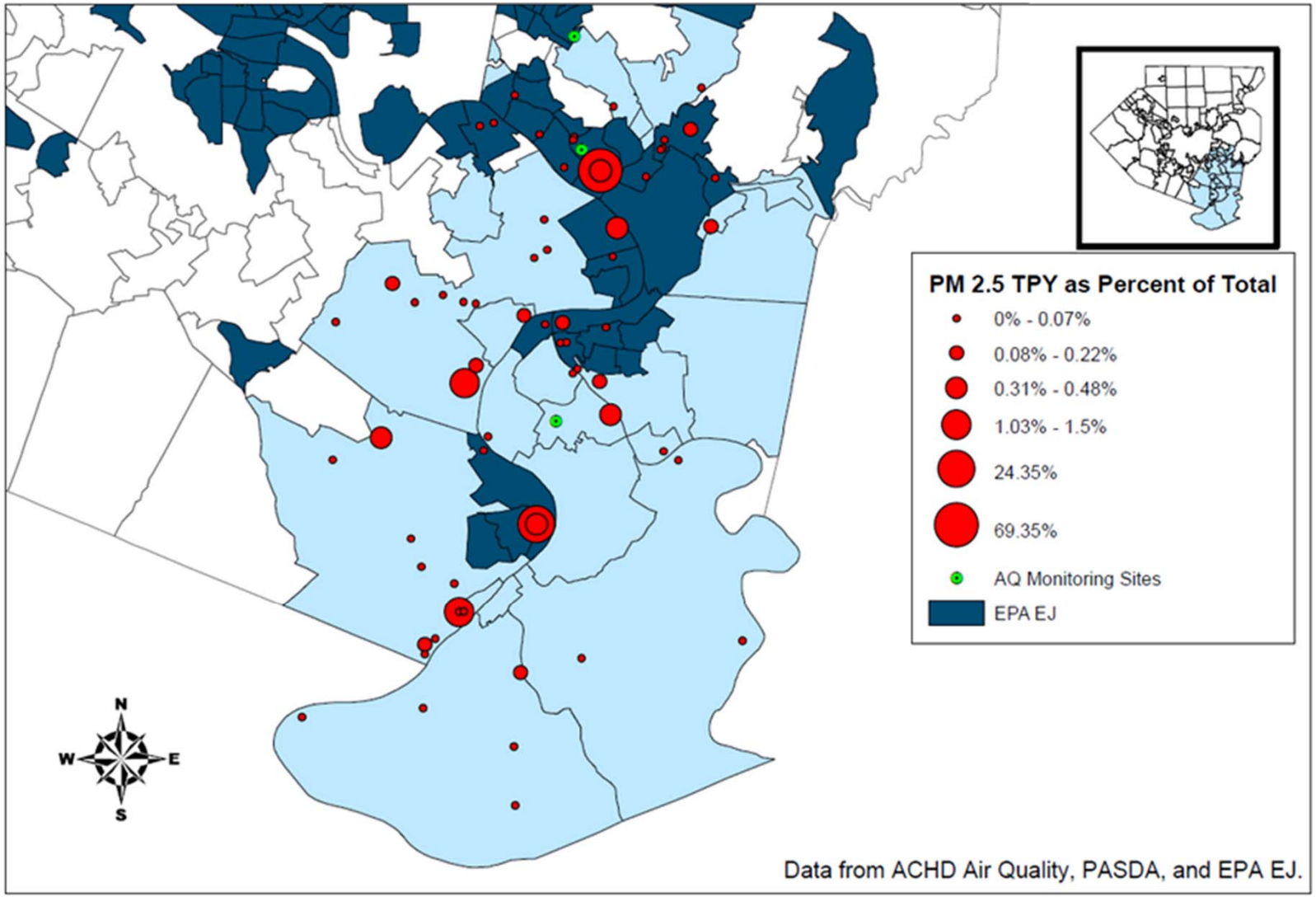
- All major and synthetic minor sources of $PM_{2.5}$;
- All sources that have combined allowable emissions from all emission units of 6.5 tons or more per year of $PM_{2.5}$;
- All sources that have combined allowable emissions from all emission units of 10 tons or more per year of $PM_{10}$.

# Air Quality Forecast

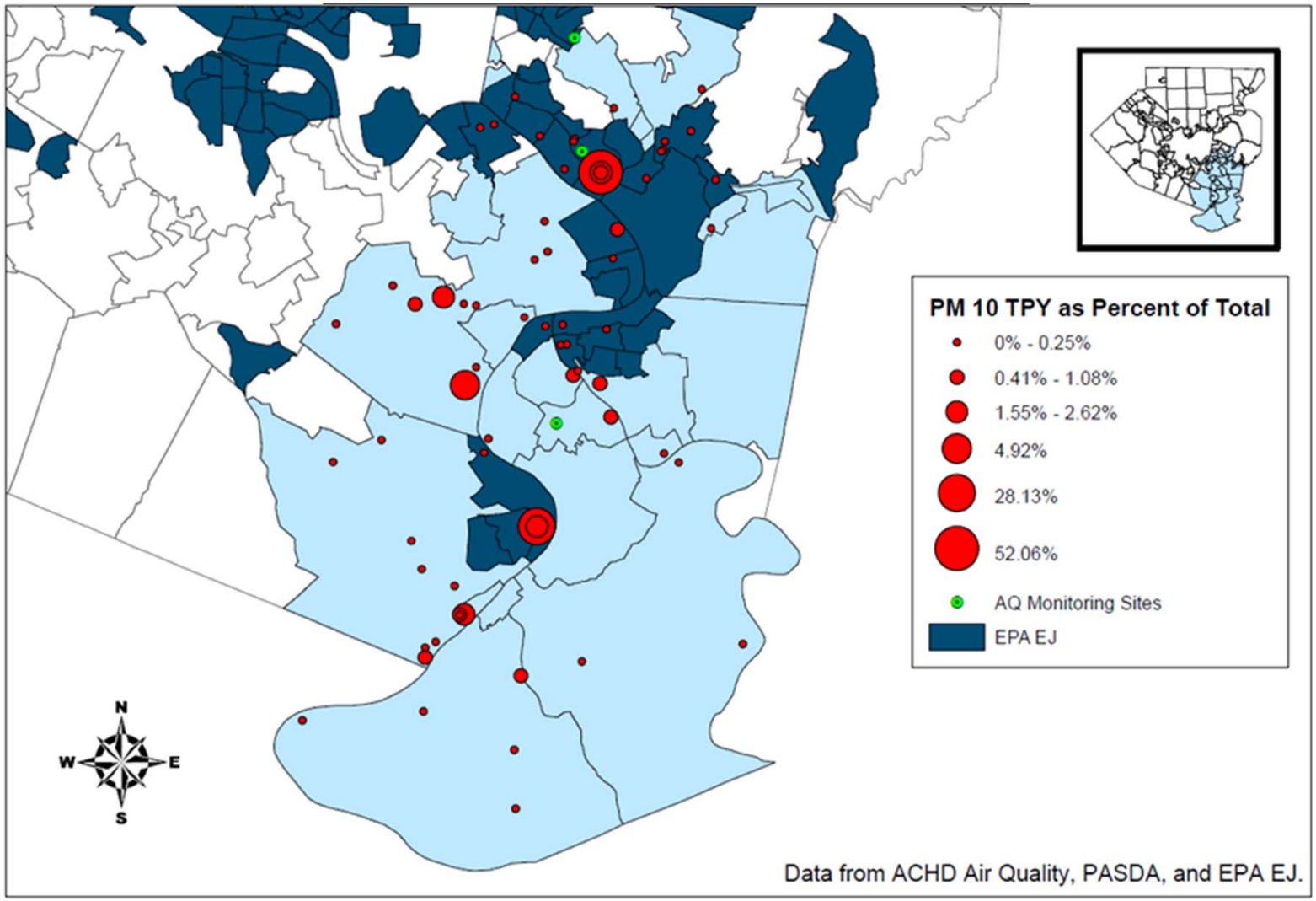
- Forecast provided by the Pennsylvania Department of Environmental Protection

- The Director of the Allegheny County Health Department may approve a change in the air quality forecast provider or methodology. The Department shall post on its Air Quality Program website any changes to the-air quality forecast provider or methodology.

# $PM_{2.5}$ Emissions (% of total), by Permitted Facilities in Mon Valley



# $PM_{10}$ Emissions (% of total), by Permitted Facilities in Mon Valley



# Sources Subject to this Regulation

***Table 3. Facilities with both $PM_{2.5}$ tons/year limit of 6.5 or greater and $PM_{10}$ tons/year limit of 10 or greater***

| Company Name |
|---|
| U.S. Steel-Edgar Thomson Plant |
| U.S. Steel-Clairton Coke Works Plant |
| TMS (USS-Edgar Thomson) |
| Eastman Chemical Resins, Inc. |
| DURA-Bond (Duquesne) |
| DURA-Bond (Liberty) |
| U.S. Steel Irvin Plant |

***Table 4. Facilities with only $PM_{10}$ tons/year limit of 10 or greater***

| Company Name |
|---|
| Clairton Slag, Inc. |
| LaFarge Corporation (Duquesne Plant) |
| C.P. Industries – Christy Park Plant |
| Keywell Metals LLC. West Mifflin |
| Kelly Run Sanitation Landfill |
| Braddock Recovery, Inc. |
| ELG Metals, Inc. – McKeesport |
| Mid-Continental Coal & Coke Company |
| NCP Carbon (Jefferson Hills Site) |
| TMS (USS- Clairton) |
| Fritz Enterprises (USS Edgar Thomson) |

# Mon Valley Air Pollution Mitigation Plan

Each source subject to regulation shall submit a Mon Valley Air Pollution Mitigation Plan with two phases:

**Mon Valley Air Pollution *Watch* Phase:** Procedures to ensure the source is operating in a manner consistent with good engineering practice and all air pollution control equipment is maintained in good working condition.

**Mon Valley Air Pollution *Warning* Phase:** A Mon Valley Air Pollution Warning Phase shall include measures to reduce $PM_{2.5}$ and $PM_{10}$ emissions.

# Dates for Submission of Mitigation Plans

1. Within 90 days after the effective date for existing sources.

2. Sources that start after the effective date shall submit by the initial startup of the source.

3. Existing sources that become subject to this section due to modifications shall submit within 90 days.

# Notification of Mon Valley Air Pollution Episodes

When a Mon Valley Air Pollution Watch or Warning is issued, the Department shall make the following notifications:

1. Notify sources to implement procedures and measures identified in their plan.
2. Notify municipalities.
3. Issue an advisory on ACHD website, notify media.
4. Issue an Allegheny Alert

# Termination of Episodes

The Department shall issue a notification when the ACHD has determined that a Mon Valley Air Pollution Watch or Warning is no longer in effect.

# §2105.50 OPEN BURNING

A change is proposed to the open burning regulation (as underlined):

> Wood burning activities shall not be conducted on Air Quality Action Days **or in the municipalities identified in Subsection 2106.06.d when a Mon Valley Air Pollution Watch or Warning under Section 2106.06 has been issued**, with the exception of conducting such burning for the commercial preparation of food.

# Requesting approval to submit proposed revisions to Article XXI to the public for comment

# Proposed Revision to:

**ALLEGHENY COUNTY'S portion of**
**the PENNSYLVANIA STATE IMPLEMENTATION PLAN**

**For the**
**Attainment and Maintenance of the National Ambient Air Quality Standards**
**(Revision Tracking No. 97)**

**Allegheny County Health Department Rules and Regulations**
**Article XXI, Air Pollution Control**

§2106.06, Mon Valley Air Pollution Episode (new)

And a related change to §2105.50, Open Burning

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1. Proposed changes to Article XXI Rules and Regulations:

   §2106.06, Mon Valley Air Pollution Episode (a proposed new section)

   Related change to §2105.50, Open Burning

2. Technical Support Document

3. Documentation of Public Hearing and Certifications (all "Later")

   a. Public hearing notice
   b. Transmittals of hearing notice to EPA & PA DEP
   c. Proof of publication of notice of hearing
   d. Certification of hearing
   e. Summary of Comments and responses
   f. Certifications of approval and adoption

# 1. Proposed Revision

Because §2106.06 is a proposed new section, all type is shown in regular font.

….

**§2106.06 MON VALLEY AIR POLLUTION EPISODE {effective }**

a. **Applicability.** This section applies to the following sources located in one or more of the municipalities identified in Subsection d:

1. All major and synthetic minor sources of $PM_{2.5}$;

2. All sources that have combined allowable emissions from all emission units of 6.5 tons or more per year of $PM_{2.5}$; and

3. All sources that have combined allowable emissions from all emission units of 10 tons or more per year of $PM_{10}$.

b. **Air Quality Forecast.** For purposes of this Section, the Department shall rely on the air quality forecast provided by the Pennsylvania Department of Environmental Protection for determining Mon Valley Air Pollution Episodes. The Director of the Allegheny County Health Department may approve a change in the air quality forecast provider or methodology. The Department shall post on its Air Quality Program website any changes to the-air quality forecast provider or methodology.

c. **Mon Valley Air Pollution Episodes.** For purposes of this Section, the "Mon Valley $PM_{2.5}$ threshold level" shall be the value of the primary 24-hour $PM_{2.5}$ NAAQS.

1. **Mon Valley Air Pollution Watch.** The Department shall issue a Mon Valley Air Pollution Watch if the Department has determined from an air quality_ forecast that for at least the next 24-hour period atmospheric conditions will exist which indicate that the 24-hour average ambient concentration of $PM_{2.5}$ in one or more of the municipalities identified in Subsection d is forecasted to exceed the Mon Valley $PM_{2.5}$ threshold level.

2. **Mon Valley Air Pollution Warning.** The Department shall issue a Mon Valley Air Pollution Warning if during a rolling 24-hour averaging period, the Mon Valley $PM_{2.5}$ threshold level is exceeded at an official monitoring station in the municipalities identified in Subsection d and the Department has determined atmospheric conditions will continue as described in Paragraph c.1.

d. **Mon Valley Air Pollution Episode Area.** This Section shall apply to the following municipalities: City of Clairton, City of Duquesne, City of McKeesport, Borough of Braddock, Borough of Braddock Hills, Borough of Chalfant, Borough of Dravosburg, Borough of East McKeesport, Borough of East Pittsburgh, Borough of Elizabeth, Borough of Forest Hills, Borough of Glassport, Borough of Jefferson Hills, Borough of Liberty, Borough of Lincoln, Borough of Munhall, Borough of North Braddock, Borough of Port Vue, Borough of Rankin, Borough of Swissvale, Borough of Turtle Creek, Borough of Versailles, Borough of Wall, Borough of West Elizabeth, Borough of West Mifflin, Borough of White Oak, Borough of Wilmerding, Borough of Whitaker, Elizabeth Township, Forward Township, North Versailles Township, and Wilkins Township.

e. **Mon Valley Air Pollution Mitigation Plan.** In addition to any applicable plan requirements under Sections 2106.02 and 2106.05, all sources subject to this Section shall submit to the Department according to the schedule provided in Subsection f, a Mon Valley Air Pollution Mitigation Plan (referred to in this Section as "Plan") with the following two phases:

1. **Mon Valley Air Pollution Watch Phase :** A Mon Valley Air Pollution Watch Phase shall include procedures to ensure the source is operating in a manner consistent with good engineering practice and all air pollution control equipment is maintained in good working condition. The Mon Valley Air Pollution Watch Phase shall include procedures for record keeping and reporting to the Department the actions taken during the Mon Valley Air Pollution Watch period. The Mon Valley Air Pollution Watch Phase shall also include procedures to ensure that the source has sufficient staff and resources available to implement the Mon Valley Air Pollution Warning Phase within 24 hours of the Department's notification to the source of a Mon Valley Air Pollution Watch.

2. **Mon Valley Air Pollution Warning Phase :** A Mon Valley Air Pollution Warning Phase shall include measures to reduce $PM_{2.5}$ and $PM_{10}$ emissions to minimize the impact on public health, safety, or welfare, the timeframe for implementing each measure, and an estimate of the $PM_{2.5}$ and $PM_{10}$ emissions reductions during a 24-hour period for each measure. The Mon Valley Air Pollution Warning Phase shall include the procedures identified in the Mon Valley Air Pollution Watch Phase and procedures for record keeping and reporting to the Department the actions taken during the Mon Valley Air Pollution Warning period. The measures to reduce $PM_{2.5}$ and $PM_{10}$ emissions may include, but are not limited to, the following:

A. Reduce transportation activity;

B. Switch or decrease fuel use as allowed by the facility's permit issued under this Article;

C. Delay nonessential activities that may cause emissions;

D. Modify work or other practices; and

E. Reduce, modify, cease, curtail, defer or postpone production and allied operations.

f. **Dates for Submission of Mon Valley Air Pollution Mitigation Plan.** Sources subject to this Section shall submit the Mon Valley Air Pollution Mitigation Plan according to the following schedule:

1. Existing sources shall submit to the Department the Plan within 90 days after the effective date of this Section.

2. Sources that startup after the effective date of this Section shall submit to the Department by the initial startup of the source.

3. Existing sources that become subject to this Section after the effective date of this Section shall submit to the Department the Plan within 90 days after the source becomes subject to this Section.

4. Any person responsible for operation of the source shall advise the Department in writing of any change affecting the technical content or the implementation of the Plan no more than 30 days following the change. Such submittals shall be reviewed and implemented according to the procedures described in Subsection g below.

g. **Procedure for Review and Effective Date of the Mon Valley Air Pollution Mitigation Plans.**

1. The Mon Valley Air Pollution Mitigation Plan shall be effective upon submission to the Department.

2. If the Mon Valley Air Pollution Mitigation Plan **is** not acceptable to the Department, the Department may issue an order directing the responsible person to modify and resubmit the Plan within thirty (30) days after receiving notice. The order shall specify the reason or reasons for disapproval and shall specify the changes or additions necessary to make the Plan acceptable to the Department. The Plan submitted for review to the Department under Paragraph g.1 shall continue to be effective until a modified Plan has been submitted. The modified Plan shall be effective upon submission to the Department.

3. When determining whether the Mon Valley Air Pollution Mitigation Plan is acceptable, the Department may consider the following factors:

   a. The feasibility of implementing the Mon Valley Air Pollution Warning Phase within 24 hours of the Department's notification to the source of a Mon Valley Air Pollution Watch;

   b. Whether the measures to decrease $PM_{2.5}$ and $PM_{10}$ emissions can reasonably improve public health, safety, or welfare; and

   c. Whether the estimated reduction in $PM_{2.5}$ and $PM_{10}$ emissions is proportionate to the source's contribution to emissions in any of the municipalities identified in Subsection d.

4. In the event that a source fails to submit the Mon Valley Air Pollution Mitigation Plan according to the schedule provided in Subsection f or fails to resubmit the Plans or fails to resubmit the Plans in accordance with the changes or additions specified by the Department, the Department, in addition to any other remedies available to it under this Article, shall have the authority to issue an order to that person detailing the procedures for a Mon Valley Air Pollution Watch or Warning Phase.

h. **Notification of Mon Valley Air Pollution Episodes.** When a Mon Valley Air Pollution Watch or Warning is issued, the Department shall make the following notifications:

1. The Department shall notify all sources subject to this Section to implement the procedures and measures identified in either the Mon Valley Air Pollution Watch or Warning Phase.

2. The Department shall notify all municipalities identified in Subsection d that a Mon Valley Air Pollution Watch or Warning is in effect.

3. The Department shall issue an advisory on its Air Quality Program website and notify various media that a Mon Valley Air Pollution Watch or Warning is in effect.

i. **Termination of Mon Valley Air Pollution Episodes**.

1. The Department shall terminate any Mon Valley Air Pollution Watch or Warning when the conditions in Paragraphs c.1 and c.2 no longer exist.

2. The Department shall issue a notification to all person(s) identified Subsection h when the ACHD has determined that a Mon Valley Air Pollution Watch or Warning is no longer in effect.

j. **Other powers unaffected.** Nothing contained in this Section shall affect the power of the Department to issue an Emergency Order pursuant to §2109.05 of this Article, whether or not such emergency occurs during a Mon Valley Air Pollution episode.

For the following section:
Additions are shown in **larger font, bolded, and underlined.**

**§2105.50 OPEN BURNING** *{Subsection f amended May 8, 2007, effective, August 17, 2007, and amended July 16, 2009, effective July 26, 2009. Subsections a, b, and d amended, and e & f renumbered November 13, 2014, effective, January 1, 2015. Paragraph a.3 amended mm/dd/yyyy, effective mm/dd/yyyy.}*

a. **General**.

. . .

3. Wood burning activities shall not be conducted on Air Quality Action Days **or in the municipalities identified in Subsection 2106.06.d when a Mon Valley Air Pollution Watch or Warning under Section 2106.06 has been issued**, with the exception of conducting such burning for the commercial preparation of food.

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***End of Regulation Changes***

# 2. Technical Support Document

## 2.1 Executive Summary

ACHD is proposing changes to Article XXI in this SIP revision to address air pollution episodes in the Mon Valley Area involving fine particulate matter ($PM_{2.5}$).

In the past, particularly in 2019, Allegheny County has experienced strong and lengthy temperature inversions as a result of extended periods of weather conditions including light wind speeds, heavy fog, and a significant warm front. Temperature inversions alter the profile of the local atmosphere and tend to trap pollutants closer to the surface.

During these episodes, the Health Department (ACHD) recorded exceedances of the 24-hour $PM_{2.5}$ federal National Ambient Air Quality Standard (NAAQS) at the Liberty monitor, although elevated pollution readings were also recorded at other monitored sites across the county. During these incidences, Air Quality Action Alerts were issued for citizens in the Clairton and Liberty communities. ACHD recognizes that industry is not the only contributor to poor air quality as wide-spread mobile and area source emissions from motor vehicles, lawnmowers, solvents and open burning can have a significant impact on pollution levels. While continuing to advocate for residents to do what they can to reduce emissions, the proposed new regulation will impose corrective action requirements on industry during short-term pollution events.

This proposed new air quality regulation is aimed at emission mitigation requirements for industry operating in the portion of the county known as the "Mon Valley" during weather-related pollution episodes. The goal is to have emission reduction plans in place that could be implemented within 24 hours of notice from ACHD. Such "Mon Valley Air Pollution Warning Plans" will include measures to reduce emissions to minimize the impact on public health.

Concurrent with this proposed emission mitigation regulation, ACHD plans to build an infrastructure to model and forecast inversion events as a necessary component for effective regulation implementation. The enhanced meteorological forecasting is expected to be accompanied by additional public notifications.

## 2.2 Extent of Area

To determine the extent of the area in which the regulation would be applicable, ACHD examined monitored concentrations, modeled results, and point source emissions in recent years.

Since 2016, the Liberty monitor site has recorded the highest 24-hour concentrations in the county and the most exceedances of the 24-hour NAAQS, including consecutive exceedance days. The North Braddock and Parkway East monitors have also exceeded on one day (Dec. 3, 2017) during a consecutive-day Liberty exceedance period.[1] Table 1 below shows the average 24-hour concentrations for Liberty, North Braddock, and Parkway East during periods with Liberty exceedances. Averages for the Lawrenceville and South Fayette sites are also shown, for a look at general urban and background concentrations, respectively.

***Table 1. Average 24-Hour $PM_{2.5}$ Concentrations ($\mu g/m^3$) on Liberty Exceedance Days, by Site, 2016-2020***

| Exceedance Scenario | Liberty | North Braddock | Parkway East | Lawrenceville | South Fayette |
|---|---|---|---|---|---|
| Any Liberty Exceedance Day | 44.7 | 23.1 | 21.8 | 18.4 | 12.8 |
| Consecutive Liberty Exceedance Days | 48.7 | 25.4 | 24.5 | 22.1 | 12.7 |

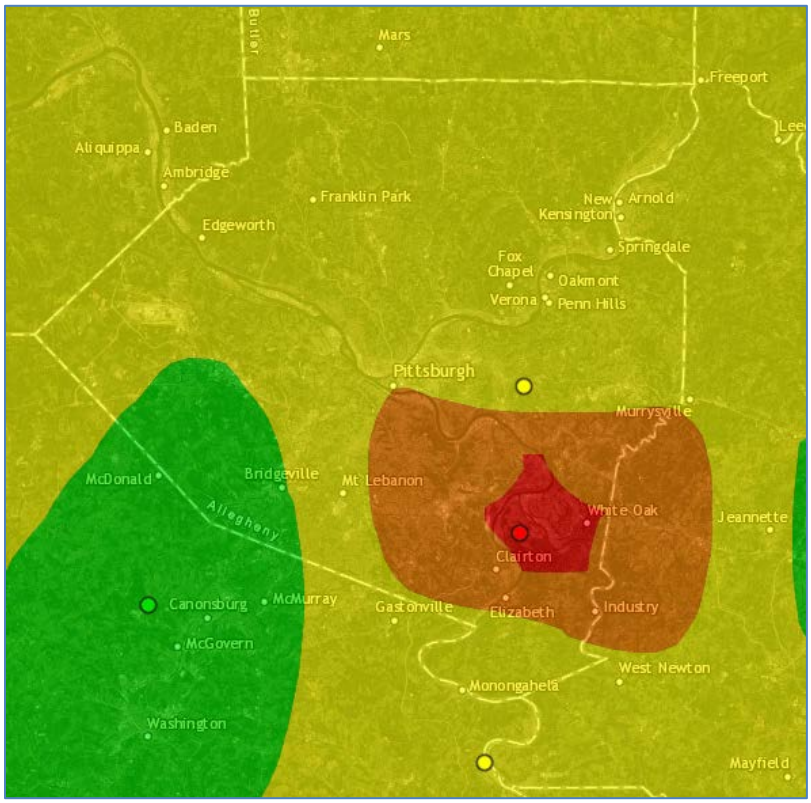
The Liberty monitor shows the highest concentrations on exceedance days, with North Braddock showing the 2nd-highest concentrations. Parkway East is a near-road site that can be affected by highway emissions as well as general urban emissions. The differences in concentration from Liberty compared to Lawrenceville and South Fayette can be considerable during exceedance days, indicating that the Mon Valley is unique in comparison to the rest of the county.

$PM_{2.5}$ monitors are located at several locations in Allegheny County as well as surrounding counties. EPA's AirNow interactive map[2] can provide visual interpolations of maximum daily Air Quality Index (AQI) values from all available monitor sites. Figure 1 below shows an example AQI map for a day during a period of consecutive exceedances at Liberty in December of 2019. (Shown in the figure: Dec. 23, 2019, during the period of Dec. 21-26, 2019.)

[1] Additionally, the Avalon site, located in the Ohio Valley, exceeded on one day (Nov. 8, 2020) when no other site exceeded in the county, based on final FRM/FEM combined results. There may be occasional isolated exceedances at any location in the county – the intent of this regulation is to mitigate exceedances in the area that is most prone to exceed on consecutive days, which is the Mon Valley.

[2] Available at: https://gispub.epa.gov/airnow/

***Figure 1. $PM_{2.5}$ AQI Map for Allegheny County Region, Dec. 23, 2019***



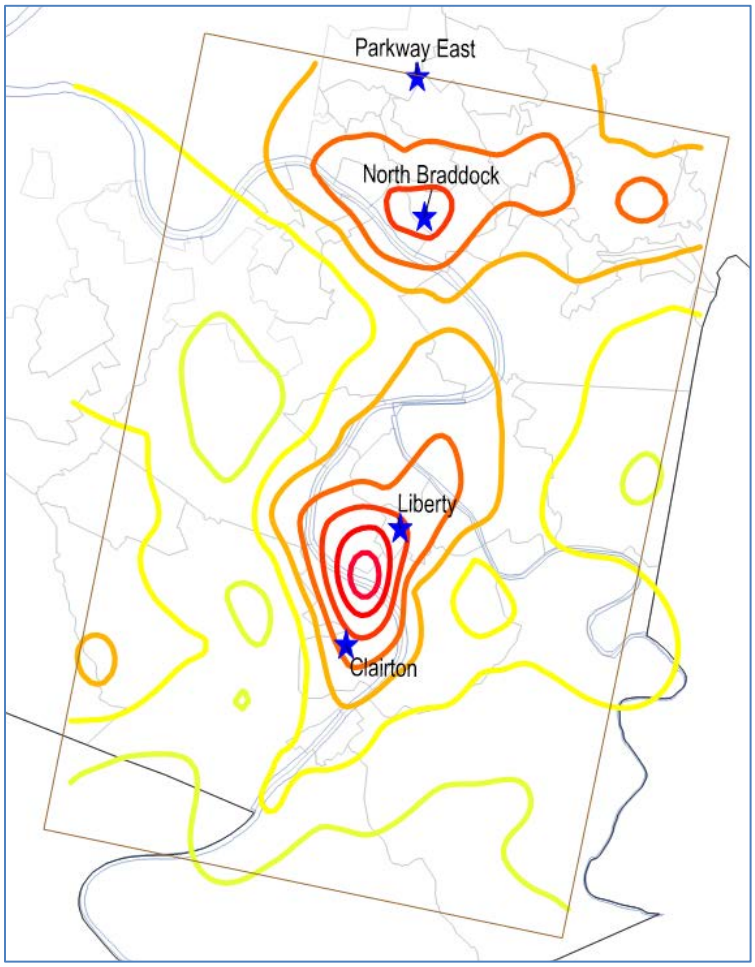

Based on interpolated monitored data alone, the Mon Valley region showed $PM_{2.5}$ concentrations in the unhealthy ranges (orange/red) when other sections of the county and surrounding counties were actually in the good range (green). Widespread concentrations in the moderate range (yellow) were also evident throughout the Pittsburgh region.

For a more specific analysis of highest concentration locations, modeled results can be examined. Modeling for the $PM_{2.5}$ State Implementation Plan (SIP) for the 2012 NAAQS included CAMx chemical transport model[3] predictions for year 2021. The model was configured at 1.33 km grid resolution (i.e., site-specific meteorology and modeled concentrations at 1.33 km horizontal spacing). Emissions included both primary $PM_{2.5}$ and secondary transformation from precursors (see more below in Section 2.3) from all source sectors (point, area, mobile).

Figure 2 shows the maximum modeled 24-hour contours for the Mon Valley, along with monitor locations, based on a domain from the Parkway East site to the north and extending to the edges of the county border to the east and the south. (Note: The modeled contours are color-coded to be analogous to the AQI ranges. Additionally, the domain is skewed diagonally due to the Lambert Conic Conformal (LCC) projection used by the model.)

[3] Available at: http://www.camx.com/

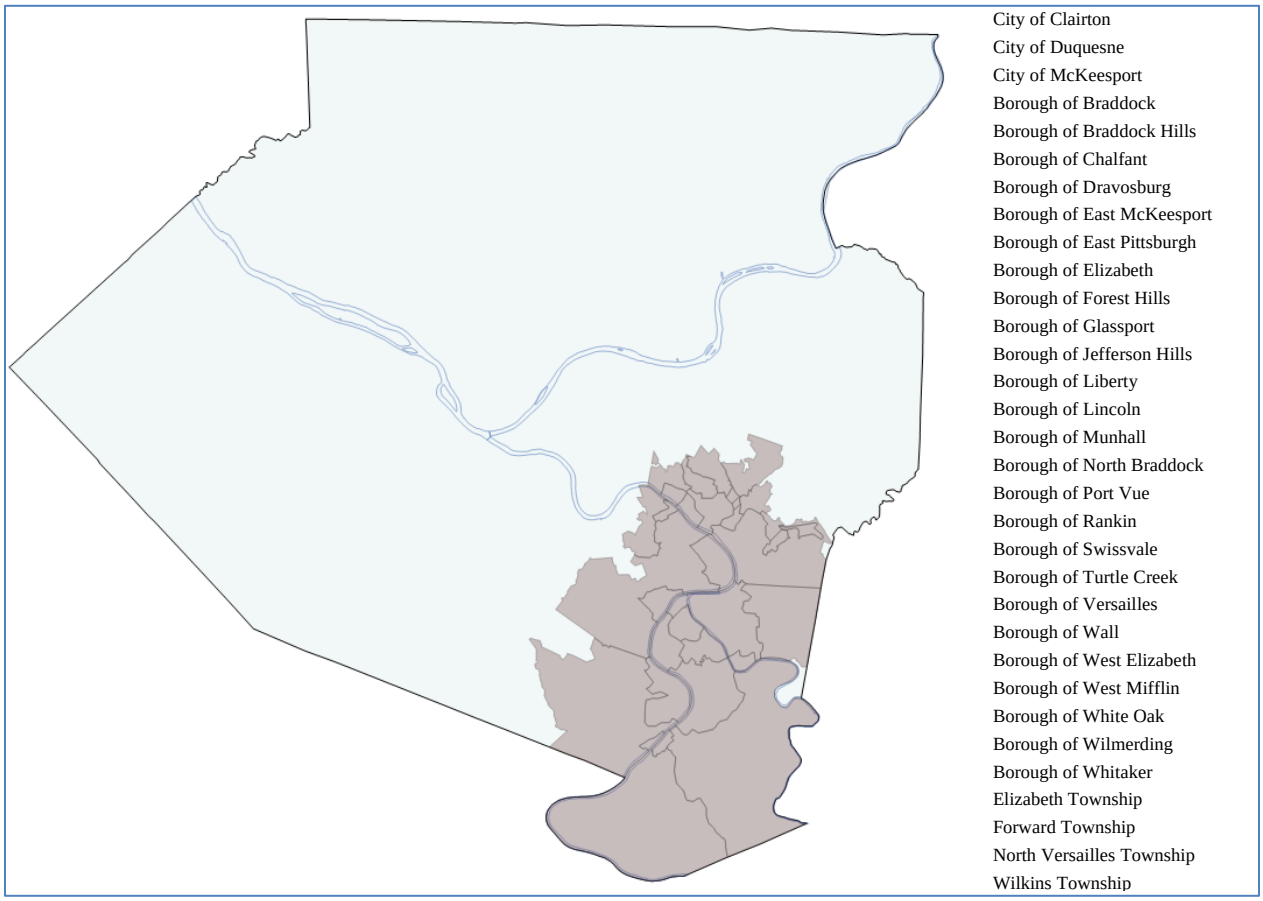
*Figure 2. Contour Map of Maximum Modeled 24-Hour Impacts, Mon Valley, 2021*




The modeled results show that the expected peak locations are near the Liberty and North Braddock monitor sites, roughly within a 5-km radius surrounding the Liberty site and a 3-km radius surrounding the North Braddock site. Recent emissions inventories (based on actual emissions) show that about 70% of the annual $PM_{2.5}$ point source emissions in Allegheny County are from point sources within these zones (see more below in Section 2.4).

Based on the available monitored, modeled, and emissions data, the extent of the area that is most affected by and most contributing to $PM_{2.5}$ exceedances is likely best assigned as a contiguous region of the Monongahela River Valley from the southern border of the county to the border of the City of Pittsburgh. The municipalities included in the area are within the vicinity of the Liberty and/or North Braddock monitor sites. The area is also similar to the Allegheny, PA $SO_2$ nonattainment area for the 2010 NAAQS. Figure 3 shows the area (shaded in gray) along with the list of the included municipalities.

***Figure 3. Map of Proposed Mon Valley Air Pollution Episode Area***




## 2.3 $PM_{2.5}$ Composition in the Mon Valley

To help determine the source applicability of this regulation (discussed in Section 2.4 below), especially in regard to minor sources as well as sources from outside the Mon Valley, it is important to consider the composition of $PM_{2.5}$ in the Mon Valley.

$PM_{2.5}$ can be both primary and secondary in nature. Primary $PM_{2.5}$ can be emitted from a source as a particle or can quickly condense from a gas to particle or aqueous phase. Secondary $PM_{2.5}$ can be transformed from precursors, which can include the following pollutants:

- Sulfur dioxide ($SO_2$) can transform to sulfuric acid and then to sulfate, generally over long distances and during hot/humid conditions. Localized transformation can possibly also occur during extreme stagnation conditions. Sulfate can also be emitted in primary/aqueous form.
- Nitrogen oxides ($NO_x$) can transform to nitric acid and then to nitrate, generally in cold conditions.

- Volatile organic compounds (VOC) can transform to secondary organic aerosols (SOA).
- Ammonia ($NH_3$) can react with other compounds, generally sulfuric and nitric acid.

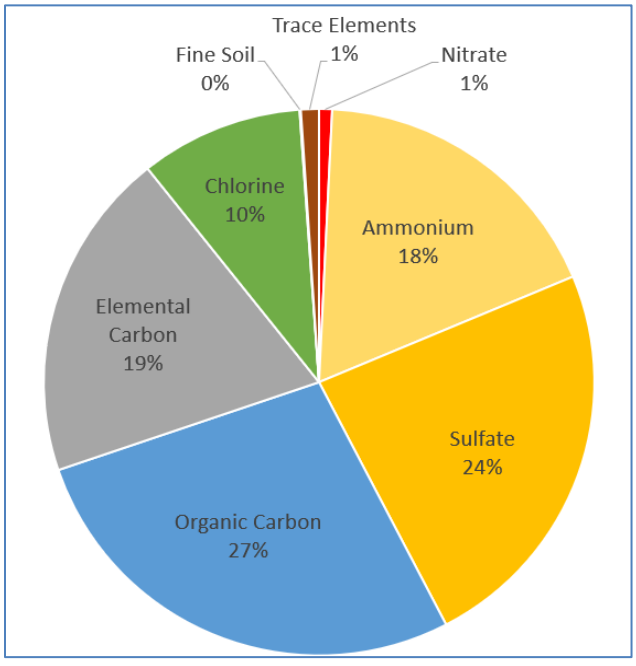
When examining the excess $PM_{2.5}$ in the Mon Valley – that is, the amount of $PM_{2.5}$ above what is found to exist throughout the rest of the Allegheny County or the Pittsburgh region – differences in the types of individual species can be used to determine the potential source contributions of $PM_{2.5}$. Speciation monitors are available at both Liberty and Lawrenceville, as well as some tri-state locations.

The excess analysis undertaken for this proposed regulation examined monitored samples at Liberty and Lawrenceville in 2015-2019 when Liberty was greater than 25 µg/m³ (or about 72% of the 24-hour NAAQS). Table 2 below shows the average species concentrations in µg/m$^3$ for both sites on these days, with the difference representing Liberty minus Lawrenceville. (A total of 23 dates were available with speciation data at both Liberty and Lawrenceville, and five of those dates were during episodes with consecutive exceedances). Figure 4 shows the difference in pie chart format, with percentages of the total excess shown for each species.

***Table 2. Average $PM_{2.5}$ Species Concentrations (µg/m³) on Liberty High Days, 2015-2019***

| Site | Ammonium | Sulfate | Nitrate | Organic Carbon | Elemental Carbon | Fine Soil | Chlorine | Trace Elements |
|---|---|---|---|---|---|---|---|---|
| Liberty | 4.30 | 6.40 | 1.93 | 9.46 | 5.13 | 0.94 | 1.90 | 0.57 |
| Lawrenceville | 0.86 | 1.84 | 1.78 | 4.18 | 1.38 | 0.95 | 0.06 | 0.37 |
| Difference | 3.45 | 4.55 | 0.15 | 5.27 | 3.75 | -0.01 | 1.84 | 0.20 |

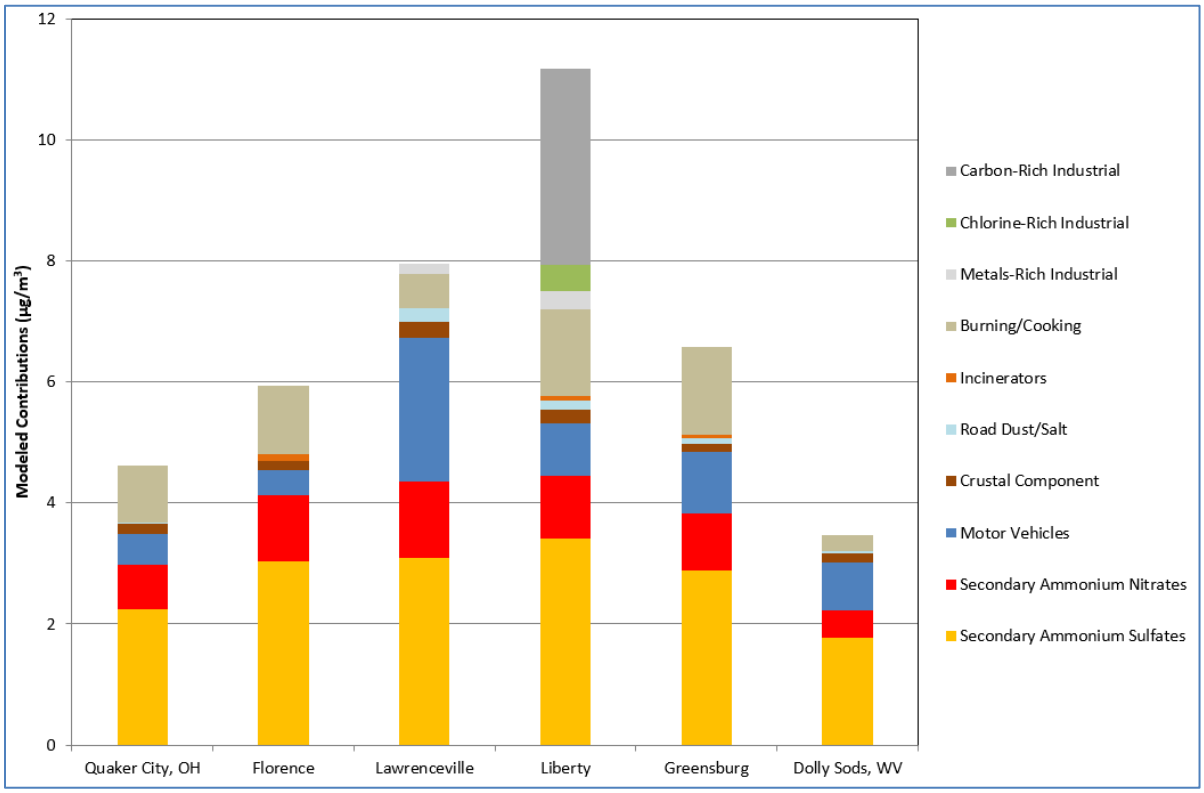
***Figure 4. Liberty Excess $PM_{2.5}$ Species, High Days, 2015-2019***



There are several aspects of the Liberty excess species. There is negligible or no excess of nitrate, fine soil, or trace elements, so these species are not contributing to exceedances. Ammonium is usually associated with other species, but it is in higher proportion than what would be needed for ammonium sulfate. Sulfate and organic carbon can include both primary and secondarily-formed portions, but the elemental carbon excess is primary in nature. Last, chlorine is unique to the Mon Valley compared to Lawrenceville, and it may exist in primary form as hydrochloric acid (HCl) or associated with other species.

Speciation data can also be used with source apportionment tools such as EPA's Positive Matrix Factorization (PMF)[4] model to determine source factors that are contributing to specific species concentrations. Figure 5 below shows the PMF results sites in the tri-state region, based on speciation data from 2009-2017. (These results were also included in the $PM_{2.5}$ SIP for the 2012 NAAQS.)

***Figure 5. PMF $PM_{2.5}$ Source Factors, Tri-State Sites, 2009-2017***




The PMF results show that most of the secondary formation from species such as sulfate and nitrate are consistent throughout the Pittsburgh Region. (Note: Florence is in Washington County, and Greensburg is in Westmoreland County.) Lawrenceville shows the highest contributions from motor vehicles, which should be expected as the most urban site with speciation data. Liberty shows noticeable differences from the rest of the

[4] Available at: https://www.epa.gov/air-research/positive-matrix-factorization-model-environmental-data-analyses

region for the source factors attributed as carbon-rich and chlorine-rich industrial, based on the make-up of species (like as shown in Figure 4 above). These source factors are the driving components for the Liberty excess and exceedances of the $PM_{2.5}$ 24-hour NAAQS, and they are not contributing to other sites in the tri-state region.

Additionally, results from the CAMx modeling (as described above in section 2.2) showed that primary $PM_{2.5}$ was the largest contributor to the Liberty excess, as the results shown in Figure 2 above included both primary and secondary formation from all source sectors. The peak modeled contours in the Mon Valley were due to primary emissions from point sources.

There is some amount of localized transformation of precursors that is occurring within the Mon Valley, as well as other sections of the county, specifically for secondary organic aerosols (SOA) from VOC. EPA's $PM_{2.5}$ Precursor Guidance[5] indicates that SOA remains the least understood component of $PM_{2.5}$ and continues to be a significant topic of research and investigation. However, SOA typically comprises a higher percentage of the organic carbon portion of $PM_{2.5}$ mass in the summer than in the winter. Exceedances in the Mon Valley generally occur during cool conditions with strong inversions present.

ACHD's analysis of the composition of $PM_{2.5}$, as it relates to determining the source applicability of this regulation and whether to include minor sources and sources from outside the Mon Valley in the requirement to submit episode plans, is that the majority of the excess $PM_{2.5}$ in the Mon Valley is primary in nature and is caused by point source emissions from within the area. Given that is the case, the regulation should apply to $PM_{2.5}$/$PM_{10}$ sources described in Section 2.4 below.

## 2.4 Sources Subject to the Regulation

Sources made subject to the regulation are sources of both $PM_{2.5}$ and $PM_{10}$, since $PM_{10}$ includes $PM_{2.5}$ by definition, and some minor sources do not have an inventory for $PM_{2.5}$.

Major, synthetic minor, and minor sources over specific permitted values were considered for applicability. The figures below show the permitted facilities in the Mon Valley and their percentage of the emissions of $PM_{2.5}$ and $PM_{10}$ in the Mon Valley.

[5] Available at: https://www.epa.gov/pm-pollution/pm25-precursor-demonstration-guidance

*Figure 6. $PM_{2.5}$ Emissions (% of total), by Permitted Facilities in Mon Valley*

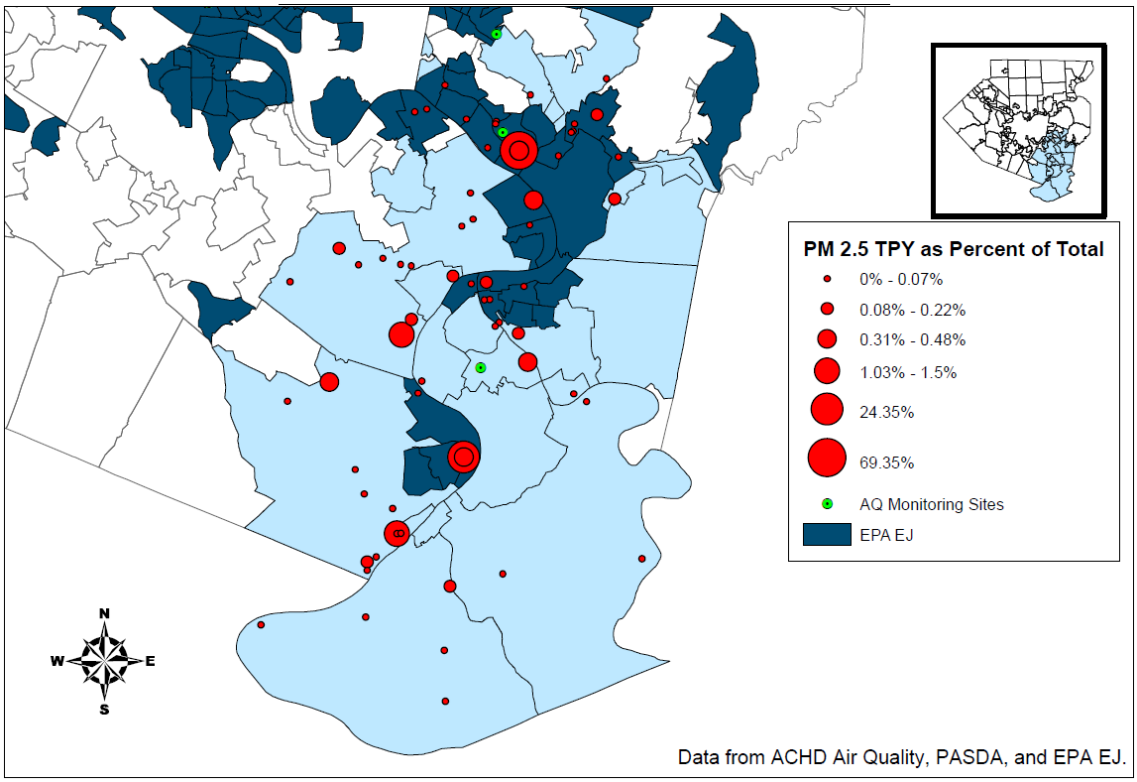
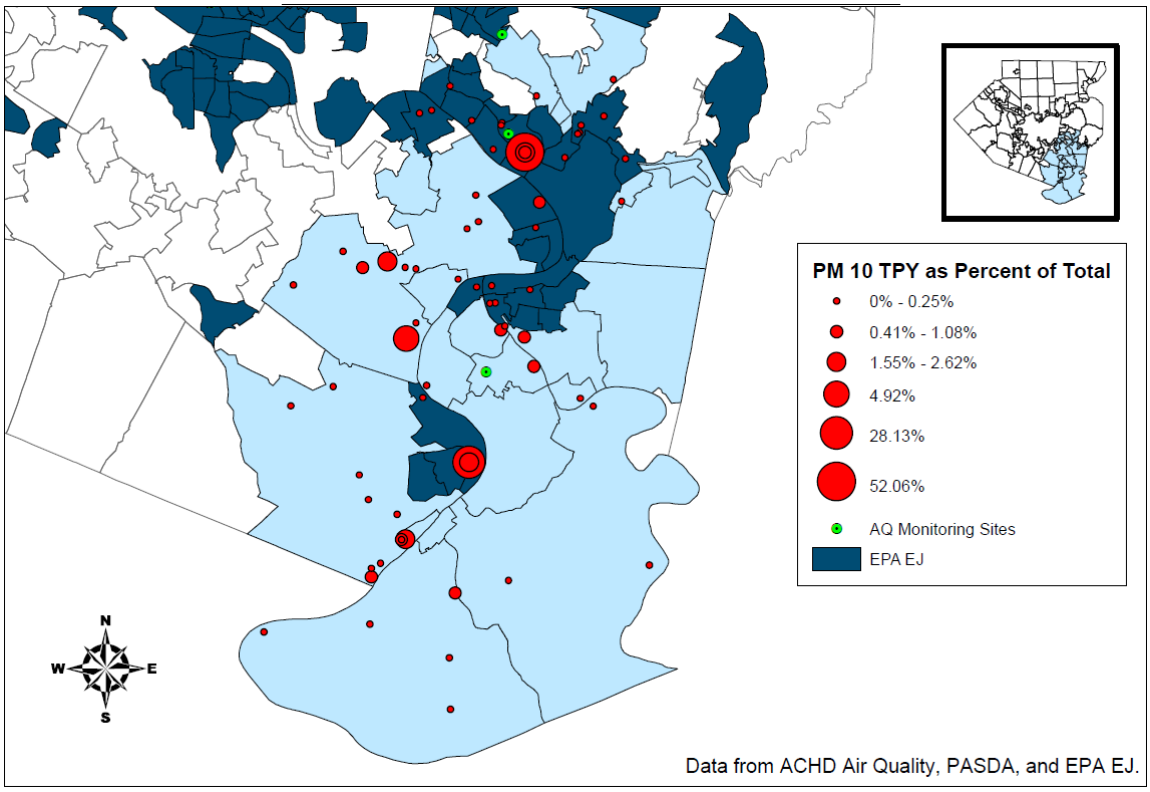



*Figure 7. $PM_{10}$ Emissions (% of total), by Permitted Facilities in Mon Valley*



Based on a review of sources located within the Mon Valley and their permit limits for both $PM_{10}$ and $PM_{2.5}$, cutoff levels were established at 10 tons/year for $PM_{10}$ and 6.5 tons/year for $PM_{2.5}$. These levels were deemed to contribute enough emissions to the Mon Valley to warrant requiring the sources to submit plans meant to reduce emissions in the event of the existence of episodic conditions in the Mon Valley. The following tables list the sources that will be subject to the regulation as of this writing:

***Table 3. Facilities with both $PM_{2.5}$ tons/year limit of 6.5 or greater and $PM_{10}$ tons/year limit of 10 or greater***

| Company Name |
|---|
| U.S. Steel-Edgar Thomson Plant |
| U.S. Steel-Clairton Coke Works Plant |
| TMS (USS-Edgar Thomson) |
| Eastman Chemical Resins, Inc. |
| DURA-Bond (Duquesne) |
| DURA-Bond (Liberty) |
| U.S. Steel Irvin Plant |

***Table 4. Facilities with only $PM_{10}$ tons/year limit of 10 or greater***

| Company Name |
|---|
| Clairton Slag, Inc. |
| LaFarge Corporation (Duquesne Plant) |
| C.P. Industries – Christy Park Plant |
| Keywell Metals LLC. West Mifflin |
| Kelly Run Sanitation Landfill |
| Braddock Recovery, Inc. |
| ELG Metals, Inc. – McKeesport |
| Mid-Continental Coal & Coke Company |
| NCP Carbon (Jefferson Hills Site) |
| TMS (USS- Clairton) |
| Fritz Enterprises (USS Edgar Thomson) |

## 2.5 Mon Valley Air Pollution Mitigation Plan

The singular Plan that each applicable source shall submit will have a Mon Valley Air Pollution Watch Phase, and a Mon Valley Air Pollution Warning Phase.

Subsections 2106.06.e, f, and g of the proposed regulation discuss aspects of a Mon Valley Air Pollution Mitigation Plan, including Plan content, submission schedules, review process, when the Plan is effective and handling Plan changes.

# Increasing the Public's use of "Allegheny Alerts"

Allegheny County Board of Health

Vote to Approve Use of Clean Air Funds

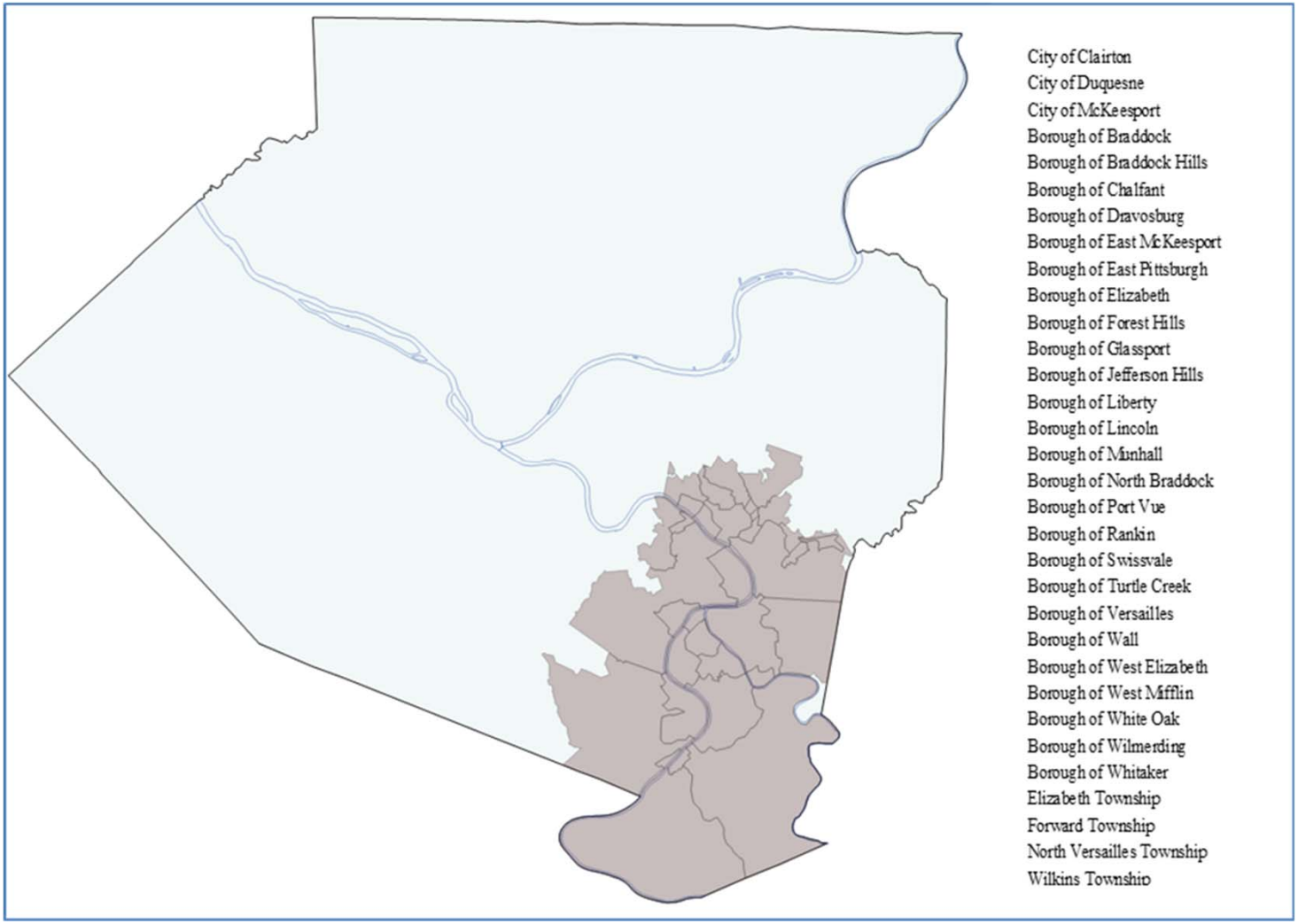
May 5, 2021



# Clean Air Fund Request

- **Goal: F**und an outreach campaign to encourage residents, especially in the Mon Valley Episode communities, to sign up for Allegheny Alerts and to participate in ACHD community health assessment updates
- **Timeline:** May 2021 through March 2022
- **Plan Elements**
  - Not to exceed $200,000
  - Competitive RFP process
  - Awards to multiple organizations
  - Evaluation process

# Map of Proposed Mon Valley Air Pollution Episode Area



# Outreach Plan

- A Request for Proposals will be issued
- Non-profit & other organization propose outreach projects to significantly increase participation in Allegheny Alerts system
- ACHD will score and award grants based on ability to sign people up for Allegheny Alerts and encourage participation in community health assessment update
- Awardees will be required to collaborate with each other

# Schedule

- Request for Proposals mid-May to early June 2021
- Projects will be scored using the Clean Air Fund Public Education scorecard mid-June 2021
- Contracts issued throughout June 2021
- Outreach to begin in July or August 2021
- Activities take place through first quarter of 2022
- Ongoing evaluation by comparison of increase in subscribers from the targeted zip code

# Request approval of the Board of Health for use of up to $200,000 of the Clean Air Fund to support community outreach

Allegheny County Health Department – Air Quality Program

# Clean Air Fund Application

**Project Title:** Increasing the Public's use of "Allegheny Alerts"

| | | | |
|---|---|---|---|
| Applicant Name: Allegheny County Health Department Air Quality Program<br>☐ Private Company ☐ 501(c)3 Organization ☑ Government ☐ Academia ☐ Other | | | |
| Contact Person: Sandra Etzel | | | |
| Street Address: 301 39th Street | | | |
| City: Pittsburgh | State: PA | Zip: 15201 | Phone: 412-578-8116 |
| Email: sandra.etzel@alleghenycounty.us | | | Fax: 412-578-8144 |

**IMPORTANT**: If a nonprofit, please attach 501(c)3 certification, as well as a mission statement and/or strategic plan from organization's Board of Directors. Additionally, please indicate whether your organization is registered with Guidestar by checking here: ☐

If a government entity, please attach resolution of council.

**Project Category:** Public Education

***Please fill out the Supplemental Application coinciding with your project's category***

**Funding Request:**

Up to $ 200,000.00

**Project Abstract:** Provide a brief description of the proposed project or program. Detailed information will be requested in Section II.

This request is to fund an outreach campaign in response to the addition to Article XXI of Section 2106.06, "Mon Valley Air Pollution Episode," that will encourage residents living in Allegheny County, especially in municipalities of the area of known as the "Mon Valley" to sign up for "Allegheny Alerts" and be notified of Mon Valley Air Pollution "Watches" and "Warnings."

**Project Period:** Describe the anticipated length of your program

May 10, 2021 to June 30, 2022

**Project Location/Impacted Area:**

Municipalities of Allegheny County's Mon Valley (and adjacent City of Pittsburgh neighborhoods)

# I. In-Depth Summary

**Full project description:**

The Allegheny County Health Department Air Quality Program is developing a revision to its Rules and Regulations, Article XXI, Air Pollution Control that will add a new Section 2106.06, "Mon Valley Air Pollution Episode."

In the past, particularly in 2019, Allegheny County experienced strong and lengthy temperature inversions as a result of extended periods of weather conditions including light wind speeds, heavy fog, and a significant warm front. Temperature inversions alter the profile of the local atmosphere and tend to trap pollutants closer to the surface.

During these episodes, the Health Department recorded exceedances of the 24-hour PM2.5 federal National Ambient Air Quality Standard (NAAQS) at the Liberty monitor, although elevated pollution readings were also recorded at other monitored sites across the county. During these incidences, Air Quality Action Alerts were issued for citizens in the Clairton and Liberty communities. ACHD recognizes that industry is not the only contributor to poor air quality as wide-spread mobile and area source emissions from motor vehicles, lawnmowers, solvents and open burning can have a significant impact on pollution levels. However, local industry is a major contributor to short-term events. While continuing to advocate for residents to do what they can to reduce emissions, the proposed new regulation will impose corrective action requirements on industry during short-term pollution events.

This proposed new air quality regulation is aimed at emission mitigation requirements for industry operating in the portion of the county known as the “Mon Valley” during weather-related pollution episodes. The goal is to have emission reduction plans in place that could be implemented within 24 hours of notice from ACHD. Such “Mon Valley Air Pollution Mitigation Plans” will include measures to reduce emissions to minimize the impact on public health.

Concurrent with sources implementing emission mitigation plans, ACHD will make notifications to the municipalities of the Mon Valley and issue advisories that a Watch or Warning is in effect. As part of that effort, the Air Program seeks to pave the way to making increasing use of, and becoming more reliant on, the already existing "Allegheny Alerts" information disseminating system by conducting an outreach campaign aimed at increasing the number of "Allegheny Alerts" 'subscribers.'

The project will allow for a number of contractors to bid on outreach projects that will encourage a significant increase of registration with the Allegheny Alerts system. While doing this outreach work, contractors will also be asked to work collect information about public health needs and provide referrals to resources related to identified needs. At present, the plan is to allow for bids of $10,000 or greater, and to choose several qualified groups to carry out a program throughout the remainder of 2021. If necessary, and if funds allow, the program may be extended through part of 2022.

# I. In-Depth Summary

**Quantifiable Results:** Briefly describe how the success of this program will be measured, including any quantifiable results and/or deliverables (reports, papers, etc.)

The success of the program will be measured by the increase in Allegheny Alerts system 'subscribers' realized over the length of the campaign, and especially those 'subscribers' who identify in their account their desire to receive the Mon Valley Air Pollution Watch and Warning alerts. We will also compare the increase in subscribers from the targeted zip code areas to other zip codes that did not receive this specific outreach.

**Deliverability:** Briefly describe the steps taken to advance project deliverability/readiness to date:

The ACHD Air Program has conducted several outreach efforts in the past, including efforts to educate county residents and municipalities of open burning regulations and health impacts of open burning. Thus, contact lists are already in place for reaching local municipalities. Contractors, in the RFP, will be required to propose their strategy and their targeted municipalities based on zip codes and provide evidence that they can complete the proposed work. All organizations awarded a contract will be required to collaborate to ensure that the targeted zip code areas are all reached and that the work in consistent.

**Timeline:** Provide an estimated timeline for major project milestones. ***Please note: No funds can be expended until contracts are finalized.***

Request for Proposals mid-May to early June 2021

Projects will be scored using the Clean Air Fund Public Education scorecard mid-June 2021.

Contracts issued throughout June 2021

Sub-awardees submit materials for ACHD review July - August 2021

Outreach programs to begin August 2021

***PLEASE ATTACH LETTERS OF SUPPORT FROM ANY PROJECT PARTNERS***

# II. Budget

| Applicant Name<br>Allegheny County Health Department Air Program | | | | |
|---|---|---|---|---|
| **BUDGET CATEGORY** | **GRANT REQUEST** | **MATCHING FUNDS** | **TOTAL** | **NOTES** |
| Subcontracts | $ 200,000.00 | | $ 200,000.00 | |
| | | | $ 0.00 | |
| | | | $ 0.00 | |
| | | | $ 0.00 | |
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| | | | $ 0.00 | |
| | | | $ 0.00 | |
| **TOTAL** | $ 200,000.00 | $ 0.00 | $ 200,000.00 | |

# Supplemental Application
# Category II: Public Education

1.) Describe the quantifiable results of your project. How will you measure the successfulness of this program?

**At the beginning of the project, ACHD will request the County provide information on the current number of Allegheny Alerts 'subscribers' including how many of those have included a request to receive information on the daily Air Quality Index, and those subscribers that are from the Mon Valley and other targeted areas specifically.**

**At the end of the project, ACHD will request the same information, as well as information on how many Allegheny Alerts 'subscribers' have included a request to receive information from the "Alerts" related to Mon Valley Air Pollution Episode Watches and Warnings."**

2.) Describe the subject matter this public education campaign will cover (e.g., education on voluntary measures to reduce pollution, promoting alternative transportation, etc.), the audience, and how the audience will be targeted.

**This public education campaign will cover the "Allegheny Alerts" system, how to sign up, or 'subscribe' to the system, and the importance for those working and living in the Mov Valley to choose to receive information on Mon Valley Air Pollution Episode Watches and Warnings. The outreach work will also collect from residents information about public health needs and be provided referrals to resources related to identified needs.**

**The audience will be citizens of Allegheny County. A focus will be made on citizens living within the municipalities included in the proposed Article XXI regulation Section 2106.06.d, "Mon Valley Air Pollution Episode Area."**

# Supplemental Application
# Category II: Public Education

3.) Describe the format(s) of material(s) that will be produced under this program (e.g., brochures, posters, books, TV advertisements, etc.).

**The formats for the materials to be used in this education campaign will include 1) advertising the existence of the "Allegheny Alerts" system so that the citizen learn of the program, 2) assistance on how to register for the alerts as well as support to do so (for example outreach workers can bring ipad along to help sign-up, 3) paper informational materials that could be mailed to residents should they prefer that mode of learning, 4) resources to address unmet needs.**

4.) Describe the location of coverage/where materials will be placed/where program will occur (e.g., posters to be placed in libraries, ads to run in specific neighborhoods, etc.).

**To raise awareness of this funding opportunity and then the actual campaign, we will promote information on the Allegheny County Health Department website, through community partners, including our Racial and Ethnic Approaches to Community Health (REACH) community partners, and via social media posts and paper postings in local community centers like libraries and municipal buildings. We will also inform local community leaders and elected officials and ask that they share the information with their constituents. Our ultimate goal is widespread outreach taking place with boots on the ground, door to door.**

***Attach additional forms and documentation as necessary, including any sample materials, if available***

# Supplemental Application
# Category II: Public Education

***N/A***

Allegheny County Health Department

# Limited Second $PM_{10}$ Maintenance Plan

Board of Health Meeting

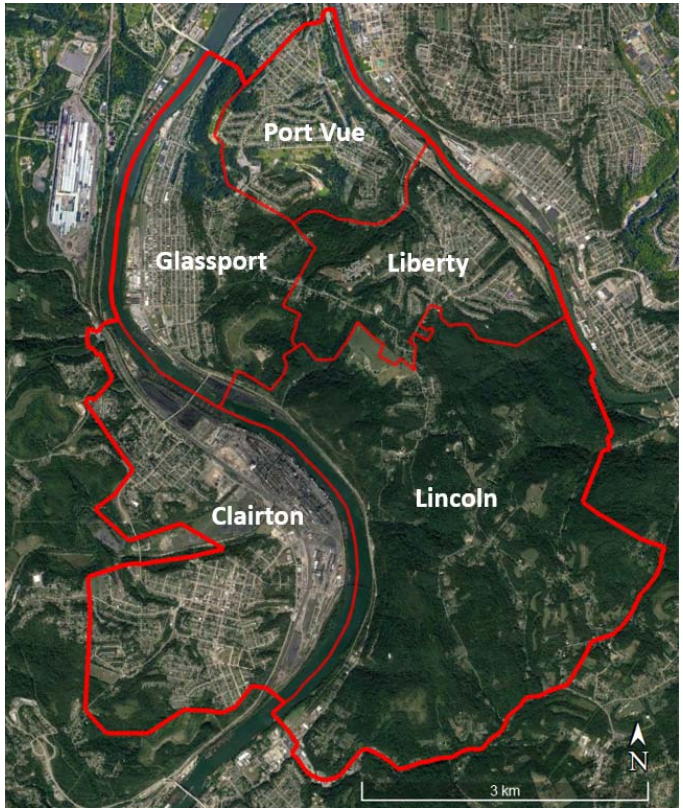
May 5, 2021

# Overview

- $PM_{10}$ SIP timeline
  - Liberty-Clairton area designated nonattainment in 1990 (1987 $PM_{10}$ NAAQS)
  - ACHD submitted attainment demonstration SIP in 1993
  - Redesignation request and initial maintenance plan approved in 2003

- This plan addresses continued maintenance through 2023
  - Also follows a limited maintenance plan (LMP) approach
  - Applies only to 24-hour NAAQS (annual NAAQS was revoked in 2006)

# Liberty-Clairton $PM_{10}$ Area




- Five municipalities
  - Area: 12.6 mi²
  - Population: 17,983
- Four industrial sources
- Four $PM_{10}$ monitor sites during maintenance since 2003
  - Lincoln
  - Liberty
  - Glassport
  - Clairton

# Limited Maintenance Plan (LMP) Elements

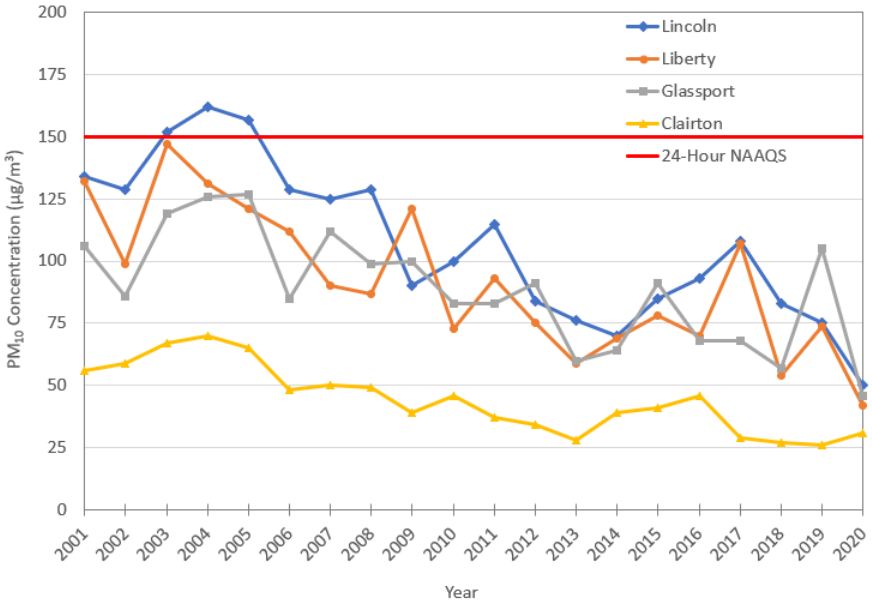
- Attainment Inventory
- Maintenance Demonstration
- Monitoring Network Verification of Continued Attainment
- Contingency Plan
- Approved SIP and Other Requirements

# Attainment Inventory

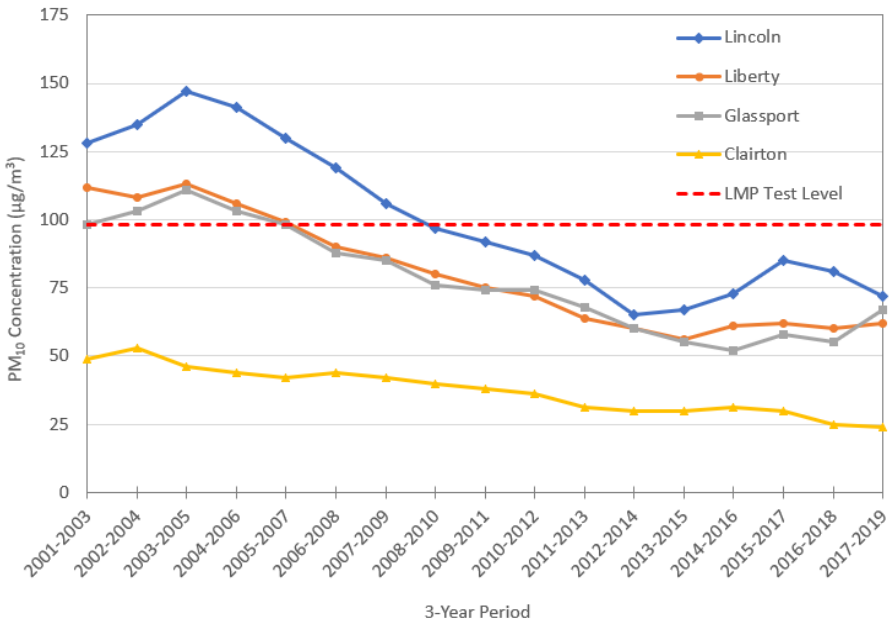
- Based on 2017 NEI (in tons/year)
  - Includes emissions from all source sectors

| **Liberty-Clairton (2017)** | **$PM_{10}$** | **$PM_{10}$ (filt)** | **$PM_{10}$ (cond)** | **$SO_2$** | **$NO_x$** | **VOC** | **$NH_3$** |
|---|---|---|---|---|---|---|---|
| Stationary Point Sources | 877.93 | 582.49 | 295.44 | 1,129.86 | 2,626.26 | 184.45 | 118.87 |
| Area (Nonpoint) Sources | 175.07 | 164.57 | 9.55 | 4.01 | 95.80 | 275.23 | 9.85 |
| Nonroad Mobile Sources | 4.33 | 4.33 | 0.00 | 0.10 | 37.83 | 33.19 | 0.09 |
| Onroad Mobile Sources | 10.48 | 10.48 | 0.00 | 0.83 | 94.11 | 57.41 | 3.60 |
| **Total** | 1,067.81 | 761.87 | 304.99 | 1,134.80 | 2,854.00 | 550.28 | 132.41 |

# Monitored Data 24-Hour Maximums and Design Values (DVs)




24-Hour Maximums




24-Hour DVs

# Additional Elements for LMP

- Monitoring Network Verification of Continued Attainment
- Contingency Plan
- Approved SIP and Other Requirements
  - SIP controls remain in place
  - All other Clean Air Act (CAA) requirements are being met

# Liberty-Clairton Area After 2023

- Area becomes attainment
- Monitoring would continue in area as part of $PM_{10}$ monitoring objectives for 24-hour NAAQS

## Public Comment

- Comment Period from Jan 29, 2021 to Mar 1, 2021
- Virtual Public hearing held Mar 1, 2012 (no testimony)
- Comments received by one individual and two organizations
- Three basic comments received:
  - More emission reductions needed and COVID 19 aided attainment
  - ACHD should support EPA adopting more stringent $PM_{2.5}$ and $PM_{10}$ standards
  - ACHD should pursue more health-protective standards for $PM_{10}$

# $PM_{10}$ Limited Maintenance Plan

- Requesting Board Approval of Plan
- Submit to PA Department of Environmental Protection (PaDEP) for review
- PaDEP submits to EPA for final approval

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

## Limited Second Maintenance Plan for the Liberty-Clairton $PM_{10}$ Area

**Allegheny County Health Department**
**Air Quality Program**

**April 1, 2021**

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACHD | Allegheny County Health Department |
| AQS | EPA Air Quality System |
| CAA | Clean Air Act |
| CFR | Code of Federal Regulations |
| Cond | Condensable fraction of $PM_{10}$ |
| DV | Design Value |
| EPA | United States Environmental Protection Agency |
| FEM | Federal Equivalent Method |
| Filt | Filterable fraction of $PM_{10}$ |
| FR | Federal Register |
| FRM | Federal Reference Method |
| LMP | Limited Maintenance Plan |
| $\mu g/m^3$ | Micrograms per cubic meter (of $PM_{10}$ in ambient air) |
| MOS | Margin of Safety |
| MVW | Mon Valley Works (U. S. Steel) |
| NAAQS | National Ambient Air Quality Standards |
| $NH_3$ | Ammonia |
| $NO_x$ | Oxides of Nitrogen (generally NO or $NO_2$) |
| PA DEP | Pennsylvania Department of Environmental Protection |
| PEC | Pushing Emission Control |
| PM | Particulate Matter |
| $PM_{10}$ | PM less than or equal to a nominal 10 microns in aerodynamic diameter |
| $PM_{2.5}$ | PM less than or equal to a nominal 2.5 microns in aerodynamic diameter (also referred to as fine particulates) |
| PSD | Prevention of Significant Deterioration |
| SIP | State Implementation Plan |
| $SO_2$ | Sulfur Dioxide |
| SPC | Southwestern Pennsylvania Commission |
| tons/year | Tons per year (of emissions) |
| USS | United States Steel Corporation |
| VMT | Vehicle Miles Traveled |
| VOC | Volatile Organic Compound |

# 1. Overview

On October 2, 2002, the Allegheny County Health Department (ACHD) finalized a revision to the Allegheny County portion of the Pennsylvania State Implementation Plan (SIP) regarding a redesignation request and maintenance plan for the Liberty-Clairton particulate matter 10 microns or less ($PM_{10}$) nonattainment area.[1] This area had been designated in 1990 as a moderate nonattainment area for the 1987 $PM_{10}$ National Ambient Air Quality Standards (NAAQS). On September 11, 2003, the U. S. Environmental Protection Agency (EPA) approved the redesignation and maintenance plan, with an effective date of October 14, 2003.

According to Clean Air Act (CAA)[2] requirements, the maintenance plan portion of the redesignation request is designed to ensure continued attainment of the NAAQS for a 10-year period following redesignation, with an additional revision to the maintenance plan (i.e., a second maintenance plan) required for the 10-year period after expiration of the initial 10-year period. A second maintenance plan for the Liberty Clairton area has not yet been submitted since expiration of the initial 10-year period in 2013. The purpose of this current SIP revision is to provide a second maintenance plan for the Liberty-Clairton area through 2023.

Additionally, since the area has shown monitored data well below the NAAQS, and with little expected growth in motor vehicle emissions, this second maintenance also qualifies as a *limited* maintenance plan (LMP) for moderate $PM_{10}$ areas.[3] The LMP option does not require projections of future emissions or certain transportation conformity determinations for the area.

This limited second maintenance plan addresses the following elements for the Liberty-Clairton area through 2023:

- Attainment Inventory
- Maintenance Demonstration
- Monitoring Network Verification of Continued Attainment
- Contingency Plan
- Approved SIP and Other Requirements

The 1987 NAAQS levels for $PM_{10}$ were 50 µg/m³ on an annual basis and 150 µg/m³ on a 24-hour basis. Upon the revision of the particulate matter (PM) NAAQS in 2006, the annual

[1] This area was originally designated as "Allegheny County; the area including Liberty, Lincoln, Port Vue, and Glassport Boroughs and the City of Clairton." This area has also been referred to as the "Liberty Borough" area, the "Liberty Borough/Clairton" area, or the "Clairton and 4 Boroughs" area. For this maintenance plan, the area will be referred to as the "Liberty-Clairton" area, which is the name of the same area as designated for the $PM_{2.5}$ 1997 and 2006 NAAQS.

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

[3] https://www.epa.gov/state-and-local-transportation/2001-limited-maintenance-plan-moderate-pm10-and-attachment

standard was revoked.[4] Therefore, this maintenance plan is applicable to the 24-hour standard only for continued maintenance of $PM_{10}$ through 2023.

Last, while the $PM_{10}$ SIP requirements remain in place for the Liberty-Clairton area, some sections of this LMP, including the attainment inventory and the monitoring network verification of continued attainment, supersedes those from the redesignation request and initial maintenance plan.

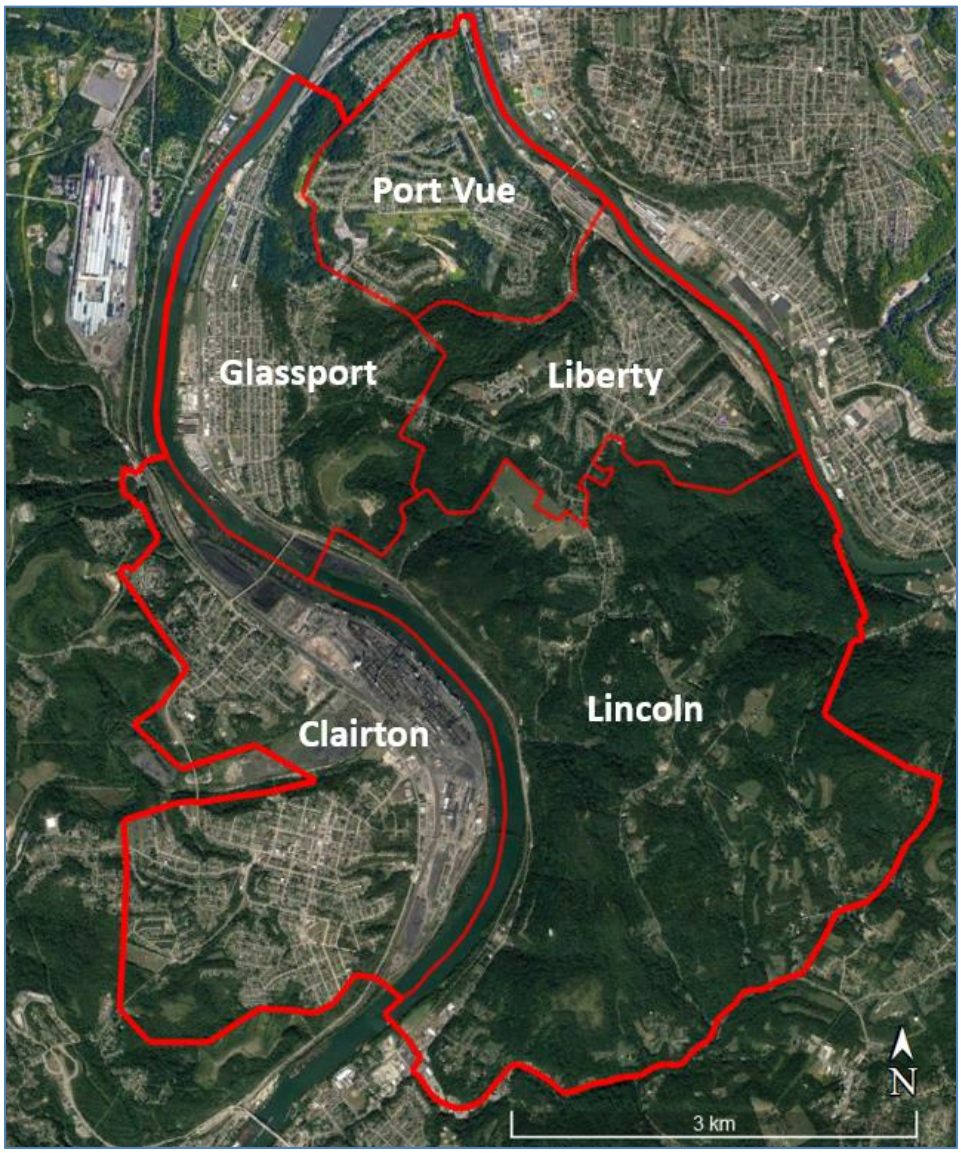
[4] https://www.epa.gov/pm-pollution/table-historical-particulate-matter-pm-national-ambient-air-quality-standards-naaqs

# 2. Description and History of Area

The Liberty-Clairton $PM_{10}$ maintenance area includes the Boroughs of Glassport, Liberty, Lincoln, and Port Vue and the City of Clairton. Geographically, this represents the Clairton floodplain and the adjacent hilly region to the northeast between the Youghiogheny River and Monongahela Rivers. Although a relatively small area in size (12.6 square miles) compared to the rest of Allegheny County, it contains a diversity of land use that includes residential, industrial, and forested regions.

Figure 2-1 below shows an aerial map of the area, with the municipality names shown in white and the municipality borders shown in red.

**Figure 2-1. Aerial Map of the Liberty-Clairton Area**



In 1990, the area was designated nonattainment for the $PM_{10}$ 1987 NAAQS based on monitored violations at sites in the area (see more under Section 4 Maintenance Demonstration). The largest industrial stationary point source in the area is the U. S. Steel (USS) Mon Valley Works (MVW) Clairton Plant, and controls for this source were the focus of the pollution controls for the area.

The $PM_{10}$ attainment demonstration was developed by ACHD and submitted to EPA as SIP Revision 31 (ACHD, 1993),[5] along with the subsequent SIP Revision 34 for $PM_{10}$ contingency measures (ACHD, 1995)[6] and SIP Revision 36 for $PM_{10}$ regulations (ACHD, 1997)[7] to support the attainment demonstration. Emissions and resulting ambient air quality concentrations were lowered due to the permanent and enforceable controls included in the SIP revisions.

The area showed monitored attainment with 1995-1997 data, and a determination of attainment for the area was made by EPA in 1998.[8] The $PM_{10}$ NAAQS (both the previous annual standard and the current 24-hour standard) have since not been violated at any site in the area. A violation of the 24-hour standard occurs when the number of expected exceedances, accounting for any missing data, is greater than 1.0 per year averaged over a consecutive 3-year period.

ACHD completed a resignation request and initial maintenance plan[9] for the area in 2002 (ACHD, 2002), which was approved by EPA in 2003.[10] The redesignation request provided evidence that the monitors achieved attainment due to permanent and enforceable reductions and according to all applicable CAA requirements. The coinciding maintenance plan provided information that the area would continue to attain the NAAQS for a 10-year period following the approval date of the redesignation.

This limited second maintenance plan provides information to support that the area has maintained attainment of the NAAQS since 2003 and will continue to attain the 24-hour NAAQS through 2023, which is the end of the 10-year period following the initial 10-year maintenance period. The information included in this second maintenance plan follows EPA's procedures and requirements for limited maintenance of $PM_{10}$ areas (U.S. EPA, 2001).

[5] Approved by 61 FR 29664: https://www.govinfo.gov/content/pkg/FR-1996-06-12/pdf/96-14786.pdf

[6] Approved by 63 FR 47434: https://www.govinfo.gov/content/pkg/FR-1998-09-08/pdf/98-24040.pdf#page=1

[7] Approved by 63 FR 32126: https://www.govinfo.gov/content/pkg/FR-1998-06-12/pdf/98-15585.pdf

[8] Approved by 63 FR 47493: https://www.govinfo.gov/content/pkg/FR-1998-09-08/pdf/98-24039.pdf

[9] https://www.epa.gov/air-quality-implementation-plans/nonattainment-area-redesignation-and-clean-data-policy-cdp

[10] Approved by 68 FR 53515: https://www.govinfo.gov/content/pkg/FR-2003-09-11/pdf/03-23265.pdf#page=1

# 3. Attainment Inventory

Based on EPA guidance on redesignations and limited maintenance plans (U.S. EPA, 1992; U.S. EPA, 2001), a 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 the EPA's most recent guidance on emission inventories for nonattainment areas and should represent emissions during the time period associated with the monitoring data showing attainment. The attainment inventory is generally the actual inventory at the time the area attained the standard.

## 3.1 Allowable Inventory

The $PM_{10}$ SIP relied on an allowable emissions inventory that was used to demonstrate modeled attainment of the NAAQS. This inventory was focused on the USS Clairton Plant but also included surrounding stationary point sources in Allegheny County and surrounding counties. The inventory also included actual estimates of $PM_{10}$ emissions from wood burning, public roads, and fugitive sources without permitted limits. The redesignation request and initial maintenance plan (ACHD, 2002) updated this allowable inventory for year 1999 as the attainment inventory for the initial maintenance plan.

This allowable inventory has become outdated, as nearly all sources have lower permitted emission rates for $PM_{10}$ since the time of the redesignation request due to the installation of controls, equipment upgrades, fuel switches/restrictions, and other factors. Additionally, many sources have ceased operations. Notable changes to the allowable inventory include the following:[11]

- USS Clairton Plant: Modifications at USS Clairton include several equipment upgrades, fuel restrictions, the shutdown of Batteries 1-3 (replaced by C Battery), and new low-emission quench towers for Batteries 13-15 and 19-20. These modifications represent an overall reduction of 268 tons/year from the previous allowable inventory compared to the current permit limits (which do not include fugitive emissions).

- Allegheny County source modifications: Several large sources outside of the Liberty-Clairton area have installed emissions controls, fuel restrictions, and/or newer equipment. These sources include the USS MVW Irvin and Edgar Thomson Plants, the GenOn Cheswick and Brunot Island power plants, ATI Allegheny Ludlum, Heinz (now Riverbend), Neville Chemical, and others. These changes represent a total reduction of 3,146 tons/year from the previous allowable inventory.

- Allegheny County source shutdowns: Several large sources outside of the Liberty-Clairton area have ceased operation, including LTV Steel, Edgewater Steel, Shenango, Guardian, and others. These shutdowns represent a total reduction of 3,158 tons/year from the previous allowable inventory.

[11] Note: Emissions rates were given in units of pounds per hour (lb/hr) in the allowable inventory. Emissions given in this document have been converted to units of tons per year (tons/year).

- Surrounding county source shutdowns: Several large power plants outside of Allegheny County that were included in the 1999 allowable inventory have ceased operation: Elrama, Mitchell, Hatfield, and AES Beaver Valley. These shutdowns represent a total reduction of 6,416 tons/year from the previous allowable inventory.

The total reductions in permitted allowable rates since the time of the redesignation request represent an overall reduction of 12,989 tons/year of $PM_{10}$ allowable emissions, which is about 55% lower than the previous allowable inventory.

An *attainment inventory* for this second maintenance plan is therefore somewhat inapplicable, since any updated inventory (either allowable or actual) would represent lower emissions than what was needed for attainment at the time of the SIP development. A more applicable inventory for this second maintenance plan could be considered a *maintenance emissions inventory* that would represent typical emissions that are showing continued attainment of the NAAQS.

Furthermore, based on the redesignation guidance (U.S. EPA, 1992), as well as current guidance for PM inventories (U.S. EPA, 2017), an appropriate inventory for the area would be an inventory that is based on actual emissions for all source sectors and for sources only within the area. An emissions inventory for the area based on a recent EPA National Emissions Inventory (NEI) year will be used as the emissions inventory for this LMP (details given below).

## 3.2 Maintenance Emissions Inventory

The EPA NEI includes fully-reviewed actual emissions inventories of all pollutants and sectors, as compiled on a triennial basis. The appropriate NEI inventory for this maintenance plan would be representative of typical emissions during which continued attainment has occurred since the expiration of the initial maintenance plan period in 2013, as well as current conditions that may incorporate growth of emissions from any sector since 2013.

Since 2013, there have been two NEI years that have been compiled: 2014 and 2017. Both years were typical for $PM_{10}$ from the USS Clairton Plant (the largest source in the area), with similar primary emissions of $PM_{10}$ from the plant (893 tons/year in 2014, and 876 tons/year in 2017). The 2017 NEI (U.S. EPA, 2020) will be used for the emissions inventory year since it is the most recent year.

The emissions inventory summary is given in Table 3-1, with a detailed version of the inventory by process/category given in Appendix A. The inventory includes emissions for total primary $PM_{10}$, the filterable and condensable fractions of the total primary $PM_{10}$, and precursors of $PM_{10}$.[12] For stationary point sources, emissions are from inventoried sources within the Liberty-Clairton area: USS Clairton, Tech Met, Koppers, and AKJ. For all other source sectors, since NEI emissions are allocated to county-level, the population percentage of the Liberty-Clairton

[12] Precursors of $PM_{10}$ include sulfur dioxide ($SO_2$), nitrogen oxides ($NO_x$), volatile organic compounds (VOC), and ammonia ($NH_3$).

area was used to scale down emissions from the county-level emissions. Based on U.S. Census population estimates for 2017,[13] Liberty-Clairton represented 1.5% of the total Allegheny County population.

### Table 3-1. Emissions Inventory Summary for the Liberty-Clairton Area (tons/year), 2017

| Liberty-Clairton (2017) | $PM_{10}$ | $PM_{10}$ (filt) | $PM_{10}$ (cond) | $SO_2$ | $NO_x$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|
| Stationary Point Sources | 877.93 | 582.49 | 295.44 | 1,129.86 | 2,626.26 | 184.45 | 118.87 |
| Area (Nonpoint) Sources | 175.07 | 164.57 | 9.55 | 4.01 | 95.80 | 275.23 | 9.85 |
| Nonroad Mobile Sources | 4.33 | 4.33 | 0.00 | 0.10 | 37.83 | 33.19 | 0.09 |
| Onroad Mobile Sources | 10.48 | 10.48 | 0.00 | 0.83 | 94.11 | 57.41 | 3.60 |
| **Total** | 1,067.81 | 761.87 | 304.99 | 1,134.80 | 2,854.00 | 550.28 | 132.41 |

Note: For the emissions in Table 3-1 and in Appendix A, $PM_{10}$ is given in terms of primary $PM_{10}$ emissions (released into the air as a particle). For concentrations shown in this document, $PM_{10}$ includes both primary and secondary components (chemically transformed from precursors).

Stationary point source emissions are the largest contributors of primary $PM_{10}$ and precursors in the Liberty-Clairton area, with most emissions due to the USS Clairton Plant. Stationary point sources are industrial or commercial sources for which ACHD collects individual annual emissions, including major and minor sources with the potential to emit 25 tons/year or more of any criteria pollutant.

Area (or "nonpoint") sources account for moderate amounts of primary $PM_{10}$ and VOCs in the Liberty-Clairton area. Area sources are industrial, commercial, and residential sources that are too small or too numerous to be inventoried individually, such as commercial and residential fuel combustion, solvent utilization, on-shore oil and gas production, agricultural activity, and other sources. Commercial diesel marine vessels and railroad locomotives, which are sometimes listed separately, have also been included in the area source inventory. Additionally, fire and biogenic emissions have been included in the area source inventory.

Mobile sources contribute to relatively small amounts of emissions in the Liberty-Clairton area. Nonroad mobile sources encompass a diverse collection of off-highway engines, such as outdoor power equipment, recreational vehicles, farm and construction machinery, lawn and garden equipment, industrial equipment, and other sources. Onroad mobile sources include passenger cars, light-duty trucks, heavy-duty trucks, buses, and motorcycles.

[13] Available at: https://www.census.gov/programs-surveys/popest/data/data-sets.html

# 4. Maintenance Demonstration

EPA guidance (U.S. EPA, 1992) outlines that a state/local agency may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS.

Under the LMP option (U.S. EPA, 2001), if monitored data from all sites are equal to or below specified test concentration level for 24-hour $PM_{10}$ that most monitors have achieved nationwide, a projection of future emissions is not required. Transportation conformity analysis is also not needed if projected vehicle miles traveled (VMT) will not lead to a level above the specified test level. This maintenance demonstration therefore focuses on monitored data since the redesignation and projected future VMT growth. A discussion of expected conditions through 2023 has also been included as additional evidence that maintenance of the NAAQS will continue, with little growth expected from all sectors.

## 4.1 Monitored Data

EPA guidance requires 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.

ACHD has operated $PM_{10}$ monitors according to 40 CFR Part 58 requirements at four sites within the Liberty-Clairton area since submittal of the redesignation request in 2002. Figure 4-1 shows the locations of the monitor sites, with descriptions of the sites following the figure.

**Figure 4-1. Monitor Sites in the Liberty-Clairton Area**

Lincoln (AQS[14]code: 42-003-7004): Lincoln is a middle scale site, located atop a steep hill (Coursin Hill) on the east bank of the Monongahela River, in the immediate downwind direction from the USS Clairton Plant. This site has historically been the high location for annual average $PM_{10}$ concentrations in the area, but Liberty and Glassport can show similar or higher short-term concentrations, depending on meteorological conditions. The Lincoln monitor is a Federal Equivalent Method (FEM) continuous monitor for $PM_{10}$. Lincoln last exceeded the 24-hour $PM_{10}$ NAAQS in 2005.

Liberty (AQS code: 42-003-0064): This site is a neighborhood scale site, located on the rooftop of South Allegheny High School near the center of the Liberty-Clairton area. This site lies in a populated area further downwind from USS Clairton than the Lincoln site. Liberty is a multi-pollutant site, featuring several other pollutant monitors, including $SO_2$, $PM_{2.5}$, and toxics. The site has also included both Federal Reference Method (FRM) filter-based monitors, primary and duplicate (for quality assurance), and a FEM continuous monitor for $PM_{10}$ during the maintenance timeframe. Liberty last exceeded the 24-hour $PM_{10}$ NAAQS in 1995.

Glassport (AQS code: 42-003-3006): Similar to Liberty, this is a neighborhood scale site in a populated area downwind from USS Clairton. The site is located at the High Street water tower in Glassport, to the west of Liberty. It can show similar results to Liberty and/or Lincoln, depending on meteorological conditions. The Glassport monitor is a FEM continuous monitor for $PM_{10}$. Glassport last exceeded the 24-hour $PM_{10}$ NAAQS in 1997.

Clairton (AQS code: 42-003-3007): This is a neighborhood site in the southwestern portion of the area, located at the Clairton Educational Center, in the general upwind direction from the USS Clairton Plant. It has included filter-based monitoring only, while the other sites have had continuous FEM monitors (or at Liberty, both FRM and FEM), but it also features a $PM_{2.5}$ monitor at the site. Clairton has never exceeded the 24-hour $PM_{10}$ NAAQS.

Figures 4-2 and 4-3 show the yearly annual average and maximum 24-hour $PM_{10}$ concentrations at each site, respectively, for the timeframe of 2001 to 2020[15] with former annual and current 24-hour NAAQS levels indicated by the red lines. For Liberty, which has more than one monitor type, the highest yearly average of the primary FRM or FEM monitor is shown, and the highest yearly 24-hour maximum of the primary FRM, duplicate FRM, or FEM monitor is shown. (More detailed monitored results by each monitor type are given in Appendix B for the timeframe of 2001-2020.)

[14] EPA's Air Quality System database of monitored data.

[15] All 2020 concentrations have been fully validated, quality-assured, submitted to AQS, and requested for certification.

**Figure 4-2. Yearly Annual Average $PM_{10}$ Concentrations (in µg/m³) by Site, 2001-2020**

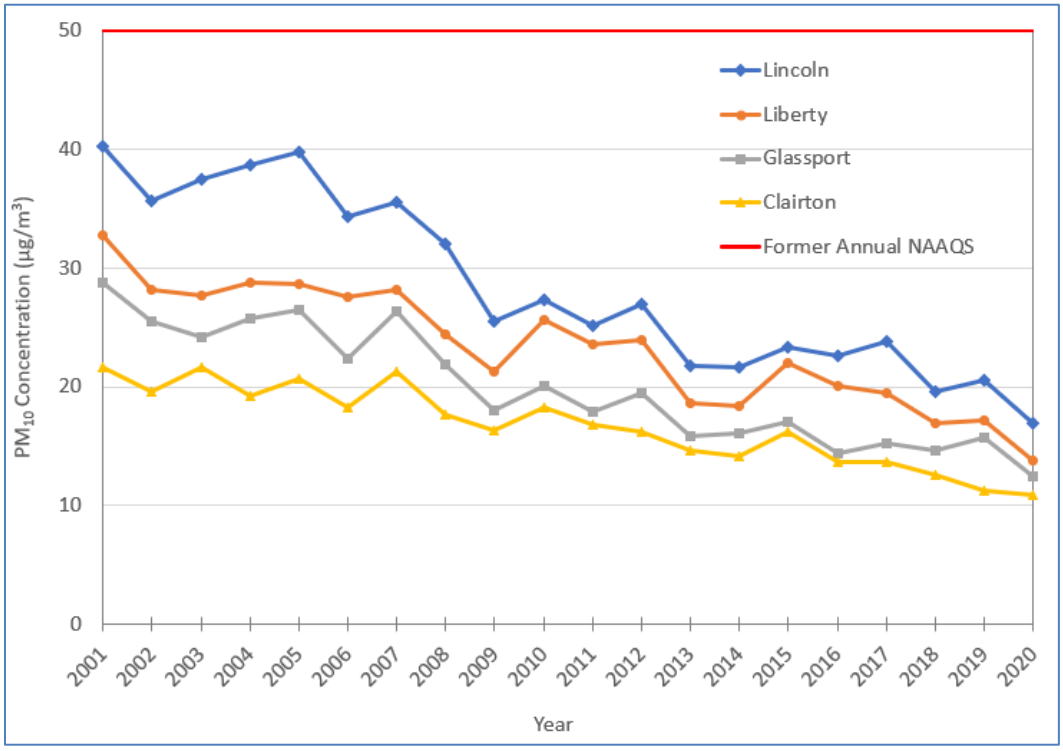
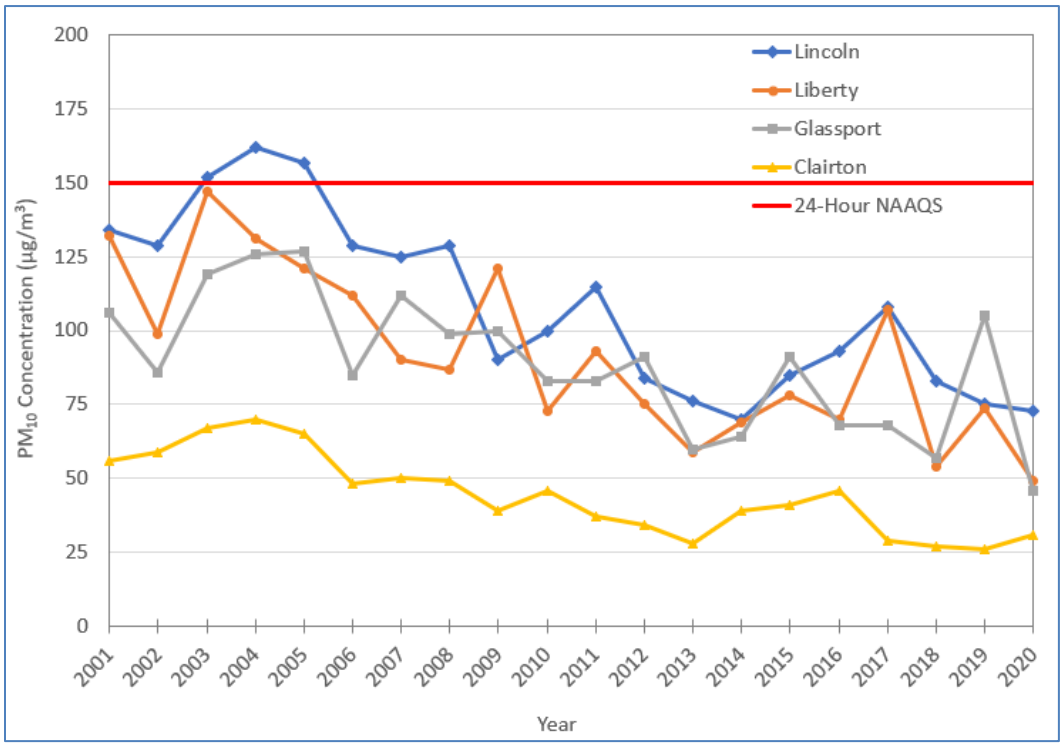



**Figure 4-3. Yearly Maximum 24-Hour $PM_{10}$ Concentrations (in µg/m³) by Site, 2001-2020**



All sites have shown monitored data well below the former annual NAAQS (50 µg/m³) and current 24-hour NAAQS (150 µg/m³), along with continued downward trends over the past two decades. Maximum 24-hour concentrations can occur at any one of the downwind sites (Lincoln, Glassport, Liberty) from year to year, while Clairton consistently shows the lowest concentrations in the area.

There are also strong correlations between downwind sites for 24-hour $PM_{10}$ concentrations. Table 4-1 below shows the Pearson correlation coefficients (r) for the downwind sites in the area, based on FEM monitor data over the timeframe 2001-2020.

**Table 4-1. Correlations between Liberty-Clairton Downwind Sites, 2001-2020**

| Site Correlations | Correlation Coefficient (r) |
|---|---|
| Liberty:Glassport | 0.89 |
| Glassport:Lincoln | 0.84 |
| Lincoln:Liberty | 0.85 |

The monitored results show that the monitor network has sufficiently covered both the downwind and upwind regions of the Liberty-Clairton area for short-term $PM_{10}$ concentrations, along with some redundancy for sites in the downwind region.

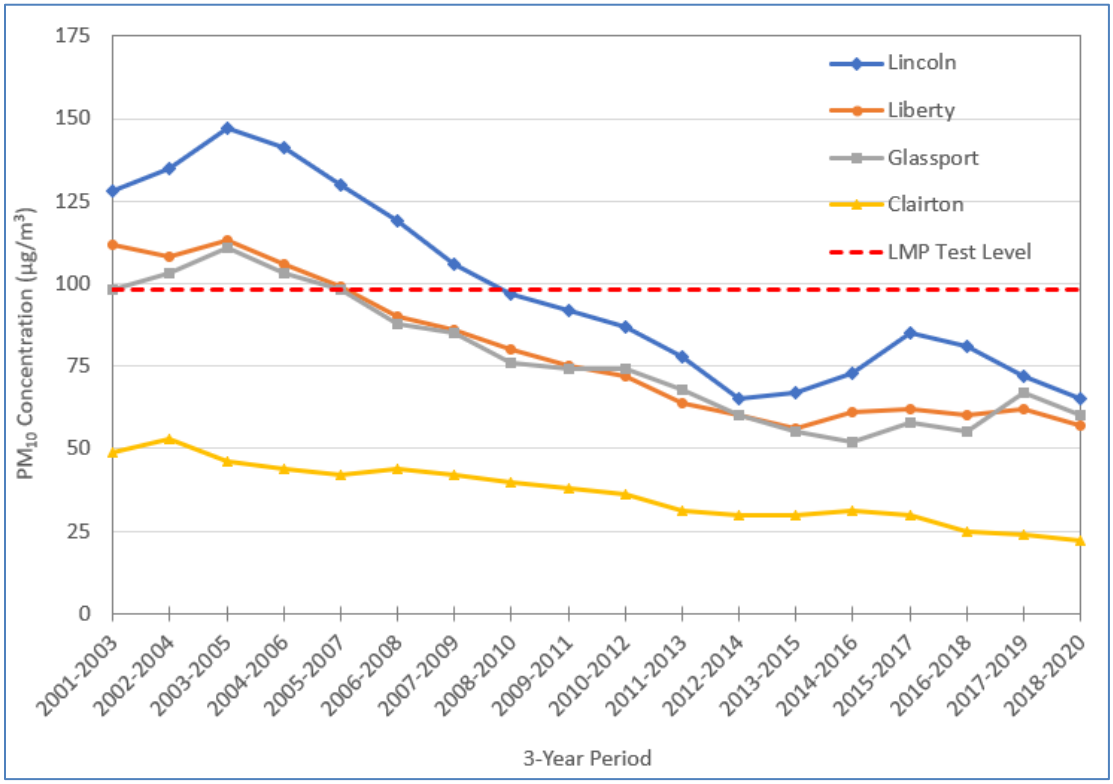
There is low probability of a future violation of the 24-hour NAAQS. For a violation to occur, there would need to be an average of more than 1.0 exceedance per year over a 3-year average basis, which would appear to be unlikely based on data through 2020. Under the LMP option, based on the most recent five years of monitored data, if 24-hour design values[16] for each site are equal to or below the specified test level of 98 µg/m³, and there have been no violations of the 24-hour NAAQS at any site, it can be assumed that the area is demonstrating maintenance of the 24-hour NAAQS.

Figure 4-4 shows the 24-hour design values for the Liberty-Clairton sites over the timeframe 2001-2020 with the LMP test level of 98 µg/m³ shown as the red dotted line. These design values were calculated as the 3-year averages of the yearly 2nd-highest 24-hour $PM_{10}$ concentration at each site.[17] For Liberty, which had more than more monitor type at the site, the highest 2nd-highest concentration from any monitor (FRM or FEM) was used for design value calculations.

[16] The 24-hour $PM_{10}$ NAAQS is based on expected exceedances, but a design value in the form of a concentration can be derived in different ways (U.S. EPA, 1987). Since one exceedance per year is allowed over a 3-year period, one appropriate method for calculation of a design value is to average the yearly 2nd-highest concentrations over a 3-year period.

[17] This method was used by EPA for $PM_{10}$ design values that were included in the NetAssess2020 tool for monitored network assessments. (https://sti-r-shiny.shinyapps.io/EPA_Network_Assessment/)

**Figure 4-4. 24-Hour $PM_{10}$ Design Value Concentrations (in µg/m³) by Site, 2001-2020**




All sites are showing design values over the past five years that are below the LMP test level for 24-hour concentrations, and there have been no violations of the NAAQS. Lincoln showed the highest 3-year design value in the past five years, with a value of 85 µg/m³ for 2015-2017. This value will also be used as the design value for the motor vehicle analysis test (see the next section).

ACHD will recalculate the design values on an annual basis to verify that the Liberty-Clairton area still qualifies for the LMP option. If the test cannot be met (i.e., if any site shows a design value above 98 µg/m³), then the area would no longer qualify for the LMP option, and ACHD would submit a full maintenance plan for the area according to CAA 175A within one year after the determination of the design value[18] above the test level.

## 4.2 Motor Vehicle Emissions and Transportation Conformity

Transportation conformity ensures that allocated vehicle emissions from highway transportation projects fall below emissions levels that are included in attainment plans. According to the Code of Federal Regulations (CFR), 40 CFR Part 93, conformity applies to areas in which transportation-related $PM_{10}$ and precursor emissions are significant contributors to the area.

[18] A determination would be based on fully validated and quality-assured monitored results as submitted by ACHD to EPA. Data may or may not be fully certified at the time of the determination, due to the time required for certification.

The LMP option assumes that an area expects only limited growth in mobile source emissions of $PM_{10}$. A regional motor vehicle analysis for conformity is not required if it can be shown that expected growth in VMT would not cause an increase above a margin of safety level of 98 µg/m³ (similar to the test used for the design values). The following equation is used as a test for motor vehicle emissions growth:

$$DV + (VMT_{pi} \times DV_{mv}) \leq MOS$$

Where:

- DV = the area's design value based on the most recent 5 years (in µg/m³)
- $VMT_{pi}$ = the projected increase of vehicle miles traveled (VMT) over the next 10 years (as a fraction)
- $DV_{mv}$ = motor vehicle design value based on the onroad mobile portion of the attainment year inventory (in µg/m³)
- MOS = margin of safety for the 24-hour NAAQS (98 µg/m³)

And:

- $DV_{mv}$ is derived by multiplying the DV by the fraction of the attainment year inventory represented by onroad mobile sources, including re-entrained road dust, based on both primary $PM_{10}$ and precursor emissions

From Section 4.1 above, the DV for the area is 85 µg/m³. From the emissions inventory in Section 3.2 above, onroad emissions of primary $PM_{10}$ and precursors represent 166.42 tons/year in the area. To account for re-entrained road dust, an additional 125.22 tons/year of emissions from the construction and road dust categories[19] in the area source inventory can be added (see Appendix A, Table A-2), for a total of 291.65 tons/year. The total onroad and re-entrained road dust represents 5.1% of the total inventory, for a $DV_{mv}$ of 4.3 µg/m³.

Using VMT projections developed by Southwestern Pennsylvania Commission (SPC, 2020) for Allegheny County, an increase of 3.6% in VMT can be expected through 2031.[20] The resulting calculation from the above equation leads a value of 85.2 µg/m³, below the MOS of 98 µg/m³.

As mentioned in Section 4.1, ACHD will recalculate the design values on an annual basis. The motor vehicle emissions test will also be recalculated annually using the updated maximum design value over the past five years for the area. If the test cannot be met (i.e., the equation shows a value above the MOS), ACHD would submit a full maintenance plan for the area according to CAA 175A requirements within one year after the determination of the updated design values.

[19] As a conservative approach, since construction dust may be associated with transportation projects, emissions from both the construction dust and road dust categories has been included as re-entrained dust.

[20] Although this LMP applies to maintenance only through 2023, a VMT projection through a 10-year timeframe was used a conservative approach. The projection for 2031 was calculated as an interpolation of the 2025 and 2035 VMT projections. Additionally, since there are no projections specific to the Liberty-Clairton area, projections for Allegheny County were used to represent the area.

Transportation conformity for $PM_{10}$ for the area will continue to follow procedures such as interagency consultation, according to the Transportation Conformity Rule. In addition, transportation conformity applies in the area for other pollutants, such as $PM_{2.5}$ and ozone. The only major transportation project that has been planned near the area is the Mon-Fayette Expressway, Pittsburgh Extension. This project, as described in the previous maintenance plan (ACHD, 2002), would extend the expressway from PA Route 51 in Jefferson Hills to I-376 in Monroeville, with large sections to be constructed in Jefferson Hills and West Mifflin to the west of the Liberty-Clairton area. This project has experienced several delays however, and construction is not expected to begin until 2024.[21]

## 4.3 Expected Emissions

There is little growth in emissions expected for the Liberty-Clairton area through the end of the maintenance period in 2023. Several factors that support the assumption of lower emissions and continued maintenance for the area are summarized below:

- A settlement agreement and order (#19060, signed July 2019) between ACHD and U. S. Steel includes several repairs, upgrades, and enhanced work practices that will further reduce $PM_{10}$ and precursors from the Mon Valley Works plants through 2023.

- USS has announced plans to install new cogeneration and endless casting facilities at the USS Mon Valley Works, leading to reductions in $PM_{10}$ and precursors. Completion dates of the installations are unknown at this time but may be expected through 2023.[22]

- ACHD is developing regulations for the mitigation of air pollutants during extended stagnation periods. These periods can lead to prolonged elevated short-term levels of $PM_{10}$ in the Liberty-Clairton area. The regulations are expected to be finalized in 2021.

- ACHD and PA DEP are currently revising regulations for the maximum allowable sulfur content in No. 2 commercial fuel oil used in combustion equipment. The new lower limit of 15 ppm (0.0015%) will replace the former limit of 500 ppm (0.05%), leading to lower emissions of $SO_2$ as a precursor of $PM_{10}$ throughout PA. These regulations are expected to be finalized in 2021.

- Federal, state, and local rules and regulations already in place for fuel and/or equipment restrictions from area, nonroad mobile, and onroad mobile source sectors will continue to lead to reductions in overall emissions of $PM_{10}$ and precursors within Allegheny County and PA.

[21] https://www.post-gazette.com/news/transportation/2020/09/01/Mon-Fayette-Expressway-PA-Turnpike-Duquesne-Jefferson-Hills-Monroeville-funding/stories/202009010155

[22] https://www.post-gazette.com/business/career-workplace/2020/03/27/U-S-Steel-Corp-pauses-1-billion-Mon-Valley-Works-construction-coronavirus-COVID-19/stories/202003270109

- ACHD currently manages several programs to address the reduction of PM from wood burning activities. These include local regulations for wood burning and wood burning equipment, voluntary changeout programs for county residents, and educational campaigns. Reductions in $PM_{10}$ from these programs were not quantified for this LMP, but continued reductions throughout Allegheny County can be expected due to these programs.

- There are no new major sources currently planned for the Liberty-Clairton area through 2023. Due to the time required for planning and construction, is unlikely that any new major source within the Liberty-Clairton area could be completed by the end of 2023.

Considering the planned controls on the way for $PM_{10}$ and precursor emissions, as well as the lack of new sources planned for the area, future case emissions through 2023 should be similar to current conditions.

## 4.4 Population Decline

In addition to the above factors in Section 4.3, the Pittsburgh region has shown decline in population over the past several years. The overall decrease in population has led to less anthropogenic emissions from vehicles, wood burning, power consumption, and other sources of $PM_{10}$ and precursors.

Table 4-2 shows the U.S. Census Bureau population counts for 2010, population estimates for 2015 and 2019,[23] and population projections for 2020 and 2025[24] for the Liberty-Clairton area and for Allegheny County.

**Table 4-2. Population Counts, Estimates, and Projections, 2010-2025**

| Area | Census 2010 | Estimated 2015 | Estimated 2019 | Projected 2020 | Projected 2025 |
|---|---|---|---|---|---|
| Liberty-Clairton Area | 18,700 | 18,460 | 17,983 | 17,886 | 17,729 |
| Allegheny County | 1,223,348 | 1,228,827 | 1,216,045 | 1,229,020 | 1,250,185 |

The Liberty-Clairton area has shown a continued decline in population that is expected to continue through 2025. Allegheny County has also declined in population through 2019, although some increase in population is projected through 2025 (a change of 2.8% from 2019 to 2025). Small increases in population in the surrounding region, which are expected mainly in the suburban areas away from the industrial valleys, should have a minimal effect on the Liberty-Clairton area.

[23] Available at: https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-total.html https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html

[24] Available at: https://www.spcregion.org/resources-tools/regional-data-center/

# 5. Monitoring Network Verification of Continued Attainment

EPA guidance recommends that ambient monitored concentrations and source emission data can be used to track the attainment and maintenance of the NAAQS, as well as assumptions used in modeling for the maintenance demonstration. Under the LMP option, since future case emissions were not modeled, only monitored data will be used for verification of attainment.

ACHD will track the attainment status of the Liberty-Clairton area for the 24-hour $PM_{10}$ NAAQS by reviewing monitored air quality concentrations during the maintenance period through 2023. ACHD will continue to operate the air monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the area, with no changes to the existing network unless pre-approved by EPA. As mentioned in the Overview (Section 1), this section supersedes the verification of continued attainment section in the initial maintenance plan. Monitored data will also be the mechanism for the trigger of contingency measures, should any monitor violate the NAAQS through 2023 (see the next section).

Additionally, under ACHD's Prevention of Significant Deterioration (PSD) program, major new sources and modifications with $PM_{10}$ 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 24-hour $PM_{10}$ NAAQS and increment. New minor $PM_{10}$ sources will also be evaluated to ensure maintenance of the area. ACHD will not approve modifications that would lead to modeled values greater than the NAAQS.

# 6. Contingency Plan

Section 175A of the CAA requires a maintenance plan to include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area. The contingency plan is an enforceable part of the SIP and should ensure that the contingency measures are adopted expediently once they are triggered. The contingency plan should clearly identify the measures to be adopted, a schedule and procedure for adoption and implementation, and a specific time limit for action.

## 6.1 Contingency Measures

The contingency measures for this maintenance plan are identical to those included in the $PM_{10}$ SIP (ACHD, 1995). The contingency measures were approved in 1998 and are included in the Allegheny County Article XXI Rules and Regulations under §2105.21.e.6 (ACHD, 2020). The contingency measures have not been implemented at any time since the SIP was approved. The contingency measures require that the USS Clairton Plant improves the capture of pushing emissions from its coke batteries. If the measures are implemented, all batteries except B and C Batteries (which feature different designs than the other batteries) must hold the hood of the pushing emission control device (PEC) over the hot coke for the longer of the two following periods of time:

- 67 seconds immediately after the pusher ram begins to move and the damper to the PEC device is opened, or
- 15 seconds immediately following the fall of the last of the coke into the hot car.

## 6.2 Triggering Indicator

Under the CAA requirements for maintenance plans in 172(c)(9) and 175(d), EPA requires that contingency measures be promptly put into place to correct an area violation without any action from EPA. Within 60 days after determination of a violation of the 24-hour $PM_{10}$ NAAQS[25] at any monitor site in the Liberty-Clairton area, the $PM_{10}$ contingency measures will be implemented. The quality assured monitors within the Liberty-Clairton area will serve as the indicators for the triggering of contingency measures through 2023.

## 6.3 Alternative Contingency Measures

At any time prior to a violation of the $PM_{10}$ NAAQS, the County may establish an alternative contingency measure, or combination of measures, to that of the above measures, subject to demonstrating to the satisfaction of EPA that the alternative measure(s) being proposed would provide an air quality and public health benefit equal to or greater than that resulting from the implementation of the measures described above.

[25] A violation of the NAAQS would be determined by EPA from fully validated and quality-assured monitored results as submitted by ACHD. Data may or may not be fully certified at the time of the determination, due to the time required for certification. A violation would be a 3-year average of expected exceedances of the 24-hour $PM_{10}$ NAAQS that is greater than 1.0.

# 7. Approved SIP and Other Requirements

In accordance with the CAA, areas seeking to use the LMP approach for maintenance must have an attainment plan that has been approved by EPA, pursuant to section 107(d)(3)(E). The LMP should clearly indicate that all controls that were relied on to demonstrate attainment will remain in place and that Section 110 and Part D of the CAA have been satisfied.

## 7.1 $PM_{10}$ SIP Controls

The $PM_{10}$ SIP for the Liberty-Clairton area was fully approved by EPA and identified local control strategies to bring the area into compliance for $PM_{10}$ (ACHD, 1993; ACHD, 1997). Control strategies from the $PM_{10}$ SIP included the following:

- Fuel-burning/combustion limits for processes in general, as well as specific processes
- $PM_{10}$ emissions standards and operating restrictions at specific sources located in and impacting the nonattainment area, including coke oven gas sources and fugitive sources at the USS MVW plants
- An episode plan, based on the USS Clairton Plant Self-Audit Plan, to be followed during periods of high $PM_{10}$ levels
- Restrictions for (now prohibition of) coal use for USS Clairton boilers
- Installation of mist eliminators on cooling towers
- Installation of big plug doors on selected batteries
- Development of coal handling procedures

These controls were permanent and enforceable, and they remain in place with no plans to roll back or eliminate any controls for the duration of the second maintenance period through 2023.

## 7.2 Section 110 and Part D Requirements

Section 110(a)(2) of the CAA contains the general requirements for nonattainment plans, and Sections 172(c), 176(c)(4)(C), and 188-189 of Part D of the CAA contain the requirements that should be satisfied for redesignation requests.

The applicable requirements of Section 110, 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 is the requirement to satisfy Part C of the CAA, Prevention of Significant Deterioration of Air Quality. 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 adopted in entirety, and incorporated by reference, the PSD requirements of 40 CFR 52.

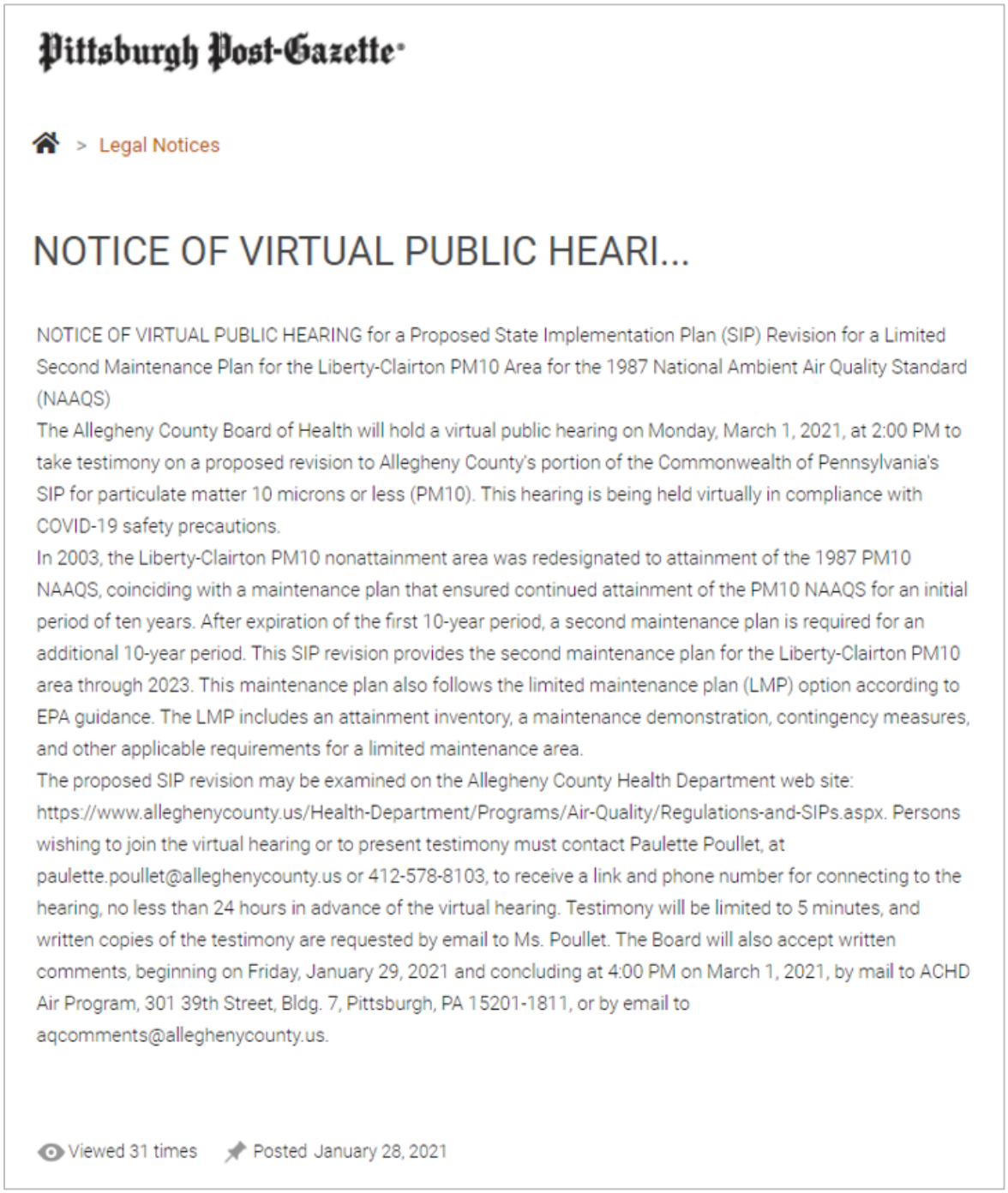
Section 172(c) requirements in Subpart 1 of Part D addresses nonattainment areas in general and describes the nonattainment plan provisions specifically. The requirements of Section 172(c) have been met by the $PM_{10}$ SIP revisions, monitored attainment of the area, and the approval of the redesignation request.

Section 176(c)(4)(C) of Part D 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 ($PM_{10}$ and $PM_{2.5}$), and carbon monoxide.

Sections 188-189 in Subpart 4 of Part D addresses specific provisions for $PM_{10}$ nonattainment areas. Similar to the Section 172(c) requirements, the Sections 188-189 requirements have been met by the $PM_{10}$ SIP revisions, monitored attainment of the area, and the approval of the redesignation request.

# 8. Legal Documents

## 8.1 Notice of Public Hearing and Comment Period



Pittsburgh Post-Gazette

> Legal Notices

NOTICE OF VIRTUAL PUBLIC HEARI...

NOTICE OF VIRTUAL PUBLIC HEARING for a Proposed State Implementation Plan (SIP) Revision for a Limited Second Maintenance Plan for the Liberty-Clairton PM10 Area for the 1987 National Ambient Air Quality Standard (NAAQS)

The Allegheny County Board of Health will hold a virtual public hearing on Monday, March 1, 2021, at 2:00 PM to take testimony on a proposed revision to Allegheny County's portion of the Commonwealth of Pennsylvania's SIP for particulate matter 10 microns or less (PM10). This hearing is being held virtually in compliance with COVID-19 safety precautions.

In 2003, the Liberty-Clairton PM10 nonattainment area was redesignated to attainment of the 1987 PM10 NAAQS, coinciding with a maintenance plan that ensured continued attainment of the PM10 NAAQS for an initial period of ten years. After expiration of the first 10-year period, a second maintenance plan is required for an additional 10-year period. This SIP revision provides the second maintenance plan for the Liberty-Clairton PM10 area through 2023. This maintenance plan also follows the limited maintenance plan (LMP) option according to EPA guidance. The LMP includes an attainment inventory, a maintenance demonstration, contingency measures, and other applicable requirements for a limited maintenance area.

The proposed SIP revision may be examined on the Allegheny County Health Department web site: https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx. Persons wishing to join the virtual hearing or to present testimony must contact Paulette Poullet, at paulette.poullet@alleghenycounty.us or 412-578-8103, to receive a link and phone number for connecting to the hearing, no less than 24 hours in advance of the virtual hearing. Testimony will be limited to 5 minutes, and written copies of the testimony are requested by email to Ms. Poullet. The Board will also accept written comments, beginning on Friday, January 29, 2021 and concluding at 4:00 PM on March 1, 2021, by mail to ACHD Air Program, 301 39th Street, Bldg. 7, Pittsburgh, PA 15201-1811, or by email to aqcomments@alleghenycounty.us.

Viewed 31 times  Posted January 28, 2021

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

COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

January 28, 2021

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

Dear Mr. Hammond:

Enclosed is a Notice of Public Hearing for a proposed revision to the Allegheny County portion of the Pennsylvania State Implementation Plan (SIP) regarding a Limited Second Maintenance Plan for the Liberty-Clairton area for the 1987 $PM_{10}$ National Ambient Air Quality Standards (NAAQS).

With this SIP revision, the Allegheny County Health Department (ACHD) Air Quality Program (AQP) is providing a plan for continued maintenance of the $PM_{10}$ 24-hour NAAQS for the Liberty-Clairton area through 2023. The maintenance plan follows a Limited Maintenance Plan (LMP) approach, based on monitored values and expected growth in motor vehicle emissions.

The proposed SIP revision is available for download at: https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx. This revision will be requested for submittal to the U.S. Environmental Protection Agency (EPA) for approval following public comment and is being tracked under our internal Revision Tracking Number 48A. The public comment period begins January 29, 2021 and concludes March 1, 2021 at 4:00 PM. Your comments are welcome.

Sincerely,

Sandra Etzel, Manager
ACHD AQP, Planning and Data Analysis Section

cc: Kirit Dalal, PA DEP
Steve Hepler, PA DEP

Enclosure: Public Hearing Notice, January 28, 2021

DEBRA BOGEN, MD, DIRECTOR
ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM
301 39TH STREET • CLACK HEALTH CENTER • BUILDING 7
PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144
24-HR (412) 687-ACHD (2243)
WWW.ALLEGHENYCOUNTY.US/HEALTHDEPARTMENT

PHAB
Advancing public health performance

COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

January 28, 2021

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

Dear Ms. Fernandez:

Enclosed is a Notice of Public Hearing for a proposed revision to the Allegheny County portion of the Pennsylvania State Implementation Plan (SIP) regarding a Limited Second Maintenance Plan for the Liberty-Clairton area for the 1987 $PM_{10}$ National Ambient Air Quality Standards (NAAQS).

With this SIP revision, the Allegheny County Health Department (ACHD) Air Quality Program (AQP) is providing a plan for continued maintenance of the $PM_{10}$ 24-hour NAAQS for the Liberty-Clairton area through 2023. The maintenance plan follows a Limited Maintenance Plan (LMP) approach, based on monitored values and expected growth in motor vehicle emissions.

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Sincerely,

Sandra Etzel, Manager
ACHD AQP, Planning and Data Analysis Section

cc: Michael Gordon, EPA Region 3
Maria Pino, EPA Region 3

Enclosure: Public Hearing Notice, January 28, 2021

DEBRA BOGEN, MD, DIRECTOR
ALLEGHENY COUNTY HEALTH DEPARTMENT
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Advancing public health performance

## 8.3 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:

**28 of January, 2021**

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:
January 28, 2021

Commonwealth of Pennsylvania - Notary Seal
Karen Flaherty, Notary Public
Allegheny County
My commission expires November 16, 2024
Commission number 1386128
Member, Pennsylvania Association of Notaries

**STATEMENT OF ADVERTISING COSTS**

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PITTSBURGH PA 15219

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Phone 412-263-1338

PG Publishing Company, a Corporation, Publisher of
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By _____

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.

_____
Attorney For

**COPY OF NOTICE OR PUBLICATION**

**NOTICE OF VIRTUAL PUBLIC HEARING for a Proposed State Implementation Plan (SIP) Revision for a Limited Second Maintenance Plan for the Liberty-Clairton PM10 Area for the 1987 National Ambient Air Quality Standard (NAAQS)**

The Allegheny County Board of Health will hold a virtual public hearing on Monday, March 1, 2021, at 2:00 PM to take testimony on a proposed revision to Allegheny County's portion of the Commonwealth of Pennsylvania's SIP for particulate matter 10 microns or less (PM10). This hearing is being held virtually in compliance with COVID-19 safety precautions.

In 2003, the Liberty-Clairton PM10 nonattainment area was redesignated to attainment of the 1987 PM10 NAAQS, coinciding with a maintenance plan that ensured continued attainment of the PM10 NAAQS for an initial period of ten years. After expiration of the first 10-year period, a second maintenance plan is required for an additional 10-year period. This SIP revision provides the second maintenance plan for the Liberty-Clairton PM10 area through 2023. This maintenance plan also follows the limited maintenance plan (LMP) option according to EPA guidance. The LMP includes an attainment inventory, a maintenance demonstration, contingency measures, and other applicable requirements for a limited maintenance area.

The proposed SIP revision may be examined on the Allegheny County Health Department web site: https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx. Persons wishing to join the virtual hearing or to present testimony must contact Paulette Poulet, at paulette.poulet@alleghenycounty.us or 412-578-8103, to receive a link and phone number for connecting to the hearing, no less than 24 hours in advance of the virtual hearing. Testimony will be limited to 5 minutes, and written copies of the testimony are requested by email to Ms. Poulet. The Board will also accept written comments, beginning on Friday, January 29, 2021 and concluding at 4:00 PM on March 1, 2021, by mail to ACHD Air Program, 301 39th Street, Bldg. 7, Pittsburgh, PA 15201-1811, or by email to acommments@alleghenycounty.us.

## 8.4 Certification of Public Hearing

Revision 48A

Limited Second Maintenance Plan for the Liberty-Clairton
$PM_{10}$ Area for the 1987 NAAQS

Certification of Hearing

Jason M. Maranche deposes and says that he is an Air Quality Engineer in the Air Quality Program of the Allegheny County Health Department and hereby certifies that a Virtual Public Hearing was held on March 1, 2021, regarding a Limited Second Maintenance Plan (LMP) for the Liberty-Clairton $PM_{10}$ area for the 1987 National Ambient Air Quality Standards (NAAQS); that these changes are to be incorporated as a change to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the attainment and maintenance of the NAAQS; 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 January 29, 2021; 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.

Jason M. Maranche 3/1/21

Jason M. Maranche Date
Air Quality Engineer III
Allegheny County Health Department
Air Quality Program

## 8.5 Summary of Public Comments and Responses

Below is a summary of public comments received during the public comment period, along with ACHD's responses to comments. The public comment period began on Jan. 29, 2021 and ended on Mar. 1, 2021, with a virtual public hearing held on Mar. 1, 2021. Notice of the opportunity for public comment appeared in the legal section of the *Pittsburgh Post-Gazette* on Jan. 28, 2021.

1. **Comment:** ACHD has avoided actions that would require emissions reductions of particulates from the U. S. Steel facilities. ACHD has a number of regulatory tools available to improve air quality and protect public health, but ACHD has not fully exercised its authority to address particulates with recent regulations, state implementation plans, and air permits. Specific actions that have lacked meaningful emissions reductions include the settlement agreement (2019), proposed coke oven regulations (2020), the $PM_{2.5}$ SIP (2019), and installation permits. Additionally, the recent ACHD declaration of attainment for $PM_{2.5}$ (based on 2018-2020 design values) is a false narrative because it includes monitored data during the COVID-19 pandemic, which is not a permanent and enforceable control that would be required for redesignation under federal law.

   **Response**: Each regulatory action taken by ACHD has a different scope and can include varying levels of specific reductions that may be required for that action. With respect to the $PM_{10}$ maintenance plan included in this document, no reductions were required since the Liberty-Clairton area is showing monitored results that are well below the NAAQS. Additionally, temporary reductions in county-wide particulate emissions due to the COVID-19 pandemic are not being used as a control for any current or future regulatory action. While the monitored values measured during 2020 are included in the 2018-2020 design values, attainment of $PM_{2.5}$ and continued attainment of $PM_{10}$ were not driven by temporary reductions that occurred during the pandemic.

2. **Comment:** ACHD should support efforts to make the NAAQS for particulates more stringent. It is clear that the current national ambient air quality standards for particulate matter are not protective of public health. With respect to fine particulates ($PM_{2.5}$), the standards were last revised in January 2013, and the 24-hour standard of 35 $\mu g/m^3$ can allow for hours that are much greater than standard while still showing a 24-hour average that is below the standard. With respect to coarse particulates ($PM_{10}$), the standards were first adopted in 1997 and have not been adequately updated to account for health research that clearly indicates community harms.

   **Response**: ACHD supports the periodic review of the federal particulate matter NAAQS, and attainment plans are adopted as quickly as possible in order to comply with any revisions to the NAAQS. The purpose of this $PM_{10}$ maintenance plan is to provide for maintenance of the Liberty-Clairton area through 2023 according to requirements of the current federal $PM_{10}$ NAAQS. (See more in the response to the following comment.)

3. **Comment:** ACHD should pursue more health-protective requirements for $PM_{10}$ emissions in Allegheny County than are included in the proposed approach to the $PM_{10}$ maintenance plan. There is strong evidence from recent public health research that short-term and long-term $PM_{10}$ levels like those found in Allegheny County are extremely likely resulting in health damage to the community. Our region suffers from some of the worst air pollution in the United States. Despite being below the EPA standard of 150 µg/m³, performance at the Liberty, Glassport, and Lincoln monitors remain above the World Health Organization (WHO) threshold of 50 µg/m³ for 24-hour exposure in recent years. ACHD should consider setting a 24-hour standard that is equal to the WHO limit of 50 µg/m³, or even to a lower level of 25 µg/m³, to protect public health in Allegheny County. These updates should accompany updates to effective regulations, operational procedural requirements, inspections, and enforcement.

   **Response**: The purpose of this $PM_{10}$ maintenance plan is to provide for maintenance of the area according to requirements of the current federal $PM_{10}$ NAAQS. Changing any standard is beyond the scope of this plan.

**Commenters:**

Individuals or organizations that submitted written comments during the public comment period are listed below. There was no verbal testimony given at the public hearing. Copies of the written comments and/or the transcript of proceedings at the public hearing are available upon request.

- Christine Graziano, Resident of Allegheny County.
- Clean Air Council, submitted by Joseph Otis Minott, Esq., Executive Director and Chief Counsel, and Christopher D. Ahlers, Esq., Staff Attorney.
- Matthew Mehalik, Ph.D., Executive Director, Breathe Project.

## 8.6 Certification of Adoption

*{to be added after adoption}*

# References


ACHD, 1993. Revision to Allegheny County's Portion of the Pennsylvania State Implementation Plan for the Attainment and Maintenance of the National Ambient Air Quality Standards. Appendix 31. Liberty Borough/Clairton PM10 Attainment Plan. Allegheny County Health Department, Pittsburgh, PA. December 17.

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OUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

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# Appendices

## Appendix A. Emissions Inventory

This appendix provides detailed tables of primary $PM_{10}$ and precursor emissions for the Liberty-Clairton area by source/process/category for the point, area, and mobile sources, as summarized in the Attainment Inventory section (Section 3).

Note: In the following tables, total primary $PM_{10}$ is labeled as $PM_{10}$-PRI, filterable $PM_{10}$ is labeled as $PM_{10}$-FIL, and condensable $PM_{10}$ is labeled as PM-CON.

### Table A-1. Point Source Emissions Inventory (tons/year), Liberty-Clairton, 2017

| Facility | Unit Description | Unit ID | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|---|---|
| AKJ | MIXER UNIT NO. 1 TANK | 126782013 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| AKJ | MIXING UNIT #2 | 126782113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| KOPPERS | CARBON BLACK OIL TANKS | 98966613 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| KOPPERS | DEBENZOL COAL TAR TANKS | 98967013 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.00 |
| KOPPERS | LIQUID LOADING | 98965913 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOPPERS | TAR REFINING FUGITIVES | 98965213 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| KOPPERS | THERMAL OXIDIZER | 28139513 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.04 | 0.03 |
| KOPPERS | PAVED ROADS | 98965613 | 0.34 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOPPERS | UNPAVED ROADS | 98965713 | 0.70 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOPPERS | WASTEWATER STOR. TANKS | 98966913 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TECH MET | ABRASIVE BLASTING P015 | 109541113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TECH MET | CUMMINS EMERGENCY GEN | 122792113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.01 | 0.00 |
| TECH MET | EMERGENCY GENERATOR B018 | 109541413 | 0.01 | 0.01 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 |
| TECH MET | ETCH AND DE-SMUT P010 | 109541713 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 |
| TECH MET | FE CELL PROCESSES P014 | 109541013 | 0.00 | 0.00 | 0.00 | 0.00 | 20.56 | 0.00 | 0.00 |
| TECH MET | HOIST AUTO MACRO ROUGH | 109541513 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.30 | 0.00 |
| TECH MET | MLE SYSTEM P009 | 109541613 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.38 | 0.00 |
| TECH MET | PROCESS HEATER (1-4) B017 | 109541313 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | 0.01 | 0.01 |
| TECH MET | TITANIUM CELL PROCESSES | 109541913 | 0.00 | 0.00 | 0.00 | 0.00 | 4.15 | 0.00 | 0.00 |
| USS CLAIRTON | #1 PULVERIZERS | 99057713 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | #2 PULVERIZERS | 99057813 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | AERATION BASINS - WWTP | 99060113 | 1.31 | 1.31 | 0.00 | 0.00 | 0.00 | 1.65 | 7.40 |
| USS CLAIRTON | BATTERY 1, DOOR LEAKS | 99049513 | 2.15 | 1.04 | 1.11 | 0.00 | 0.00 | 2.70 | 0.18 |
| USS CLAIRTON | BATTERY 1, SOAKING | 99049713 | 0.47 | 0.47 | 0.00 | 8.23 | 0.25 | 0.30 | 2.32 |
| USS CLAIRTON | BATTERY 1, TOPSIDE LEAKS | 99049613 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.07 | 0.00 |
| USS CLAIRTON | BATTERY 1 CHARGING | 99049413 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.07 | 0.01 |
| USS CLAIRTON | BATTERY 1, UNDERFIRING COG | 5310113 | 13.54 | 5.10 | 8.43 | 36.78 | 229.45 | 0.93 | 0.01 |
| USS CLAIRTON | BATTERY 1, UNDERFIRING NG | 5310013 | 0.05 | 0.01 | 0.03 | 0.00 | 0.85 | 0.03 | 0.02 |
| USS CLAIRTON | BATTERY 13 TOPSIDE LEAKS | 99051113 | 0.05 | 0.02 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 |

| Facility | Unit Description | Unit ID | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|---|---|
| USS CLAIRTON | BATTERY 13, SOAKING | 99051213 | 0.06 | 0.06 | 0.00 | 0.39 | 0.21 | 0.25 | 1.90 |
| USS CLAIRTON | BATTERY 13, CHARGING | 99050913 | 0.05 | 0.02 | 0.03 | 0.00 | 0.00 | 0.07 | 0.00 |
| USS CLAIRTON | BATTERY 13, DOOR LEAKS | 99051013 | 1.56 | 0.76 | 0.80 | 0.00 | 0.00 | 1.97 | 0.13 |
| USS CLAIRTON | BATTERY13, UNDERFIRING COG | 99047913 | 6.69 | 1.62 | 5.08 | 24.94 | 48.37 | 0.28 | 0.05 |
| USS CLAIRTON | BATTERY13, UNDERFIRING NG | 99048013 | 0.03 | 0.01 | 0.02 | 0.00 | 0.49 | 0.02 | 0.01 |
| USS CLAIRTON | BATTERY 14 TOPSIDE LEAKS | 99051613 | 0.05 | 0.03 | 0.03 | 0.00 | 0.00 | 0.07 | 0.00 |
| USS CLAIRTON | BATTERY 14, SOAKING | 99051713 | 0.06 | 0.06 | 0.00 | 0.39 | 0.21 | 0.25 | 1.90 |
| USS CLAIRTON | BATTERY 14, CHARGING | 99051413 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.08 | 0.01 |
| USS CLAIRTON | BATTERY 14, DOOR LEAKS | 99051513 | 1.62 | 0.78 | 0.84 | 0.00 | 0.00 | 2.04 | 0.14 |
| USS CLAIRTON | BATTERY 14, UNDERFIRING COG | 99048113 | 7.20 | 1.74 | 5.46 | 26.77 | 75.56 | 0.31 | 0.24 |
| USS CLAIRTON | BATTERY 14, UNDERFIRING NG | 99048213 | 0.03 | 0.01 | 0.02 | 0.00 | 0.60 | 0.02 | 0.01 |
| USS CLAIRTON | BATTERY 15 TOPSIDE LEAKS | 99052113 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.07 | 0.01 |
| USS CLAIRTON | BATTERY 15, SOAKING | 99052213 | 0.06 | 0.06 | 0.00 | 0.39 | 0.21 | 0.25 | 1.90 |
| USS CLAIRTON | BATTERY 15, CHARGING | 99051913 | 0.04 | 0.02 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 |
| USS CLAIRTON | BATTERY 15, DOOR LEAKS | 99052013 | 1.71 | 0.83 | 0.88 | 0.00 | 0.00 | 2.15 | 0.15 |
| USS CLAIRTON | BATTERY 15, UNDERFIRING COG | 99048313 | 7.83 | 1.52 | 6.32 | 37.31 | 99.45 | 0.17 | 0.18 |
| USS CLAIRTON | BATTERY 15, UNDERFIRING NG | 99048413 | 0.04 | 0.01 | 0.03 | 0.00 | 0.73 | 0.03 | 0.02 |
| USS CLAIRTON | BATTERY 19 TOPSIDE LEAKS | 99052613 | 0.15 | 0.07 | 0.08 | 0.00 | 0.00 | 0.19 | 0.01 |
| USS CLAIRTON | BATTERY #19, SOAKING | 99052713 | 1.02 | 1.02 | 0.00 | 1.94 | 0.32 | 0.30 | 2.30 |
| USS CLAIRTON | BATTERY 19, CHARGING | 99052413 | 0.05 | 0.02 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 |
| USS CLAIRTON | BATTERY 19, DOOR LEAKS | 99052513 | 2.24 | 1.09 | 1.16 | 0.00 | 0.00 | 2.83 | 0.19 |
| USS CLAIRTON | BATTERY19, UNDERFIRING COG | 99048513 | 10.68 | 3.78 | 6.90 | 47.76 | 51.07 | 2.16 | 0.09 |
| USS CLAIRTON | BATTERY19, UNDERFIRING NG | 99048613 | 0.05 | 0.01 | 0.04 | 0.00 | 0.97 | 0.04 | 0.02 |
| USS CLAIRTON | BATTERY 2, SOAKING | 99050213 | 0.47 | 0.47 | 0.00 | 8.23 | 0.25 | 0.30 | 2.32 |
| USS CLAIRTON | BATTERY 2, TOPSIDE LEAKS | 99050113 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.08 | 0.01 |
| USS CLAIRTON | BATTERY 2 CHARGING | 99049913 | 0.07 | 0.03 | 0.04 | 0.00 | 0.00 | 0.09 | 0.01 |
| USS CLAIRTON | BATTERY 2, DOOR LEAKS | 99050013 | 2.09 | 1.01 | 1.08 | 0.00 | 0.00 | 2.64 | 0.18 |
| USS CLAIRTON | BATTERY 2, UNDERFIRING COG | 5305113 | 12.81 | 5.97 | 6.84 | 37.17 | 220.48 | 0.69 | 0.01 |
| USS CLAIRTON | BATTERY 2, UNDERFIRING NG | 5304513 | 0.05 | 0.01 | 0.04 | 0.00 | 0.87 | 0.03 | 0.02 |
| USS CLAIRTON | BATTERY 20, SOAKING | 99053213 | 1.02 | 1.02 | 0.00 | 1.94 | 0.32 | 0.30 | 2.30 |
| USS CLAIRTON | BATTERY 20, CHARGING | 99052913 | 0.04 | 0.02 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 |
| USS CLAIRTON | BATTERY 20, DOOR LEAKS | 99053013 | 2.29 | 1.11 | 1.18 | 0.00 | 0.00 | 2.88 | 0.20 |
| USS CLAIRTON | BATTERY 20, TOPSIDE LEAKS | 99053113 | 0.13 | 0.06 | 0.07 | 0.00 | 0.00 | 0.17 | 0.01 |
| USS CLAIRTON | BATTERY20, UNDERFIRING COG | 99048713 | 11.95 | 3.41 | 8.54 | 53.21 | 53.39 | 24.67 | 0.29 |
| USS CLAIRTON | BATTERY20, UNDERFIRING NG | 99048813 | 0.06 | 0.01 | 0.04 | 0.00 | 1.02 | 0.04 | 0.02 |
| USS CLAIRTON | BATTERY 3 TOPSIDE LEAKS | 99050613 | 0.08 | 0.04 | 0.04 | 0.00 | 0.00 | 0.11 | 0.01 |
| USS CLAIRTON | BATTERY 3, SOAKING | 99050713 | 0.47 | 0.47 | 0.00 | 8.23 | 0.25 | 0.30 | 2.32 |
| USS CLAIRTON | BATTERY 3, CHARGING | 99050413 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.08 | 0.01 |
| USS CLAIRTON | BATTERY 3, DOOR LEAKS | 99050513 | 2.19 | 1.06 | 1.13 | 0.00 | 0.00 | 2.77 | 0.19 |
| USS CLAIRTON | BATTERY 3, UNDERFIRING COG | 5303113 | 33.30 | 22.42 | 10.88 | 39.87 | 187.86 | 0.29 | 0.02 |

| Facility | Unit Description | Unit ID | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|---|---|
| USS CLAIRTON | BATTERY 3, UNDERFIRING NG | 5306513 | 0.05 | 0.01 | 0.04 | 0.00 | 0.88 | 0.03 | 0.02 |
| USS CLAIRTON | BATTERY B, SOAKING | 99053713 | 2.92 | 2.92 | 0.00 | 4.02 | 0.92 | 0.45 | 3.51 |
| USS CLAIRTON | BATTERY B CHARGING | 99053413 | 0.17 | 0.08 | 0.09 | 0.00 | 0.00 | 0.23 | 0.02 |
| USS CLAIRTON | BATTERY B, DOOR LEAKS | 99053513 | 2.28 | 1.11 | 1.18 | 0.00 | 0.00 | 2.88 | 0.20 |
| USS CLAIRTON | BATTERY B, TOPSIDE LEAKS | 99053613 | 0.23 | 0.22 | 0.02 | 0.00 | 0.00 | 0.04 | 0.00 |
| USS CLAIRTON | BATTERY B, UNDERFIRING COG | 99048913 | 17.41 | 10.00 | 7.41 | 117.51 | 366.00 | 1.97 | 0.04 |
| USS CLAIRTON | BATTERY B, UNDERFIRING NG | 99049013 | 0.12 | 0.03 | 0.09 | 0.01 | 2.23 | 0.09 | 0.05 |
| USS CLAIRTON | BATTERY C BALL MILL | 106549613 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERY C / CHARGING | 106548813 | 0.17 | 0.08 | 0.09 | 0.00 | 0.00 | 0.23 | 0.02 |
| USS CLAIRTON | BATTERY C / DOOR LEAKS | 106548913 | 1.17 | 0.57 | 0.60 | 0.00 | 0.00 | 1.48 | 0.10 |
| USS CLAIRTON | BATTERY C / SOAKING | 106549113 | 1.64 | 1.64 | 0.00 | 2.32 | 0.52 | 0.26 | 2.02 |
| USS CLAIRTON | BATTERY C / TOPSIDE LEAKS | 106549013 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERY C PEC / HOT CAR | 106549313 | 5.18 | 5.15 | 0.03 | 16.33 | 6.44 | 0.09 | 0.01 |
| USS CLAIRTON | BATTERY C PEC BAGHOUSE | 106549213 | 0.76 | 0.57 | 0.19 | 21.28 | 4.41 | 0.89 | 0.12 |
| USS CLAIRTON | BATTERY C PEC FUGITIVES | 106549513 | 36.63 | 36.60 | 0.03 | 2.23 | 0.38 | 0.16 | 0.02 |
| USS CLAIRTON | BATTERY C PRE-PUSH | 106549413 | 0.59 | 0.58 | 0.02 | 0.02 | 0.01 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERY C UNDERFIRING | 5304013 | 32.60 | 21.05 | 11.54 | 129.97 | 381.99 | 6.18 | 0.11 |
| USS CLAIRTON | BATTERY FUGITIVES MISC | 95638713 | 3.01 | 3.01 | 0.00 | 0.00 | 0.00 | 3.79 | 16.97 |
| USS CLAIRTON | BLASTING - BLACK BEAUTY | 99059113 | 0.24 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BOILER #1, COG, STACK S31 | 5307113 | 29.40 | 15.59 | 13.80 | 109.75 | 497.58 | 1.63 | 0.36 |
| USS CLAIRTON | BOILER #1, NG, STACK S31 | 5306013 | 1.55 | 0.39 | 1.16 | 0.12 | 64.82 | 1.14 | 0.65 |
| USS CLAIRTON | BOILER #2, COG, STACK S32 | 5306613 | 12.36 | 6.09 | 6.27 | 121.35 | 163.59 | 0.15 | 0.21 |
| USS CLAIRTON | BOILER #2, NG, STACK S32 | 5306713 | 1.04 | 0.26 | 0.78 | 0.08 | 25.33 | 0.67 | 0.44 |
| USS CLAIRTON | BOILER R1, COG, STACK S36 | 5306813 | 0.05 | 0.03 | 0.02 | 0.27 | 0.47 | 0.00 | 0.00 |
| USS CLAIRTON | BOILER R2, COG, STACK S36 | 5306913 | 1.05 | 0.71 | 0.34 | 6.63 | 13.85 | 0.01 | 0.02 |
| USS CLAIRTON | BOILER T1, COG, STACK S38 | 99049313 | 1.13 | 0.71 | 0.42 | 5.78 | 12.04 | 0.00 | 0.02 |
| USS CLAIRTON | BOILER T2, COG, STACK S39 | 5308513 | 1.16 | 0.72 | 0.44 | 5.70 | 10.03 | 0.06 | 0.02 |
| USS CLAIRTON | BOOM / CONVEYOR TO BARGE | 99061113 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BOOM / FRONT END TO TRUCK | 99060813 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BOOM / HOPPER TO CONVEYOR | 99061013 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BOOM / TRUCK TO HOPPER | 99060913 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BP PITCH TRAPS | 95638813 | 1.30 | 1.30 | 0.00 | 0.00 | 0.00 | 1.17 | 9.85 |
| USS CLAIRTON | CLAM SHELL UNLOADER | 99057513 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COAL STORAGE-BINS/BUNKERS | 99057913 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COAL TRANSFER | 99057613 | 0.98 | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COKE PILE, LOAD/UNLOAD | 99058213 | 0.07 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COKE STORAGE PILE EROSION | 99059013 | 1.03 | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COKE TRANSFER 1-3, 7-9, B | 99058013 | 1.73 | 1.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COKE TRANSFER 13-15/19-20 | 99058113 | 1.32 | 1.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COKE TRANSFER C | 106549813 | 1.07 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| Facility | Unit Description | Unit ID | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|---|---|
| USS CLAIRTON | COAL UNLOADER #1 | 99057213 | 0.67 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COAL UNLOADER #2 | 99057313 | 0.31 | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | COOLING TOWER | 99059913 | 259.84 | 121.22 | 138.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | DUSTREAT / CITRIKLEEN | 99060713 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 0.00 |
| USS CLAIRTON | EQUIPMENT LEAKS | 99057013 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | PAINTS AND THINNERS | 99059713 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| USS CLAIRTON | SAFETY-KLEEN WASHER | 99059613 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.13 | 0.00 |
| USS CLAIRTON | FINAL COOLER SUMP | 99056813 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 1.47 | 0.00 |
| USS CLAIRTON | FL CIRC./SURGE TANKS | 99056613 | 0.54 | 0.54 | 0.00 | 0.00 | 0.00 | 1.97 | 17.94 |
| USS CLAIRTON | FL PUMPHOUSE SUMPS | 99056913 | 0.54 | 0.54 | 0.00 | 0.00 | 0.00 | 1.97 | 17.94 |
| USS CLAIRTON | FLARING | 99060013 | 0.00 | 0.00 | 0.00 | 0.11 | 0.01 | 0.00 | 0.00 |
| USS CLAIRTON | L.O. BARGE LOADING | 99060513 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| USS CLAIRTON | L.O. COLLECTING TANKS | 99060413 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 |
| USS CLAIRTON | L.O. DECANTERS | 99060613 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| USS CLAIRTON | METHANOL / AIR LINES | 99060213 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.38 | 0.00 |
| USS CLAIRTON | METHANOL / WINT. LID SLURRY | 99060313 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29.38 | 0.00 |
| USS CLAIRTON | NH3 TANKER LOADING FLARE | 99049213 | 0.02 | 0.02 | 0.00 | 0.08 | 13.92 | 0.01 | 0.09 |
| USS CLAIRTON | NO. 4 SCR. STATION / LOADOUT | 106550013 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | NO. 4 SCR. STATION / SCREENING | 106549913 | 0.76 | 0.33 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATT. 13-15 / BALL MILL | 99054913 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATT. 13-15 / PEC BAGHOUSE | 99054513 | 1.15 | 0.43 | 0.72 | 4.68 | 6.16 | 0.54 | 0.07 |
| USS CLAIRTON | BATT. 13-15 / PEC FUGITIVES | 99054713 | 55.76 | 55.65 | 0.11 | 0.47 | 0.60 | 0.06 | 0.01 |
| USS CLAIRTON | BATT. 13-15 / PRE PUSH | 99055013 | 2.50 | 2.50 | 0.01 | 0.37 | 0.10 | 0.07 | 0.00 |
| USS CLAIRTON | BATT. 13-15 / HOT CAR | 99054613 | 5.06 | 5.03 | 0.03 | 15.97 | 6.29 | 0.05 | 0.01 |
| USS CLAIRTON | BATT. 13-15 / UNC. PUSHING | 99054813 | 4.10 | 4.10 | 0.00 | 0.04 | 0.05 | 0.00 | 0.00 |
| USS CLAIRTON | BATT. 19-20 / BALL MILL | 99055513 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATT. 19-20 / PEC BAGHOUSE | 99055113 | 1.35 | 0.38 | 0.97 | 4.88 | 6.42 | 0.43 | 0.08 |
| USS CLAIRTON | BATT. 19-20 / PEC FUGITIVES | 99055313 | 58.58 | 58.43 | 0.15 | 0.49 | 0.63 | 0.05 | 0.01 |
| USS CLAIRTON | BATT. 19-20 / PRE PUSH | 99055613 | 2.60 | 2.59 | 0.01 | 0.38 | 0.11 | 0.07 | 0.00 |
| USS CLAIRTON | BATT. 19-20 / HOT CAR | 99055213 | 5.29 | 5.25 | 0.04 | 16.67 | 6.57 | 0.04 | 0.01 |
| USS CLAIRTON | BATT. 19-20 / UNC. PUSHING | 99055413 | 1.13 | 1.13 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERIES 1-3 / BALL MILL | 99054313 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERIES 1-3 / PEC BAGHOUSE | 99053913 | 2.02 | 0.84 | 1.19 | 5.61 | 7.38 | 1.31 | 0.09 |
| USS CLAIRTON | BATTERIES 1-3 / PEC FUGITIVES | 99054113 | 67.41 | 67.23 | 0.18 | 0.56 | 0.72 | 0.15 | 0.01 |
| USS CLAIRTON | BATTERIES 1-3 / PRE PUSH | 99054413 | 2.99 | 2.98 | 0.01 | 0.44 | 0.12 | 0.08 | 0.00 |
| USS CLAIRTON | BATTERIES 1-3 / HOT CAR | 99054013 | 6.09 | 6.05 | 0.04 | 19.22 | 7.57 | 0.13 | 0.01 |
| USS CLAIRTON | BATTERIES 1-3 / UNC. PUSHING | 99054213 | 2.59 | 2.59 | 0.00 | 0.02 | 0.03 | 0.01 | 0.00 |
| USS CLAIRTON | BATTERY B / BALL MILL | 99055913 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | BATTERY B / PEC BAGHOUSE | 99055713 | 1.94 | 0.61 | 1.33 | 50.28 | 9.75 | 8.00 | 0.11 |
| USS CLAIRTON | BATTERY B / PEC FUGITIVES | 99055813 | 9.32 | 9.22 | 0.10 | 2.65 | 0.59 | 0.42 | 0.01 |

| Facility | Unit Description | Unit ID | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|---|---|
| USS CLAIRTON | BATTERY B / PRE PUSH | 99056013 | 0.04 | 0.03 | 0.01 | 0.34 | 0.15 | 0.09 | 0.00 |
| USS CLAIRTON | PEDESTAL CRANE UNLOADER | 99057413 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | PLANT ROADS | 99059213 | 0.82 | 0.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | PLANT ROADS | 99059313 | 1.42 | 1.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | QUENCH TOWER #1 | 99056113 | 21.07 | 12.48 | 8.60 | 1.80 | 0.87 | 5.41 | 0.09 |
| USS CLAIRTON | QUENCH TOWER #5 | 99056213 | 1.85 | 1.15 | 0.70 | 0.34 | 0.15 | 0.71 | 0.01 |
| USS CLAIRTON | QUENCH TOWER #7 | 99056313 | 4.30 | 2.50 | 1.81 | 0.18 | 0.11 | 0.87 | 0.01 |
| USS CLAIRTON | QUENCH TOWER #B | 99056413 | 15.68 | 7.84 | 7.84 | 5.49 | 1.96 | 5.88 | 0.11 |
| USS CLAIRTON | QUENCH TOWER 5A | 109543013 | 9.69 | 7.72 | 1.97 | 4.37 | 0.50 | 3.69 | 0.06 |
| USS CLAIRTON | QUENCH TOWER 7A | 109543113 | 14.68 | 10.75 | 3.93 | 3.24 | 0.53 | 2.64 | 0.07 |
| USS CLAIRTON | QUENCH TOWER C | 106549713 | 19.65 | 11.26 | 8.39 | 33.55 | 2.21 | 7.06 | 0.47 |
| USS CLAIRTON | SCOT STACK | 99059813 | 7.01 | 0.72 | 6.30 | 80.64 | 1.57 | 22.49 | 0.00 |
| USS CLAIRTON | SCR. STN 1-3/7-9 LOADOUT | 99058413 | 0.11 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | SCREEN STATION 1-3, 7-9 | 99058313 | 0.12 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | SCREEN STN 13-15, 19-20 | 99058513 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | SCRN 13-15/19-20 LOADOUT | 99058613 | 0.19 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| USS CLAIRTON | TAR COLLECTING TANKS | 99057113 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| USS CLAIRTON | TAR STORAGE/SEP TANKS | 99056713 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| USS CLAIRTON | TAR/FL DECANTERS | 99056513 | 0.54 | 0.54 | 0.00 | 0.00 | 0.00 | 1.97 | 17.94 |
| USS CLAIRTON | TDS BOXES | 95638913 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 1.82 |

## Table A-2. Area Source Emissions Inventory (tons/year), Liberty-Clairton, 2017

| Area Source Category | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|
| Agriculture - Crops & Livestock Dust | 2.45 | 2.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Agriculture - Fertilizer Application | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.36 |
| Agriculture - Livestock Waste | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 1.40 |
| Biogenics - Vegetation and Soil | 0.00 | 0.00 | 0.00 | 0.00 | 3.25 | 85.35 | 0.00 |
| Bulk Gasoline Terminals | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Commercial Cooking | 8.93 | 0.66 | 8.27 | 0.00 | 0.00 | 1.25 | 0.00 |
| Dust - Construction Dust | 110.52 | 110.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dust - Paved Road Dust | 14.54 | 14.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dust - Unpaved Road Dust | 0.16 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fires - Prescribed/Natural | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| Fuel Comb - Comm/Institutional - Biomass | 1.99 | 1.93 | 0.07 | 0.10 | 0.85 | 0.07 | 0.02 |
| Fuel Comb - Comm/Institutional - Coal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fuel Comb - Comm/Institutional - Natural Gas | 0.04 | 0.02 | 0.03 | 0.05 | 8.19 | 0.45 | 0.04 |
| Fuel Comb - Comm/Institutional - Oil | 0.26 | 0.18 | 0.08 | 0.21 | 2.83 | 0.14 | 0.05 |
| Fuel Comb - Comm/Institutional - Other | 0.00 | 0.00 | 0.00 | 0.01 | 1.19 | 0.04 | 0.00 |
| Fuel Comb - Industrial Boilers, ICEs - Biomass | 11.13 | 10.76 | 0.37 | 0.54 | 4.73 | 0.37 | 0.15 |
| Fuel Comb - Industrial Boilers, ICEs - Coal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fuel Comb - Industrial Boilers, ICEs - Natural Gas | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fuel Comb - Industrial Boilers, ICEs - Oil | 0.43 | 0.40 | 0.03 | 0.37 | 5.75 | 0.38 | 0.02 |
| Fuel Comb - Industrial Boilers, ICEs - Other | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.01 | 0.00 |
| Fuel Comb - Residential - Natural Gas | 0.15 | 0.06 | 0.09 | 0.17 | 26.68 | 1.56 | 5.68 |
| Fuel Comb - Residential - Oil | 0.09 | 0.04 | 0.05 | 0.27 | 0.70 | 0.03 | 0.04 |
| Fuel Comb - Residential - Other | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.02 | 0.00 |
| Fuel Comb - Residential - Wood | 11.94 | 11.44 | 0.50 | 0.24 | 1.83 | 12.19 | 0.77 |
| Gas Stations | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.95 | 0.00 |
| Industrial Processes - Mining | 1.67 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Industrial Processes - Oil & Gas Production | 0.25 | 0.04 | 0.08 | 1.35 | 9.83 | 22.11 | 0.00 |
| Industrial Processes - Storage and Transfer | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.91 | 0.00 |
| Miscellaneous Non-Industrial NEC | 1.18 | 1.18 | 0.00 | 0.01 | 0.14 | 3.83 | 0.00 |
| Mobile - Commercial Marine Vessels | 0.18 | 0.00 | 0.00 | 0.03 | 5.99 | 0.34 | 0.00 |
| Mobile - Locomotives | 0.63 | 0.00 | 0.00 | 0.01 | 21.51 | 1.00 | 0.01 |
| Solvent - Consumer & Commercial Solvent Use | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 69.68 | 0.00 |
| Solvent - Degreasing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.10 | 0.00 |
| Solvent - Dry Cleaning | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| Solvent - Graphic Arts | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16.71 | 0.00 |
| Solvent - Industrial Surface Coating & Solvent Use | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.98 | 0.00 |
| Solvent - Non-Industrial Surface Coating | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17.24 | 0.00 |
| Waste Disposal | 8.52 | 8.52 | 0.00 | 0.65 | 1.66 | 6.31 | 0.31 |

## Table A-3. Nonroad Mobile Source Emissions Inventory (tons/year), Liberty-Clairton, 2017

| Nonroad Mobile Source Category | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|
| Mobile - Non-Road Equipment - Diesel | 2.46 | 2.46 | 0.00 | 0.05 | 29.96 | 2.67 | 0.05 |
| Mobile - Non-Road Equipment - Gasoline | 1.80 | 1.80 | 0.00 | 0.04 | 5.95 | 30.11 | 0.03 |
| Mobile - Non-Road Equipment - Other | 0.08 | 0.08 | 0.00 | 0.00 | 1.92 | 0.40 | 0.00 |

## Table A-4. Onroad Mobile Source Emissions Inventory (tons/year), Liberty-Clairton, 2017

| Onroad Mobile Source Category | $PM_{10}$-PRI | $PM_{10}$-FIL | PM-CON | $SO_2$ | $NO_X$ | VOC | $NH_3$ |
|---|---|---|---|---|---|---|---|
| Gas Stations | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 |
| Mobile - On-Road Diesel Heavy Duty Vehicles | 2.78 | 2.78 | 0.00 | 0.10 | 37.03 | 2.73 | 0.20 |
| Mobile - On-Road Diesel Light Duty Vehicles | 0.15 | 0.15 | 0.00 | 0.01 | 2.13 | 0.76 | 0.02 |
| Mobile - On-Road non-Diesel Heavy Duty Vehicles | 0.24 | 0.24 | 0.00 | 0.02 | 3.04 | 1.57 | 0.06 |
| Mobile - On-Road non-Diesel Light Duty Vehicles | 7.31 | 7.31 | 0.00 | 0.70 | 51.91 | 51.41 | 3.32 |

# Appendix B. Monitored Data

This appendix provides tables of yearly monitored data for the monitor sites described in the Maintenance Demonstration section (Section 4) for the timeframe of 2001-2020. All monitors were sited, operated, and maintained according to 40 CFR Part 58 requirements, and all monitored data have been validated, quality assured, and requested for certification. Notes: FEM 24-hour concentrations are based on the averages of hourly concentrations (midnight to midnight) for days with 18 or more valid hours. The Liberty primary FRM has operated on both 1-in-1 and 1-in-3 day sample frequencies over the 2001-2020 timeframe. The Liberty duplicate FRM (started in 2005) and the Clairton FRM have only operated on a 1-in-6 day sample frequency.

### Table A-5. Yearly Monitored Average $PM_{10}$ Concentrations (µg/m³), Liberty-Clairton Monitors, 2001-2020

| Year | Liberty FRM (prim.) | Liberty FRM (dupl.) | Liberty FEM | Clairton FRM | Glassport FEM | Lincoln FEM |
|---|---|---|---|---|---|---|
| 2001 | 31.0 | -- | 32.7 | 21.7 | 28.7 | 40.2 |
| 2002 | 27.0 | -- | 28.1 | 19.6 | 25.5 | 35.6 |
| 2003 | 26.6 | -- | 27.7 | 21.6 | 24.2 | 37.4 |
| 2004 | 25.5 | -- | 28.8 | 19.2 | 25.8 | 38.7 |
| 2005 | 28.1 | 27.5 | 28.6 | 20.7 | 26.5 | 39.7 |
| 2006 | 23.9 | 23.7 | 27.5 | 18.3 | 22.4 | 34.3 |
| 2007 | 27.7 | 25.9 | 28.1 | 21.3 | 26.3 | 35.5 |
| 2008 | 24.4 | 22.4 | 24.2 | 17.7 | 21.9 | 32.0 |
| 2009 | 21.3 | 21.5 | 19.6 | 16.3 | 18.0 | 25.5 |
| 2010 | 25.6 | 26.2 | 22.5 | 18.3 | 20.1 | 27.3 |
| 2011 | 23.6 | 21.1 | 19.1 | 16.8 | 17.9 | 25.1 |
| 2012 | 23.9 | 27.1 | 20.1 | 16.2 | 19.5 | 26.9 |
| 2013 | 18.6 | 19.0 | 15.8 | 14.7 | 15.8 | 21.8 |
| 2014 | 18.4 | 15.3 | 16.9 | 14.2 | 16.1 | 21.7 |
| 2015 | 22.0 | 23.4 | 19.3 | 16.2 | 17.0 | 23.3 |
| 2016 | 20.1 | 21.3 | 18.3 | 13.7 | 14.4 | 22.6 |
| 2017 | 19.5 | 20.4 | 17.7 | 13.7 | 15.3 | 23.8 |
| 2018 | 16.9 | 16.0 | 15.7 | 12.6 | 14.6 | 19.6 |
| 2019 | 17.2 | 16.1 | 16.2 | 11.3 | 15.7 | 20.5 |
| 2020 | 13.8 | 13.6 | 14.1 | 10.9 | 12.5 | 16.9 |

## Table A-6. Yearly Monitored 24-Hour Maximum $PM_{10}$ Concentrations (µg/m³), Liberty-Clairton Monitors, 2001-2020

| Year | Liberty FRM (prim.) | Liberty FRM (dupl.) | Liberty FEM | Clairton FRM | Glassport FEM | Lincoln FEM |
|---|---|---|---|---|---|---|
| 2001 | 126 | -- | 132 | 56 | 106 | 134 |
| 2002 | 92 | -- | 99 | 59 | 86 | 129 |
| 2003 | 147 | -- | 135 | 67 | 119 | 152 |
| 2004 | 131 | -- | 121 | 70 | 126 | 162 |
| 2005 | 110 | 102 | 121 | 65 | 127 | 157 |
| 2006 | 72 | 69 | 112 | 48 | 85 | 129 |
| 2007 | 79 | 60 | 90 | 50 | 112 | 125 |
| 2008 | 73 | 66 | 87 | 49 | 99 | 129 |
| 2009 | 120 | 121 | 118 | 39 | 100 | 90 |
| 2010 | 73 | 71 | 70 | 46 | 83 | 100 |
| 2011 | 93 | 58 | 70 | 37 | 83 | 115 |
| 2012 | 73 | 75 | 71 | 34 | 91 | 84 |
| 2013 | 59 | 47 | 49 | 28 | 60 | 76 |
| 2014 | 64 | 69 | 63 | 39 | 64 | 70 |
| 2015 | 64 | 63 | 78 | 41 | 91 | 85 |
| 2016 | 70 | 70 | 65 | 46 | 68 | 93 |
| 2017 | 106 | 107 | 87 | 29 | 68 | 108 |
| 2018 | 50 | 52 | 54 | 27 | 57 | 83 |
| 2019 | 72 | 68 | 74 | 26 | 105 | 75 |
| 2020 | 39 | 34 | 49 | 31 | 46 | 73 |

## Table A-7. Yearly Monitored Exceedances of the 24-Hour $PM_{10}$ NAAQS, Liberty-Clairton Monitors, 2001-2020

| Year | Liberty FRM (prim.) | Liberty FRM (dupl.) | Liberty FEM | Clairton FRM | Glassport FEM | Lincoln FEM |
|---|---|---|---|---|---|---|
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 |

## Table A-8. Estimated Exceedances per Year of the 24-Hour $PM_{10}$ NAAQS, Liberty-Clairton Monitors, 2001-2020

| Year | Liberty FRM (prim.) | Liberty FRM (dupl.) | Liberty FEM | Clairton FRM | Glassport FEM | Lincoln FEM |
|---|---|---|---|---|---|---|
| 2001 | -- | -- | -- | -- | -- | -- |
| 2002 | -- | -- | -- | -- | -- | -- |
| 2003 | -- | -- | -- | -- | -- | -- |
| 2004 | -- | -- | -- | -- | -- | 0.3 |
| 2005 | -- | -- | -- | -- | -- | 0.7 |
| 2006 | -- | -- | -- | -- | -- | 0.7 |
| 2007 | -- | -- | -- | -- | -- | 0.3 |
| 2008 | -- | -- | -- | -- | -- | -- |
| 2009 | -- | -- | -- | -- | -- | -- |
| 2010 | -- | -- | -- | -- | -- | -- |
| 2011 | -- | -- | -- | -- | -- | -- |
| 2012 | -- | -- | -- | -- | -- | -- |
| 2013 | -- | -- | -- | -- | -- | -- |
| 2014 | -- | -- | -- | -- | -- | -- |
| 2015 | -- | -- | -- | -- | -- | -- |
| 2016 | -- | -- | -- | -- | -- | -- |
| 2017 | -- | -- | -- | -- | -- | -- |
| 2018 | -- | -- | -- | -- | -- | -- |
| 2019 | -- | -- | -- | -- | -- | -- |
| 2020 | -- | -- | -- | -- | -- | -- |

## Table A-9. Yearly Monitored 2nd-Highest 24-Hour $PM_{10}$ Concentrations (µg/m³), Liberty-Clairton Monitors, 2001-2020

| Year | Liberty FRM (prim.) | Liberty FRM (dupl.) | Liberty FEM | Clairton FRM | Glassport FEM | Lincoln FEM |
|---|---|---|---|---|---|---|
| 2001 | 119 | -- | 122 | 43 | 105 | 133 |
| 2002 | 85 | -- | 98 | 58 | 83 | 107 |
| 2003 | 108 | -- | 117 | 46 | 106 | 145 |
| 2004 | 101 | -- | 109 | 54 | 119 | 153 |
| 2005 | 108 | 64 | 113 | 37 | 108 | 142 |
| 2006 | 71 | 67 | 95 | 42 | 83 | 128 |
| 2007 | 72 | 58 | 88 | 47 | 102 | 119 |
| 2008 | 71 | 64 | 87 | 43 | 80 | 111 |
| 2009 | 82 | 77 | 76 | 36 | 73 | 88 |
| 2010 | 72 | 69 | 70 | 40 | 75 | 93 |
| 2011 | 72 | 55 | 70 | 37 | 74 | 94 |
| 2012 | 72 | 61 | 66 | 32 | 72 | 75 |
| 2013 | 47 | 45 | 48 | 25 | 57 | 65 |
| 2014 | 55 | 59 | 50 | 32 | 52 | 56 |
| 2015 | 59 | 51 | 61 | 34 | 56 | 79 |
| 2016 | 62 | 63 | 63 | 27 | 49 | 84 |
| 2017 | 61 | 63 | 58 | 28 | 68 | 93 |
| 2018 | 50 | 43 | 53 | 21 | 48 | 67 |
| 2019 | 71 | 62 | 68 | 22 | 86 | 57 |
| 2020 | 38 | 31 | 48 | 24 | 45 | 71 |

### Table A-10. 3-Year Averages (Design Values) of Monitored 2nd-Highest 24-Hour $PM_{10}$ Concentrations (µg/m³), Liberty-Clairton Sites, 2001-2020

| Years | Liberty | Clairton | Glassport | Lincoln |
|---|---|---|---|---|
| 2001-2003 | 112 | 49 | 98 | 128 |
| 2002-2004 | 108 | 53 | 103 | 135 |
| 2003-2005 | 113 | 46 | 111 | 147 |
| 2004-2006 | 106 | 44 | 103 | 141 |
| 2005-2007 | 99 | 42 | 98 | 130 |
| 2006-2008 | 90 | 44 | 88 | 119 |
| 2007-2009 | 86 | 42 | 85 | 106 |
| 2008-2010 | 80 | 40 | 76 | 97 |
| 2009-2011 | 75 | 38 | 74 | 92 |
| 2010-2012 | 72 | 36 | 74 | 87 |
| 2011-2013 | 64 | 31 | 68 | 78 |
| 2012-2014 | 60 | 30 | 60 | 65 |
| 2013-2015 | 56 | 30 | 55 | 67 |
| 2014-2016 | 61 | 31 | 52 | 73 |
| 2015-2017 | 62 | 30 | 58 | 85 |
| 2016-2018 | 60 | 25 | 55 | 81 |
| 2017-2019 | 62 | 24 | 67 | 72 |
| 2018-2020 | 57 | 22 | 60 | 65 |

With EPA approval, the following monitors in the Liberty-Clairton area were removed from the $PM_{10}$ monitor network in 2020:

- The Liberty primary FRM, with an end date of Nov. 11, 2020
- The Liberty duplicate FRM, with an end date of Sept. 19, 2020
- The Lincoln FEM, with an end date of Dec. 31, 2020

**Allegheny County Health Department**
Air Quality Program
301 39th Street, Building 7
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Allegheny County Health Department
Dr. Debra Bogen, Director

Bureau of Environmental Health
James Kelly, Deputy Director

Air Quality Program
Jayme Graham, Manager
Dean DeLuca, Manager

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Allegheny County Health Department

# Article XV: Plumbing & Building Drainage Revisions

Allegheny County Board of Health

Vote to Initiate Public Comment Period

May 5, 2021

# Section AC-106.4 2. – Site Work

- AC-106.4.2. ACHD previously requested to amend language to require site work to be installed only by a licensed plumber. This amendment was never effective.
- ACHD is proposing to remove the proposed amendments and to keep AC-106.4.2 the same as it currently states in Article XV.

# Requesting a Recommendation to submit amendments to Article XV for Public Comment

- Amendments to Article XV revisions adopted by the Board of Health on November 4, 2020 include:
  - AC-106.4 (2) Site Work
  - Footnotes 14 and 21 to Table AC-403.1
  - 403.1.2 Family or assisted-use toilet and bath fixtures

# Section AC-106.4 2. – Site Work

**AC-106.4 By whom application is made.** Application/plans for permits shall be made by the owner-occupant or master plumber installing all or part of any plumbing system. The applicant shall meet all qualifications established by statute, or by rules and regulations promulgated by this Code. The full name of and address of the applicant shall be stated in the application.

**Exceptions:**

******

**2. Site Work:** When a commercial or industrial site is being developed, registered professional engineers, registered architects, or registered master plumbers may file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of sewers and water supply systems regulated by this Article from the point of public connection or proper disposal to a point five (5) feet from the building (commonly identified as "site work"). Where a new residential site is being developed and public sewers are not immediately available, registered professional engineers, registered architects or registered master plumbers may file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of common private sewers and common water supply systems up to the point of individual sewer or individual water service pipe connections to the common line. In addition, the requirements of Section AC-701.3 and AC-701.3.1 shall also be required. ~~The installation of site work is regulated by this Article and must be installed by a licensed plumber unless otherwise permitted by this Article.~~

# Footnotes to Table AC-403.1

- 14. In A-2 occupancy, when the aggregate of 8 or more male and female water closets are provided, a **single-user toilet room, including** family assisted or assisted use bathroom**,** is required. **Single-user bath toilet, and family or assisted bathrooms may be identified as being available for use by all persons regardless of their sex.**

- **21. If the minimum number of required plumbing fixtures for an occupancy under Table 403.1 exceeds the minimum number of required plumbing fixtures under Table 403.1 of the International Plumbing Code promulgated by the Pennsylvania Department of Labor and Industry, then the additional plumbing fixtures may be located in single-user toilet and bathing room(s), including family or assisted-use toilet and bathing room(s). Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and toilet rooms and bathing rooms may be identified as being available for use by all persons regardless of their sex.**

# Example of More Stringent Requirements

- Business occupancy class: "Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, light industrial and similar uses"

- Article XV requirements are more stringent than IPC-2015:

| Business – Water Closets | | | | | |
|---|---|---|---|---|---|
| Occupant Load | IPC 2015* | | Article XV* | | No. Exceeds IPC-2015 |
| | Male | Female | Male | Female | |
| 50 | 1 | 1 | 2 | 2 | 2 |
| 100 | 2 | 2 | 3 | 3 | 2 |
| 200 | 3 | 3 | 5 | 5 | 4 |
| 300 | 4 | 4 | 6 | 6 | 4 |
| 400 | 5 | 5 | 8 | 8 | 6 |

*Number of fixtures determined by dividing in half the total occupant load.

# 403.1.2 Family or assisted-use toilet and bath fixtures

- This provisions is being modified to no longer require family or assisted-use toilet facilities to be identified as exclusive for use by either sex.

- The additional language is consistent with IPC-2015 – 403.2.1 which states: “Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.”

# Requesting approval to submit proposed revisions to Article XV to the public for comment

# ALLEGHENY COUNTY HEALTH DEPARTMENT
# RULES & REGULATIONS
# ARTICLE XV – PLUMBING AND BUILDING DRAINAGE

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Changes made after the November 4, 2020 Board of Health meeting are shown in red font, with deletions as strikethroughs and additions as larger underlined text. Text in red that is not underlined or with strikethrough is language that was indicated as deleted in prior version.

## CHAPTER 1
## ADMINISTRATION

******

### SECTION 106
### PERMITS

******

**AC-106.4 By whom application is made.** Application/plans for permits shall be made by the owner-occupant or master plumber installing all or part of any plumbing system. The applicant shall meet all qualifications established by statute, or by rules and regulations promulgated by this Code. The full name of and address of the applicant shall be stated in the application.

**Exceptions:**

******

2. **Site Work:** When a commercial or industrial site is being developed, registered professional engineers, registered architects, or registered master plumbers may file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of sewers and water supply systems regulated by this Article from the point of public connection or proper disposal to a point five (5) feet from the building (commonly identified as "site work"). Where a new residential site is being developed and public sewers are not immediately available, registered professional engineers, registered architects or registered master plumbers may file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of common private sewers and common water supply systems up to the point of individual sewer or individual water service pipe connections to the common line. In addition, the

requirements of Section AC-701.3 and AC-701.3.1 shall also be required. ~~The installation of site work is regulated by this Article and must be installed by a licensed plumber unless otherwise permitted by this Article.~~

******

# CHAPTER 4
# FIXTURE, FAUCETS, AND FIXTURE FITTINGS

******

**TABLE AC-403.1**
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES**
**(See Sections 403.1.1 and 403.2)**

******

**Footnotes to Table AC-403.1:**

******

14. In A-2 occupancy, when the aggregate of 8 or more male and female water closets are provided, a **single-user toilet room, including** family assisted or assisted use bathroom**,** is required. **Single-user bath toilet, and family or assisted bathrooms may be identified as being available for use by all persons regardless of their sex.**

******

**21. If the minimum number of required plumbing fixtures for an occupancy under Table 403.1 exceeds the minimum number of required plumbing fixtures under Table 403.1 of the International Plumbing Code promulgated by the Pennsylvania Department of Labor and Industry, then the additional plumbing fixtures may be located in single-user toilet and bathing room(s), including family or assisted-use toilet and bathing room(s). Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and toilet rooms and bathing rooms may be identified as being available for use by all persons regardless of their sex.**

******

**403.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *International Building*

*Code* are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile *occupancies*. **Family or assisted- use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.**

# ALLEGHENY COUNTY HEALTH DEPARTMENT
# RULES & REGULATIONS
# ARTICLE XV – PLUMBING AND BUILDING DRAINAGE

Deletions are shown with strikethroughs.
Additions are shown bolded and underlined.

Changes made after the November 4, 2020 Board of Health meeting are shown in red font, with deletions as strikethroughs and additions as larger underlined text. Text in red that is not underlined or with strikethrough is language that was indicated as deleted in prior version.

## CHAPTER 1
## ADMINISTRATION

### SECTION 101
### GENERAL

**101.1 Title.** These regulations shall be known as the Plumbing **and Building Drainage** Code of the Allegheny County Health Department, hereinafter referred to as "Article XV".

**101.1.1 Effective date.** This Article, after approval, shall become effective ~~no sooner than~~ ten (10) days after being advertised in a newspaper of general circulation in Allegheny County. **Upon the effective date,** all ~~other provisions~~ **previous versions** of Article XV ~~shall be~~ **are repealed** ~~superseded~~ **and** replaced**.**

******

**102.8 Referenced codes and standards.** The codes and standards referenced in this code shall be those that are listed in Chapter ~~13~~ **14** and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall be the minimum requirements.

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## SECTION 104
## DUTIES AND POWERS OF THE CODE OFFICIAL

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**104.4 Inspections.** The Chief Plumbing Inspector and/or his designee shall make all required inspections or shall accept reports of inspections by approved agencies or individuals. All inspection reports shall be in writing; **may be stored and issued electronically**; and **shall** be endorsed by an officer of such approved agency or by an approved individual. The Chief Plumbing Inspector and/or his designee is authorized to engage such expert opinion as is deemed necessary to resolve unusual technical issues that arise, subject to the approval of the Director.

******

**104.8 Department records.** The code official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained ~~in the official records as long as the building or structure to which such records relate remains in existence~~ **for at least 5 years** unless otherwise provided for by other regulations, **Pennsylvania law, or federal law**.

******

## SECTION 105
## APPROVAL

**AC-105.1 ~~Modifications~~ Variances.** Whenever there are practical difficulties involved in carrying out the provisions of this code, the Director and/or his designee shall have the authority to approve modifications on a case by case basis, provided that the Director and/or his designee shall first find that special circumstances make the strict letter of this code impractical. ~~Such modifications shall be in conformity with the intent and purpose of this code, such that they do not negatively impact human or environmental health or fire safety.~~ **Any interested party may request a variance from the provisions of this Code. All requests must be in writing, state the reasons for the request, and provide evidence that the variance will pose no real or potential hazard to the health, safety or welfare of the public or any individuals.** The details of an action granting a ~~modification~~ **variance** to this code shall be recorded and maintained in the files of the Plumbing Program.

******

## SECTION 106
## PERMITS

******

**AC-106.1 When permits are required.** A permit is required to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge,

alter, repair, remove, convert or replace **all or** any **part of the** plumbing system, **including site work,** the installation of which is regulated by this Article, or to cause any such work to be done. Such permit may be obtained by application to the Plumbing Program.

**106.1.1 Engaging in the business of plumbing.** No person, other than a currently licensed master plumber, shall engage in the business of plumbing or expose the sign of plumbing or any advertisement pertaining thereto, except wholesale or retail plumbing fixture suppliers. Any firm or corporation desiring to engage in the business of plumbing shall have at least one member who possesses a valid master plumber's license, who shall register with the Department his or her name, along with the name(s) of all officers of the firm or corporation upon whose behalf he is registering.

**106.1.2 Exempt Work.** The following work shall be exempt from the requirement for a permit:

1. Repairs that involve the working parts of a faucet or valve, the clearance of stoppages, or the replacement of defective faucets or valves **(excluding hot water mixing valves in tub, shower, and/or combination tub and shower valves)**, may be made without a permit. However, a permit shall be obtained when any part of the plumbing system becomes defective and requires replacement or alteration.

******

**AC-106.4 By whom application is made.** Application/plans for permits shall be made by the owner-occupant or master plumber installing all or part of any plumbing system. The applicant shall meet all qualifications established by statute, or by rules and regulations promulgated by this Code. The full name of and address of the applicant shall be stated in the application.

**Exceptions:**

1. **Existing single-family dwellings**: Any permit required by this Article to allow any work regulated by this Article may be issued to a bona fide owner who presently occupies an existing single-family dwelling~~, who intends to occupy the existing single-family dwelling and any of its accessory buildings,~~ exclusively for private purposes, on the condition that the said owner personally purchase all material and perform all labor in connection therewith. Such privilege does not convey the right to violate any of the provisions of this Article, nor is it to be construed as exempting any such property owner from obtaining a permit, nor covering or concealing work in any manner until after it has been inspected by the Administrative Authority's inspectors, nor from payment of required fees.

2. **Site Work:** When a commercial or industrial site is being developed, registered professional engineers, registered architects, or registered master plumbers may

file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of sewers and water supply systems regulated by this Article from the point of public connection or proper disposal to a point five (5) feet from the building (commonly identified as "site work"). Where a new residential site is being developed and public sewers are not immediately available, registered professional engineers, registered architects or registered master plumbers may file plans, ~~and~~ obtain permits, and install and/or supervise ~~for~~ the installation of common private sewers and common water supply systems up to the point of individual sewer or individual water service pipe connections to the common line. In addition, the requirements of Section AC-701.3 and AC-701.3.1 shall also be required. ~~The installation of site work is regulated by this Article and must be installed by a licensed plumber unless otherwise permitted by this Article.~~

******

**106.5 Retention of construction documents.** One set of construction documents shall be retained by the code official until final approval of the work covered therein. One set of approved construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

**AC-106.5.7 Permission to proceed.** Plans filed shall not constitute permission to proceed. A permit must be obtained prior to commencing any plumbing work.

**Exception: When an emergency repair is immediately necessary to protect public health and safety, the repairs may be conducted without first applying for and receiving a plumbing permit. In this circumstance, a permit application must be submitted within three (3) business days after the repair is made and the repairs must remain visible for inspection until the plumbing program has inspected and approved the work. Fees for plumbing permit applications for emergency repairs shall not be subject to the additional 100% fee required by Section 106.6.1.**

******

**AC-106.7.8 Master plumber qualifications.** No master plumber's license shall be granted **to** a journeyman plumber until he has had at least two (2) years **of** experience as a licensed journeyman plumber and has successfully passed the required examinations.

******

**AC-106.7.12 License renewal.** A licensed master or journeyman plumber desiring to continue in the business of plumbing, shall annually, within thirty (30) days of his birth date apply to the Department for a renewal of his license and pay the annual license renewal fee as specified in the

current fee schedule. **Plumbing licenses shall include a photograph of the licensed plumber and such license photographs shall be updated every five (5) years.** No examination shall be required for the renewal of a master or journeyman license, provided proper application and payment is made in the time period specified above. **Any plumber licensed by Allegheny County whose license has lapsed due to unpaid annual renewal fees for more than thirty (30) calendar days must pay, in addition to all delinquent annual renewal fees, a fifty percent (50%) late penalty prior to plumbing license reinstatement. Any plumber licensed by Allegheny County whose license has lapsed due to unpaid annual license renewal fees for two (2) or more years must pay all unpaid fees and a fifty percent (50%) late fee and pass a Department-approved examination prior to reinstatement.**

******

## SECTION 108
## VIOLATIONS

******

**108.4 Violation penalties.** Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof shall be guilty of the offenses listed below. For the purposes of this section, violations on separate dates shall be considered separate offenses. Each violation of a separate subsection or section of this Article shall constitute a separate offense.

**AC-108.4.1 Summary Offenses. Pursuant to Section 12027(a) of the Pennsylvania Local Health Administration Law, 16 P.S. § 12027(a), a**ny person who violates any of the provisions of this Article or any rule or regulation of the Allegheny County Health Department, or who interferes with the Director or any other agent of the Department in the discharge of his official duties, shall, for the first offense, upon conviction thereof in a summary proceeding before any District Magistrate in Allegheny County, be sentenced to pay the costs of prosecution and a fine of not less than thirty dollars ($30) nor more than three hundred dollars ($300) and, in default thereof, shall be subject to imprisonment for not less than ten (10) days and not more than thirty (30) days.

**AC-108.4.2 Misdemeanors. Pursuant to Section 12027(b) of the Pennsylvania Local Health Administration Law, 16 P.S. § 12027(b), a**ny person who violates any of the provisions of this Article or any rule or regulation of the Allegheny County Health Department, or who interferes with the Director or his or her representative in the discharge of his or her official duties, convicted of a second or subsequent offense, shall be guilty of a misdemeanor and shall, upon conviction thereof, be sentenced to pay a fine of not less than five hundred dollars ($500) nor more than one thousand dollars ($1000) or to undergo imprisonment not exceeding one (1) year, or both.

******

**SECTION 109**
**MEANS OF APPEAL**

**AC-109.1 Application for appeal.** Any person aggrieved by any action taken by the Director and/or his or her designee may request a hearing within ~~ten~~ **thirty** (~~10~~**30**) days in accordance with the Allegheny County Health Department Rules and Regulations, Article XI, "Hearings and Appeals."

******

# CHAPTER 2
# DEFINITIONS

******

**ALTERNATE ON-SITE NONPOTABLE WATER. Non-potable water from other than public utilities, on-site surface sources and subsurface natural freshwater sources. Examples of such water are gray water, on-site reclaimed water, col-lected rainwater, captured condensate and rejected water from reverse osmosis systems.**

******

**BACKFLOW PREVENTER**. ~~A device or means to prevent backflow.~~ **A backflow prevention assembly, a backflow prevention device or other means or method to prevent backflow into the potable water supply.**

******

**DEMAND RECIRCULATION WATER SYSTEM. A water distribution system where one or more pumps prime the service hot water piping with heated water upon a demand for hot water.**

******

**DRINKING FOUNTAIN**. **A plumbing fixture that is connected to the potable water distribution system and the drain-age system. The fixture allows the user to obtain a drink directly from a stream of flowing water without the use of any accessories.**

******

**GRAY WATER. Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays.**

******

**AC-LEAD-FREE PIPE AND FITTINGS.** ~~Containing not more than 8.0-percent lead.~~ **The definition of lead-free pipe and fittings found in the Pennsylvania Plumbing System Lead Ban and Notification Act at 35 P.S. § 723.3 is hereby incorporated by reference and any**

**future revisions to that definition are also incorporated by reference on the day that they go into effect.**

**LEAD-FREE SOLDER AND FLUX.** ~~Containing not more than 0.2-percent lead.~~ **The definition of lead-free solder and flux found in the Pennsylvania Plumbing System Lead Ban and Notification Act at 35 P.S. § 723.3 is hereby incorporated by reference and any future revisions to that definition are also incorporated by reference on the day that they go into effect.**

******

**MECHANICAL JOINT**. A connection between pipes, fittings, or pipes and fittings that is not screwed, caulked, threaded, soldered, solvent cemented, brazed or welded **or heat fused**. A joint in which compression is applied along the centerline of the pieces being joined. In some applications, the joint is part of a coupling, fitting or adapter.

******

**METER. A measuring device used to collect data and indicate water usage.**

******

**ON-SITE NON-POTABLE WATER REUSE SYSTEM. A water system for the collection, treatment, storage, distribution and reuse of non-potable water generated on site, including but not limited to a gray water system. This definition does not include a rainwater harvesting system.**

******

**AC-PERMIT HOLDER. The person to whom the Department has issued a plumbing permit.**

******

**PLUMBING FIXTURE**. A receptacle or device that is either permanently or temporarily connected to the water distribution system ~~of the premises and demands a supply of water therefrom; discharges wastewater, liquid-borne waste materials or sewage either directly or indirectly to the drainage system of the premises; or requires both a water supply connection and a discharge to the drainage system of the premises.~~ **or discharges to a drainage system or both. Such receptacles or devices require a supply of water or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a drainage system.**

**PLUMBING SYSTEM**. ~~Includes the water supply and distribution pipes; plumbing fixtures and traps; water-treating or water-using equipment; soil, waste and vent pipes; and sanitary and storm sewers and building drains; in addition to their respective connections, devices and appurtenances within a structure or premises.~~ **A system that includes the water distribution pipes; plumbing fixtures and traps; water-treating or water-using equipment; soil, waste**

**and vent pipes , building drains and storm drains; in addition to their respective connections, devices and appurtenances within a structure or premises; and the water service, building sewer , building storm sewer and septic on lot system serving such structure or premise.**

******

**PRIVATE SEWER.** A private sewer is a sewer **main or lateral** privately-owned and not directly controlled **or maintained** by **a municipality or** public **sewer** authority.

******

**RAIN WATER. Water from natural precipitation.**

******

**RECLAIMED WATER. Non-potable water that has been derived from the treatment of waste water by a facility or system licensed or permitted to produce water meeting the jurisdiction's water requirements for its intended uses. Also known as "recycled water".**

******

**AC-SITE WORK. Any sanitary sewer piping serving a building or water service piping serving a building that begins five feet from the outside foundation wall and extends to the public point of connection.**

******

**STORM WATER. Natural precipitation, including snowmelt, that has contacted a surface at or below grade.**

******

**TOILET FACILITY. A room or space that contains not less than one water closet, one urinal and one lavatory.**

******

**WASTE RECEPTOR. A floor sink, standpipe, hub drain, or floor drain that receives the discharge of one or more indirect waste pipes.**

**WATER COOLER. A drinking fountain that incorporates a means of reducing the temperature of the water supplied to it from the potable water distribution system.**

**WATER DISPENSER. A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. This definition also includes a free-standing apparatus for the same purpose that is not**

**connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir.**

******

# CHAPTER 3
# GENERAL REGULATIONS

******

## SECTION 312
## TESTS AND INSPECTIONS

**AC-312.1 Required tests.** The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.9 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and the permit holder shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system. **The permit holder, or their authorized agent who is an apprentice, journeyman, or master plumber employed by the permit holder firm or company, must be present during all tests and inspections required by this Section.**

******

## SECTION 304
## RODENT PROOFING

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**304.4 Openings for pipes**. In or on structures where openings have been made in walls, floors or ceilings for the passage of pipes, such openings shall be closed and protected by the installation of approved metal collars that are securely fastened to the adjoining structure. **The annular space between the pipe and the sides of the opening shall be sealed with caulking materials or closed with gasketing systems compatible with the piping materials.**

******

## SECTION 305
## PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

******

**AC-305.7 Waterproofing of openings**. Joints at the roof and around vent pipes shall be made watertight by the use of ~~lead,~~ copper, aluminum, or other approved flashing material. Exterior wall openings shall be made watertight. Floor drains installed above the basement floor with useable space below shall be waterproofed with approved flashing material. The flashing material shall be securely fastened to the waste outlet at the seepage entrance making a watertight joint between the flashing material and the floor drain. Flashing material shall extend a minimum of 18 inches from the center of the floor drain.

******

## SECTION 307
## STRUCTURAL SAFETY

******

**307.5.1 Protection of footings. Trenching installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall. The upper boundary of the bearing plane is a line that extends downward, at an angle of 45 degrees (0.79 rad) from horizontal, from the outside bottom edge of the footing or wall.**

******

## SECTION 308
## PIPE SUPPORTS

**308.1 General**. All plumbing piping shall be supported in accordance with this section.

******

**Footnotes to Table 308.5 Hanger Spacing.**

b. ~~Midstory guide for sizes 2 inches and smaller~~. **For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.**

******

**308.9 Parallel water distribution systems**. Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer's installation instructions. ~~Hot and cold water piping shall not be grouped in the same bundle~~. **Where hot water piping is bundled with cold or hot water piping, each hot water pipe shall be insulated.**

******

## SECTION 314
## CONDENSATE DISPOSAL

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**[M] 314.2.5 Cleanouts. Condensate drain lines shall be configured to permit the clearing of blockages and performance of maintenance without requiring the drain line to be cut.**

******

## SECTION 315
## PENETRATIONS

**315.1 Sealing of annular spaces. The annular space between the outside of a pipe and the inside of a pipe sleeve or between the outside of a pipe and an opening in a building envelope wall, floor, or ceiling assembly penetrated by a pipe shall be sealed in an approved manner with caulking material, foam sealant or closed with a gasketing system. The caulking material, foam sealant or gasketing system shall be designed for the conditions at the penetration location and shall be compatible with the pipe, sleeve and building materials in contact with the sealing materials. Annular spaces created by pipes penetrating fire-resistance-rated assemblies or membranes of such assemblies shall be sealed or closed in accordance with Section 714 of the International Building Code.**

******

# CHAPTER 4
# FIXTURE, FAUCETS, AND FIXTURE FITTINGS

******

## SECTION 402
## FIXTURE MATERIAL

******

**402.2 Materials for specialty fixtures.** Materials for specialty fixtures not otherwise covered in this code shall be of stainless steel, soapstone, chemical stoneware or plastic, or ~~shall be lined with lead,~~ copper-base alloy, nickel-copper alloy, corrosion-resistant steel or other material especially suited to the application for which the fixture is intended.

******

**402.4 Sheet lead. [REPEALED]** ~~Sheet lead for pans shall not weigh less than 4 pounds per square foot (19.5 kg/m$^2$) coated with an asphalt paint or other approved coating.~~

******

## TABLE AC-403.1
## MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES
## (See Sections 403.1.1 and 403.2)

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| A-1 | Theaters and other buildings for the performing arts and motion pictures | 2 per 100 (up to 400)<br>over 400, add 1 per 125 | 1 per 25 (up to 100)<br>over 100, add 1 per 65 | 1 per 200 | | ___ | 1 per toilet room, but not less than 1 per 1000 | 1 service sink per floor | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17 * |
| A-2 | Nightclubs, bars, taverns, dance halls, and buildings for similar purposes, restaurants, banquet halls, and food courts. | 2 per 1-50<br>3 per 51-100<br>4 per 101-160<br>over 160, add 1 per 40 | 1 per 25<br>2 per 26-50<br>3 per 51-100<br>4 per 101-160<br>over 160, add 1 per 40 | 1 per 75 | | ___ | ___ | 1 service sink per floor | 2, 3, 4, 5, 6, 10, 13, 14, 15, 16, 17 * |
| A-3 | Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades, and gymnasiums | 1 per 125 | 1 per 65 | 1 per 200 | | ___ | 1 per 500 | 1 service sink per floor | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17 * |

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| | Passenger terminals and transportation facilities | 1 per 500 | 1 per 500 | 1 per 750 | | ___ | 1 per 1000 | 1 service sink | 17, **20** * |
| | Places of worship and religious services | 1 per 150 | 1 per 75 | 1 per 200 | | ___ | 1 per 1000 | 1 service sink | 2, 3, 4, 5, 6, 10, 13, 14, 15, 16, **20** * |
| A-4 | Coliseums, arenas, skating rinks, pools, and tennis courts for indoor sporting events and activities | 1 per 75 for the first 1500 and 1 per 60 for the remainder exceeding 1520 | 1 per 40 for the first 1500 and 1 per 60 for the remainder exceeding 1520 | 1 per 200 | 1 per 150 | ___ | 1 per 1000 | 1 service sink | 2, 3, 4, 5, 6, 10, 15, 16, 17, **20** * |
| A-5 | Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities. | 1 per 75 for the first 1500 and 1 per 120 for the remainder exceeding 1500 | 1 per 40 for the first 1520 and 1 per 60 for the remainder exceeding 1520 | 1 per 200 | 1 per 150 | ___ | 1 per 1000 | 1 service sink | 2, 3, 4, 5, 6, 10, 15, 16, 17, **20** * |
| B | Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, light industrial and similar uses | 1 per 1-15<br>2 per 16-35<br>3 per 36-55<br>4 per 56-80<br>5 per 81-110<br>6 per 111-150 | 1 per 1-15<br>2 per 16-35<br>3 per 36-55<br>4 per 56-80<br>5 per 81-110<br>6 per 111-150 | 1 per 1-25<br>2 per 26-50<br>3 per 51-100<br>4 per 101-150<br>5 per 151-200 | | ___ | 1 per 100 | 1 service sink per floor | 9, 15 ,16, 17 * |

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| | | over 150, add 1 per 40 | over 150, add 1 per 40 | over 200, add 1 per 80 | | | | | |
| E | Elementary (students) | 1 per 40 | 1 per 30 | 1 per 50 | | Footnote 7 | 1 per 100 | 1 service sink per floor | 2, 3, 4, 5, 6, 8, 9, 10, 11, 16, 17 * |
| | Elementary (secondary) | 1 per 50 | 1 per 40 | 1 per 50 | | | 1 per 100 | | |
| | University, adult centers, etc. | 1 per 50 | 1 per 40 | 1 per 50 | | | | | |
| | Staff (all schools) | same as office buildings | same as office buildings | same as office buildings | | | | | |
| F-1 and F-2 | Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials | 1 per 25 up to 100 | 1 per 25 up to 100 | 1 per 25 up to 100 | | ___ | 1 per 100 | 1 service sink per floor | 9, 15, 16 * |
| | | over 100, add 1 per 100 | over 100, add 1 per 100 | over 100, add 1 per 50 | | | | | |
| I-1 | Residential care | 1 per 10 | | 1 per 10 | | 1 per 8 | 1 per 100 | 1 service sink | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17, 18, 19, **20** * |
| I-2 | Hospitals, ambulatory nursing home patients | 1 per room | | 1 per room | | 1 per 15 | 1 per 100 | 1 service sink | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17, 18, 19, **20** * |
| | Employees, other than residential care | 1 per 25 | | 1 per 35 | | ___ | 1 per 100 | 1 service sink | |

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| | Visitors, other than residential care | 1 per 75 | | 1 per 100 | | ___ | 1 per 500 | ___ | |
| I-3 | Prisons | 1 per cell | | 1 per cell | | 1 per 15 | 1 per 100 | 1 service sink | 2, 3, 4, 5, 6, 10, 15, 16, 17, 18, 19, **20** * |
| | Reformatories, detention centers, and correctional centers | 1 per 15 | | 1 per 15 | | 1 per 15 | 1 per 100 | 1 service sink | |
| | Employees | 1 per 25 | | 1 per 25 | | --- | 1 per 100 | --- | |
| I-4 | Adult day care and child care | 1 per 15 | | 1 per 15 | | 1 | 1 per 100 | 1 service sink | 2, 3, 4, 5, 6, 10, 11, 12, 15, 16, 17, 19, **20** * |
| | Day care and child care centers | 1 per 15 | | 1 per 15 | | **0** | 1 per 100 | 1 service sink per floor | |
| | Children under 6 | 1 per 10 | | 1 per 10 | | | | | |
| | Children over 6 | 1 per 12 | | 1 per 12 | | | | | |
| | Staff | 1 per 15 | | 1 per 15 | | | | | |
| M | Retail stores, service stations, shops, salesrooms, markets, and shopping centers | 1 per 500 | | 1 per 750 | | --- | 1 per 1000 | 1 service sink | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17, **20** * |
| R-1 | Hotels, motels, boarding houses (transient) | 1 per sleeping unit | | 1 per sleeping unit | | 1 per sleeping unit | --- | 1 service sink | **20** |

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| R-2 | Dormitories, fraternities, sororities, and boarding houses (not transient) | 1 per 10 | | 1 per 10 | | 1 per 8 | 1 per 100 | 1 service sink | **20** |
| R-2 | Apartment house | 1 per dwelling unit | | 1 per dwelling unit | | 1 per dwelling unit | --- | 1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units | --- |
| R-3 | One- and two-family dwellings | 1 per dwelling unit | | 1 per dwelling unit | | 1 per dwelling unit | --- | 1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit | --- |
| R-3 | Congregate living facilities with 16 or fewer people | 1 per 10 | | 1 per 10 | | 1 per 8 | 1 per 100 | 1 service sink | **20** |
| R-4 | Residential care/assisted living facilities | 1 per 10 | | 1 per 10 | | 1 per 8 | 1 per 100 | 1 service sink | 2, 3, 4, 5, 6, 10, 13, 15, 16, 17, 18, 19, **20** * |

| OCCUPANCY | DESCRIPTION | WATER CLOSETS | | LAVATORIES | | BATHTUBS/ SHOWERS | DRINKING FOUNTAIN | OTHER | FOOTNOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | MALE | FEMALE | M | F | | | | |
| S-1<br>S-2 | Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard | 1 per 100 | | 1 per 100 | | See Section 411 | 1 per 1000 | 1 service sink | 15, 16, **20** * |

**Footnotes to Table AC-403.1:**

1. "Restaurant" occupancy refers only to establishments that sell food primarily to be consumed on the premises. Establishments that have only "stand-up" facilities for eight (8) or less persons and establishments that sell "take-out" food only shall not be classified as a "restaurant".
2. For establishments serving food and/or drinks, see Article III, "Restaurants" and Article IV, "General Food", of the Allegheny County Health Department Rules & Regulations.
3. Dipper wells ~~with running water~~ shall be provided in conjunction with the dispensing of ice cream, yogurt and/or related products.
4. One 3-compartment rinsing sink shall be installed in each bar.
5. A 3-compartment sink shall be provided when food is prepared or served on the premises.
6. Utility sinks shall be provided for washing utensils, equipment, and appurtenances in accordance with Article III, "Restaurants" and Article IV, "General Food".
7. Provide showers for 1/5 of the maximum number of students using gymnasium and/or pool at one time.
8. Staff facilities in university, college adult centers may be combined with student facilities.
9. Provide one lavatory for each five persons exposed to skin contamination with poisonous, infectious, or irritating material.
10. Sinks used for dishes, utensils and any other food related items shall be NSF approved.
11. Water closets for children under age 6 shall be of suitable size and height, and seats shall be of an open sanitary type.
12. Separate toilet facilities shall be provided in centers with daily enrollment of 25 or more children.
13. In A-2 occupancy, urinals are required in single occupancy bathrooms (does not include family bathrooms).
14. In A-2 occupancy, when the aggregate of 8 or more male and female water closets are provided, a **single-user toilet room, including** family assisted or assisted use bathroom**,** is required. **Single-user bath toilet, and family or assisted bathrooms may be identified as being available for use by all persons regardless of their sex.**
15. Drinking fountains are not required for occupants of 15 or fewer provided potable water is available for building occupants such as bottled water or break room sink.
16. The minimum number of required drinking fountains shall comply with Table AC-403.1 and Chapter 11 of the *International Building Code.* A single high/low drinking fountain shall be considered one fixture.
17. The occupant load for seasonal outdoor seating and entertaining areas shall be included when determining the minimum number of facilities required.
18. Toilet facilities for employees shall be separate from facilities for inmates or patients.

19. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

20. ~~May require more than 1 service sink per floor if no elevator equip in building.~~ **If there is no elevator equipment in the building, one (1) service sink per floor is required.**

**21. If the minimum number of required plumbing fixtures for an occupancy under Table 403.1 exceeds the minimum number of required plumbing fixtures under Table 403.1 of the International Plumbing Code promulgated by the Pennsylvania Department of Labor and Industry, then the additional plumbing fixtures may be located in single-user toilet and bathing room(s), including family or assisted-use toilet and bathing room(s). Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and toilet rooms and bathing rooms may be identified as being available for use by all persons regardless of their sex.**

******

**403.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *International Building Code* are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile *occupancies*. **Family or assisted- use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.**

******

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

1. Separate facilities shall not be required for dwelling units and sleeping units.

2. Separate facilities shall not be required in structures. or tenant spaces with a total occupant load, including both employees and customers, of 15 or less.

3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 50 or less.

**AC-403.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-**

**use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted- use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4. Urinals will still be required in occupancy type A-2.**

**403.3 Required public toilet facilities**. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

**Exception: Public toilet facilities shall not be required in:**

1. **Open or enclosed parking garages where there are no parking attendants.**

2. **Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop- off, having a public access area less than or equal to 300 square feet (28 m2).**

******

**403.3.5 Door locking. Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.**

**403.4 Signage**. Required public facilities shall be designated by legible signs ~~for each sex.~~ **that designate the sex, as required by Section 403.2.** Signs shall be readily visible and located near the entrance to each toilet facility. **Signs for accessible toilet facilities shall comply with Section 1111 of the International Building Code.**

******

## SECTION 404
## ACCESSIBLE PLUMBING FACILITIES

**404.1 Where required.** Accessible plumbing facilities and fixtures shall be provided in accordance with the International Building Code.

**404.2 Accessible fixture requirements. Accessible plumbing fixtures shall be installed with the clearances, heights, spacings and arrangements in accordance with ICC A117.I.**

**404.3 Exposed pipes and surfaces. Water supply and drain pipes under accessible lavatories and sinks shall be covered or otherwise configured to protect against contact. Pipe coverings shall comply with ASME A112.18.9.**

## SECTION 405
## INSTALLATION OF FIXTURES

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**405.3 Setting.** Fixtures shall be set level and in proper alignment with reference to adjacent walls.

******

**405.3.3 Location of fixtures and piping. Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings**.

******

## SECTION 407
## BATHTUBS

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**407.2 Bathtub waste outlets**. Bathtubs shall have waste outlets ~~minimum of 11 /2 inches (38 mm) in diameter~~ **and an overflow outlet. The outlets shall be connected to waste tubing or piping not less than 11/ 2 inches (38 mm) in diameter.** The waste outlet shall be equipped with an approved stopper.

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## SECTION 412
## FLOOR AND TRENCH DRAINS

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**AC-412.3 Size of floor drains.** ~~Floor drains shall have a minimum 2-inch-diameter (51 mm) drain outlet.~~ **Floor drains installed below a basement floor must be a minimum or four (4) inches in diameter. Floor drains installed above the basement floor must be a minimum of three (3) inches in diameter. Residential emergency drains installed in laundry rooms on floors above usable space may be two (2) inches in diameter when it is properly connected to the drainage and vent system. All floor drains must be supplied with an automatic priming device. Exceptions: For residential installations, hose bibs or a laundry tray may be substituted for an automatic priming device when the fixture is located in the same room.**

******

## SECTION 413
## FOOD WASTE GRINDER UNITS

**AC-413.1 Approval.** Domestic food waste grinders shall conform to ASSE 1008. Commercial food waste grinders shall conform to ASSE 1009. ~~Food waste grinders shall not increase the drainage fixture unit load on the sanitary drainage system.~~ **The fixture unit value will increase with the installation of a food waste grinder.**

******

## SECTION 417
## SHOWERS

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**AC-417.3 Shower waste outlet.** ~~Waste outlets serving showers shall be at least 1 ½ inches (38 mm) in diameter and, for other than waste outlets in bathtubs, shall have removable strainers not less than 3 inches (76 mm) in diameter with strainer openings not less than 0.25 inch (6.4 mm) in minimum dimension. Where each shower space is not provided with an individual waste outlet, the waste outlet shall be located and the floor pitched so that waste from one shower does not flow over the floor area serving another shower. Waste outlets shall be fastened to the waste pipe in an approved manner.~~ **Waste outlets serving showers when installed above the basement floor shall have a diameter of at least two (2) inches with removable strainers of not less than three (3) inches in diameter with strainer openings not less than 0.25 inches in minimum dimension. This requirement is not intended for bathtub-to-shower conversions that require a 1 ½ inch trap and drain connection. The connection from the waste outlet to the drainage system must be fastened in an approved manner.**

**AC-417.5.2.3 Sheet lead. [REPEALED]** ~~Sheet lead shall not weigh less than 4 pounds per square foot (19.5 kg/m2) coated with an asphalt paint or other approved coating. The lead sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or its equivalent. Sheet lead shall be joined by burning.~~

******

## SECTION 423
## SPECIALTY PLUMBING FIXTURES

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**423.3 Footbaths, pedicure baths and head shampoo sinks. The water supplied to specialty plumbing fixtures, such as pedicure chairs having an integral foot bathtub, footbaths, and head shampoo sinks, shall be limited to a maximum tem-perature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070 or CSA B125.3**.

## SECTION 424
## FAUCETS AND OTHER FIXTURE FITTINGS

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**424.9 Water closet personal hygiene devices. Personal hygiene devices integral to water closets or water closet seals shall conform to the requirements of ASME A112.4.**

******

# CHAPTER 5
# WATER HEATERS

## SECTION 501
## GENERAL

******

**501.3 Drain valves.** Drain valves for emptying shall be installed at the bottom of each tank-type water heater and hot water storage tank. **The drain valve inlet shall be not less than 3/4-inch (19 mm) nominal iron pipe size and the outlet shall be provided with male garden hose threads**. Drain valves shall conform to ASSE 1005.

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## SECTION 504
## SAFETY DEVICES

******

**AC- 504.6 Requirements for discharge piping.** The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor~~,~~ **or** to an indirect waste receptor~~, or to the outdoors. Where discharging to the outdoors in areas subject to freezing, discharge piping shall be first piped to an indirect waste receptor through an air gap located in a conditioned area.~~
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.

8. Not be trapped.

9. Be installed so as to flow by gravity.

10. ~~Not terminate more than 6 inches (152 mm) above the floor or waste receptor.~~ **Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diame-ter above the floor or flood level rim of the waste receptor.**

11. Not have a threaded connection at the end of such piping.

12. Not have valves or tee fittings.

13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and approved for such use in accordance with ASME A112.4.1.

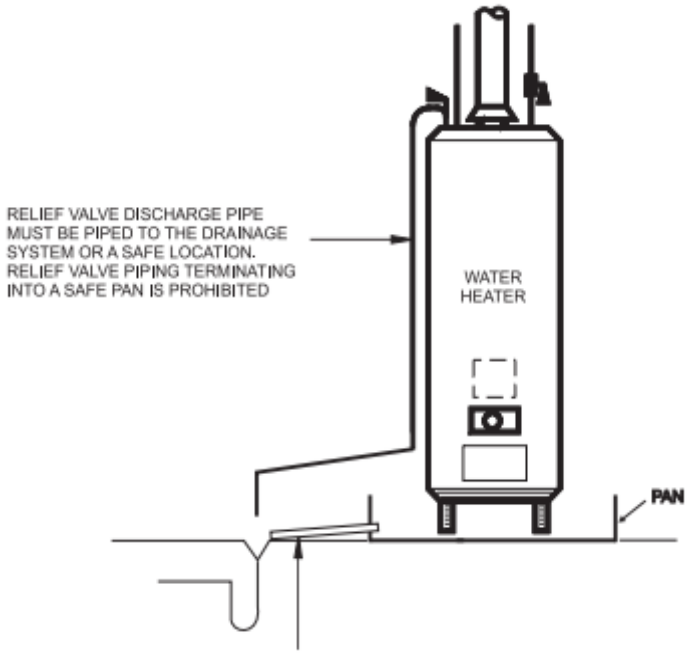
**504.7 Required pan.** Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a minimum thickness of 24 gauge, or other pans approved for such use.

******

**504.7.2 Pan drain termination.** The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or floor drain ~~or extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface~~.

**504.7.3 Water heater floor drain or drain pan required. All hot water heaters will require a floor drain or approved water heater drain pan regardless of their location to protect the structure and surrounding materials and areas from catastrophic failure of the water heater. This also includes basement floors.**

**FIGURE AC-504.7**
**WATER HEATER IN PAN**




THE PAN DRAIN MUST DISCHARGE TO WASTE RECEPTOR, FLOOR DRAIN ~~OR TO THE EXTERIOR OF THE BUILDING~~.

******

# CHAPTER 6
# WATER SUPPLY AND DISTRIBUTION

## SECTION 601
## GENERAL

******

**601.5 Rehabilitation of piping systems. Where pressure piping systems are rehabilitated using an epoxy lining system, such lining system shall comply with ASTM F 2831.**

******

## SECTION 605
## MATERIALS, JOINTS, AND CONNECTIONS

******

**AC-605.2 Lead content of water supply pipe and fittings.** Pipe and pipe fittings, including valves and faucets, utilized in the water supply system shall ~~have a maximum of 8-percent lead content~~ **be lead-free pipe and fittings, as that term is defined in Section 202 of this Article**

**and by the Pennsylvania Plumbing System Lead Ban and Notification Act at 35 P.S. § 723.3**.

**AC-605.2.1 Ban on repair of privately-owned lead water service lines. Repair of and/or partial replacement of existing privately-owned lead water service lines is prohibited by this Article. When an existing privately-owned lead water service line fails such that it needs to be repaired, the entire privately-owned lead water service line must be replaced with approved, lead-free pipe and fittings.**

******

**TABLE 605.3**
**WATER SERVICE PIPE**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| ~~Asbestos-cement pipe~~ **[REPEALED]** | ~~ASTM C296~~ **[REPEALED]** |
| ****** | ****** |
| ~~Galvanized steel pipe~~ **[REPEALED]** | ~~ASTM A53~~ **[REPEALED]** |
| ****** | ****** |

**TABLE 605.4**
**WATER DISTRIBUTION PIPE**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Galvanized **[REPEALED]** | ~~ASTM A53~~ **[REPEALED]** |
| ****** | ****** |

**TABLE 605.5**
**PIPE FITTINGS**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Steel **[REPEALED]** | ~~ASME B16.9; ASME B16.11; ASME B16.28~~ **[REPEALED]** |
| ****** | ****** |

******

**605.11 Asbestos-cement. [REPEALED]** ~~**Joints between asbestos-cement pipe or fittings shall be made with a sleeve coupling of the same composition as the pipe, sealed with an elastomeric ring conforming to ASTM D1869.**~~

******

**AC-605.13 Gray iron and ductile iron joints.** Joints for gray and ductile iron pipe and fittings shall comply with AWWA C111 and shall be installed in accordance with the manufacturer's installation instructions.

**AC-605.13.1 Rodding of joints on grey iron and ductile iron joints. All mechanical joints on grey iron and ductile iron pipe must be rodded in addition to the required thrust blocks at all changes in direction and other areas specified by the Administrative Authority.**

******

**AC-605.15 Copper tubing.** Joints between copper or copper-alloy pipe or fittings shall comply with Sections 605.15.l through ~~605.15.4~~ **605.15.5**.

******

**605.15.5 Press-connect joints. Press-connect joints shall conform to one of the standards listed in Table 605.5 and shall be installed in accordance with the manufacturer's instructions. Cut tube ends shall be reamed to the full inside diameter of the tube end. Joint surfaces shall be cleaned. The tube shall be fully inserted into the press- connect fitting. Press-connect joints shall be pressed with a tool certified by the manufacture.**

******

**AC-605.16 CPVC plastic.** Joints between CPVC plastic pipe and fitting shall comply with Sections 605.16.1 through 605.16.3.

******

**605.16.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture~~, and an appropriate primer shall be applied~~. **Joints shall be made in accordance with the manufacturer's installation instructions. Where such instructions require that a primer be used, the primer shall be applied to the joint surfaces and a S**~~s~~**olvent** cement~~,~~ orange in color and conforming to ASTM F 493~~,~~ shall be applied to ~~all~~ **the** joint surfaces. **Where such instructions allow for a one-step solvent cement, yellow in color and conforming to ASTM F 493, to be used, the joint surface shall not require the application of a primer before the solvent cement is applied.** The joint shall be made while the cement is wet, and in accordance with ASTM D2846 or ASTM F493. Solvent-cement joints shall be permitted above or below ground.

~~**Exception**: A primer is not required where all of the following conditions apply:~~

1. ~~The solvent cement used is third-party certified as conforming to ASTM F 493.~~
2. ~~The solvent cement used is yellow in color.~~
3. ~~The solvent cement is used only for joining ½ inch (12.7 mm) through 2 inch (51 mm) diameter CPVC pipe and fittings.~~

~~4. The CPVC pipe and fittings are manufactured in accordance with ASTM D 2846.~~

******

**605.17 ~~Cross-linked polyethylene plastic~~ PEX Plastic**. Joints between cross-linked polyethylene plastic tubing or fittings shall comply with Sections 605.17.1 and 605.17.2.

******

**605.23 Stainless steel.** Joints between stainless steel pipe and fittings shall comply with Sections 605.23.1 and 605.23.~~2~~**3**.

******

**605.23.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an approved elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.**

**605.24 Joints between different materials.** Joints between different piping materials shall be made with a mechanical joint of the compression or mechanical-sealing type, or as permitted in Sections 605.24.1, 605.24.2 and 605.24.3. Connectors or adapters shall have an elastomeric seal conforming to ~~ASTM D 1869 or~~ ASTM F 477. Joints shall be installed in accordance with the manufacturer's instructions.

**605.24.1 Copper or copper-alloy tubing to galvanized steel pipe.** Joints between copper or copper-alloy tubing and galvanized steel pipe shall be made with a brass fitting or dielectric fitting **or a dielectric union conforming to ASSE 1079**. The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe.

**605.24.2 Plastic pipe or tubing to other piping material.** Joints between different ~~grades~~ **types** of plastic pipe or between plastic pipe and other piping material shall be made with an *approved* adapter**s** ~~fitting~~ **or transition fittings**.

******

**605.25 PE-RT plastic. Joints between polyethylene of raised temperature plastic tubing and fittings shall be in accordance with Section 605.25.1.**

**605.25.1 Mechanical joints. Mechanical joints shall be installed in accordance with the manufacturer's instructions. Fittings for polyethylene of raised temperature plastic tubing shall comply with the applicable standards listed in Table 605.5 and shall be installed in accordance with the manufacturer's instructions. Polyethylene of raised temperature plastic tubing shall be factory marked with the applicable standards for the fittings that the manufacturer of the tubing specifies for use with the tubing.**

**AC-605.26 Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC) pipe and tub-ing. Joints between CPVC/AL/CPVC plastic pipe or CPVC fittings shall comply with Sections 605.26.1 through 605.26.2.**

**605.26.1 Mechanical joints. Mechanical joints shall be installed in accordance with the manufacturer's instructions.**

**605.26.2 Solvent cementing. Joint surfaces shall be clean and free from moisture, and an approved primer shall be applied. Solvent cement, orange in color and conforming to ASTM F 493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D 2846 or ASTM F 493. Solvent cement joints shall be permitted above or below ground.**

**Exception: A primer is not required where all of the following conditions apply:**

1. **The solvent cement used is third-party certified as conforming to ASTM F 493.**
2. **The solvent cement used is yellow in color.**
3. **The solvent cement is used only for joining ½-inch (12.7 mm) through 2-inch diameter (51 mm) CPVC/AL/CPVC pipe and CPVC fittings.**
4. **The CPVC fittings are manufactured in accordance with ASTM D 2846.**

**AC-605.27 Approval of new material, joint, and connections in Allegheny County. Materials, joints, and connections not listed in this Code as approved may be approved for use by the Chief Plumbing Inspector, provided that such new material, joint, or connection does not present a hazard to public health or safety. The Chief Plumbing Inspector shall consult with the Plumbing Advisory Board when determining whether a new material can be approved for use. The Plumbing Advisory Board may also unilaterally recommend, by affirmative vote, that a new material, joint, or connection be approved for use by the Chief Plumbing Inspector. The Department shall maintain and publish on the Department website a list of materials approved by the Chief Plumbing Inspector in this manner.**

## SECTION 606
## INSTALLATION OF THE BUILDING WATER DISTRIBUTION SYSTEM

******

**606.7 Labeling of water distribution pipes in bundles. Where water distribution piping is bundled at installation, each pipe in the bundle shall be identified using stenciling or**

**commercially available pipe labels. The identification shall indicate the pipe contents and the direction of flow in the pipe. The interval of the identification markings on the pipe shall not exceed 25 feet (7620 mm). There shall be not less than one identification label on each pipe in each room, space or story.**

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## SECTION 607
## HOT WATER SUPPLY SYSTEM

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**607.2 Hot or tempered water supply to fixtures. The developed length of hot or tempered water piping, from the source of hot water to the fixtures that require hot or tempered water, shall not exceed 50 feet (15 240 mm). Recirculating system piping and heat-traced piping shall be considered to be sources of hot or tempered water.**

******

**[E] 607.5 Insulation of piping. For other than Group R2, R3 and R4 occupancies that are three stories or less in height above grade plane, piping to the inlet of a water heater and piping conveying water healed by a water heater shall be insulated in accordance with Section C404.4 of the Interna-tional Energy Conservation Code. For Group R2, R3 and R4 occupancies that are three stories or less in height above grade plane, piping to the inlet of a water heater and piping conveying water heated by a water heater shall be insulated in accordance with Section R403.5.3 of the International Energy Conservation Code.**

## SECTION 608
## PROTECTION OF POTABLE WATER SUPPLY

******

**608.8 Identification of non-potable water systems.** ~~In buildings w~~ **Where** nonpotable water systems are installed, the piping conveying the nonpotable water shall be identified either by color marking or metal tags in accordance with Sections 608.8.1 through 608.8.~~3~~**2.3**. ~~All nonpotable water outlets such as hose connections, open ended pipes, and faucets shall be identified at the point of use for each outlet with the words, "Nonpotable – not safe for drinking." The words shall be indelibly printed on the tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5inches in height and color in contrast to the background on which they are applied.~~

**608.8.1 ~~Information~~ Signage required.** Nonpotable water outlets, such as hose connections, open ended pipes and faucets, shall be identified with signage that reads as follows: "Non- potable water is utilized for [application name]. CAUTION: NONPOTABLE WATER - DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be

indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and in colors in contrast to the background on which they are applied**. In addition to the required wordage, the pictograph shown in Figure 608.8.1 shall appear on the required signage.**

FIGURE 608.8.1
PICTOGRAPH-DO NOT DRINK

**608.8.2 ~~Color.~~ Distribution pipe labeling and marking**. ~~The color of the pipe identification shall be discernable and consistent throughout the building. The color purple shall be used to identify reclaimed, rain, and gray water distribution systems.~~ **Nonpotable distribution piping shall be purple in color and shall be embossed, or integrally stamped or marked, with the words: "CAUTION: NONPOTABLE WATER - DO NOT DRINK" or the piping shall be installed with a purple identification tape or wrap. Pipe identification shall include the contents of the piping system and an arrow indicating the direction of flow. Hazardous piping systems. shall also contain information addressing the nature of the hazard. Pipe identification shall be repeated at intervals not exceeding 25 feet (7620 mm) and at each point where the piping passes through a wall, floor or roof. Lettering shall be readily observable within the room or space where the piping is located.**

**608.8.3~~2~~.1 ~~Size~~ Color.** ~~The size of the background color field and lettering shall comply with Table 608.8.3.~~ **The color of the pipe identification shall be discernable and consistent throughout the building. The color purple shall be used to identify reclaimed, rain, and gray water distribution systems.**

**608.8.2.2 Lettering Size. The size of the background color field and lettering shall comply with Table 608.8.2.2.**

**TABLE 608.8.3~~2~~.2**
**SIZE OF PIPE IDENTIFICATION**

| PIPE DIAMETER (inches) | LENGTH BACKGROUND COLORFIELD (inches) | SIZEOF LETTERS (inches) |
|---|---|---|
| ¾ to 1¼ | 8 | 0.5 |
| 1½ to 2 | 8 | 0.75 |
| 2½ to 6 | 12 | 1.25 |
| 8 to 10 | 24 | 2.5 |
| over 10 | 32 | 3.5 |

**608.8.2.3 Identification tape. Where used, identification tape shall be at least 3 inches (76 mm) wide and have white or black lettering on a purple field stating, "CAUTION: NONPOTABLE WATER – DO NOT DRINK". Identification tape shall be installed on top of nonpotable rainwater distribution pipes, fastened at least every 10 feet (3048 mm) to each pipe length and run continuously the entire length of the pipe.**

******

# CHAPTER 7
# SANITARY DRAINAGE

## SECTION 701
## GENERAL

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**AC-701.2 Sewer required.** Every building in which plumbing fixtures are installed and all premises having drainage piping shall be connected to a *public sewer*, where available, or an *approved private* sewage disposal system in accordance with the ~~*International Private Sewage Disposal Code*~~ **Pennsylvania Sewage Facilities Act, 35 P.S. §§ 750.1 – 750.20a., and its implementing regulations found at Title 25 of the Pennsylvania Code, Chapters 71 – 73.**

******

**AC-701.3 Public Sewers and/or Water Mains Not Available.** Where public sewers and/or water mains are not immediately available, it may become necessary to construct a private sanitary sewer, storm sewer, and/or water main to connect with a public utility. A variance must be obtained from the Director prior to construction of a private sanitary sewer, storm sewer, and/or water main. Plans indicating size, materials, and method of construction must be submitted to the Administrative Authority for approval. Private sewers and/or water mains shall be constructed on the outside of building or buildings and branched into each house or building separately. When private sewers and/or water mains must cross another property or properties to connect with a public sanitary sewer, storm sewer and/or water main, an easement shall be recorded in the deeds of all affected property owners. A mutual maintenance agreement shall be

recorded in the deeds of all such properties connected to a private sewer or water main system to affix equal responsibility in maintaining the private sewer (s) or water main(s). A copy of each deed shall be filed with the Administrative Authority.

**AC-701.3.1 Existing Common Sewer Lateral.** When the Administrative Authority identifies the existence of a common sewer lateral (CSL) that is not recorded in the Recorder of Deeds Office of Allegheny County, it may issue orders to all affected property owners to separately connect to an available public sewer, or in the alternative, to record in the Recorder of Deeds Office of Allegheny County, a document, approved by the Administrative Authority, identifying the existence of the CSL and adequately specifying the maintenance responsibilities for property owners.

**AC-701.3.2 Avoiding Public Health Hazards. In order to prevent a public health hazard, all properties connected to a CSL must remain connected to that CSL until all requirements of Section 701.3.1, above, are met.**

******

**701.10 Separate sewer connection. A building having plumbing fixtures installed and intended for human habitation, occupancy or use on premises abutting on a street, alley or easement in which there is a public *sewer* shall have a separate connection with the *sewer*. Where located on the same lot, multiple buildings shall not be prohibited from connect-ing to a common *building sewer* that connects to the public *sewer*.**

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## SECTION 702
## MATERIALS

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### TABLE 702.2
### UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Asbestos-Cement Pipe **[REPEALED]** | ~~ASTM C428~~ **[REPEALED]** |
| ****** | ****** |

*******

### TABLE 702.3
### BUILDING SEWER PIPE

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Asbestos-Cement Pipe **[REPEALED]** | ~~ASTM C428~~ **[REPEALED]** |
| ****** | ****** |

*******

**TABLE 702.4**
**PIPE FITTINGS**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Asbestos-Cement Pipe **[REPEALED]** | ~~ASTM C428~~ **[REPEALED]** |
| ****** | ****** |

******

## SECTION 703
## BUILDING SEWER

**AC-703.1 Building sewer pipe near the water service.** Where the building sewer is installed within 10 feet (3048 mm) of the water service, the installation shall comply with the provisions of Section AC-603.2.

**AC-703.1.1 Controlling trap. A controlling trap, such as a *trap* or trap manhole, shall be required when the building storm sewer is to be connected to a combination public sewer system or a storm sewer that connects to a public combination sewer.**

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**703.6 Combined sanitary and storm public sewer. Where the public sewer is a combined system for both sanitary and storm water, the sanitary sewer shall be connected independently to the public sewer.**

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## SECTION 705
## JOINTS

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**705.3 Asbestos cement. [REPEALED]** ~~Joints between asbestos-cement pipe or fittings shall be made with a sleeve coupling of the same composition as the pipe, sealed with an elastomeric ring conforming to ASTM D1869~~.

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**SECTION 708**
**CLEANOUTS**

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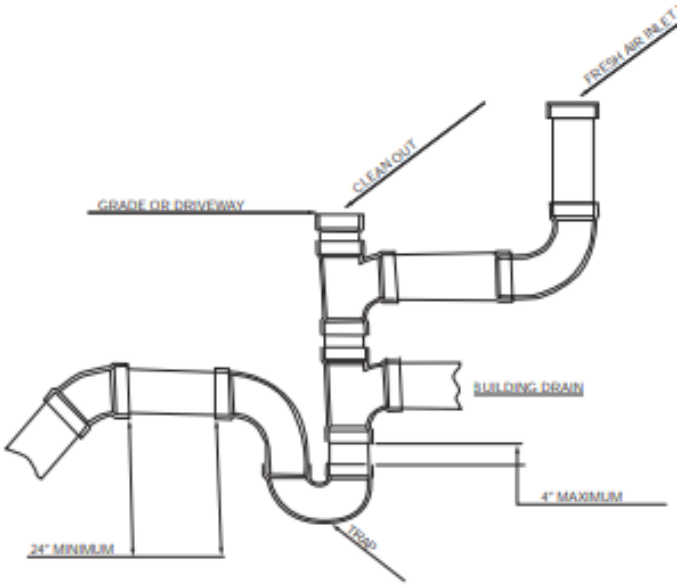
**AC-708.3.1 Horizontal drains within buildings**. All **6 inch and over** horizontal drains shall be provided with cleanouts located not more than 100 feet (30 480 mm) apart.

**AC-708.3.2 Building sewers. Six-inch ~~B~~building** sewers shall be provided with cleanouts located not more than 100 feet (30 480 mm) apart measured from the upstream entrance of the cleanout. For building sewers 8 inches (203 mm) and larger, manholes shall be provided and located not more than 200 feet (60 960 mm) from the junction of the building drain and building sewer, at each change in direction and at intervals of not more than 400 feet (122 m) apart. Manholes and manhole covers shall be of an approved type.

**AC-708.3.2.1 Four-inch building drains and building sewers**. Cleanouts are required every 50 feet.

**Exception. Cleanouts at the base of a stack and fixture connections can be substituted for floor cleanouts on building drains.**




For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

**FIGURE AC-708.3.5.3(2)**
**BUILDING OR HOUSE TRAPS INSTALLED**
**~~GREATER THAN 4 FEET IN DEPTH~~ UNDER A SIDEWALK, DRIVEWAY OR INSIDE A BUILDING**

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**AC-708.4 ~~Concealed piping.~~ Cleanout access.** ~~Cleanouts on concealed piping or piping under a floor slab or in a crawl space of less than 24 inches (610 mm) in height or a plenum shall be extended through and terminate flush with the finished wall, floor or ground surface or shall be extended to the outside of the building. Cleanout plugs shall not be covered with cement, plaster or any other permanent finish material~~. **Required cleanouts shall not be installed in concealed locations. For the purposes of this section, concealed locations include, but are not limited to, the inside of plenums, within walls, within floor/ceiling assemblies, below grade and in crawl spaces where the height from the crawl space floor to the nearest obstruction along the path from the crawl space opening to the clean- out location is less than 24 inches (610 mm). Cleanouts with openings at a finished wall shall have the face of the opening located within 1½ inches (38 mm) of the finished wall surface. Cleanouts located below grade shall be extended to grade level so that the top of the cleanout plug is at or above grade. A cleanout installed in a floor or walkway that will not have a trim cover installed shall have a countersunk plug installed so the top surface of the plug is flush with the finished surface of the floor or walk- way.** Where it is necessary to conceal a cleanout or to terminate a cleanout in an area subject to vehicular traffic, the covering plate, access door or cleanout shall be of an approved type designed and installed for this purpose.

**AC-708.4.1 Cleanout plug trim covers. Trim covers and access doors for cleanout plugs shall be designed for such purposes and shall be approved. Trim cover fasteners that thread into cleanout plugs shall be corrosion resistant. Cleanout plugs shall not be covered with mortar, plaster or any other permanent material.**

**AC-708.4.2 Floor cleanout assemblies. Where it is necessary to protect a cleanout plug from the loads of vehicular traffic, cleanout assemblies in accordance with ASME Al 12.36.2M shall be installed.**

******

**AC-708.10 Installation arrangement**. **The installation arrangement of a cleanout shall enable cleaning of drainage piping only in the direction of drainage flow.**

**Exceptions:**

1. **Test tees serving as cleanouts.**
2. **A two-way cleanout installation that is approved for meeting the requirements of Section 708.3.5.3.**

**708.11 Prohibited use. The use of a threaded cleanout opening to add a fixture or to extend piping shall be prohibited except where another cleanout of equal size is installed with the required access and clearance.**

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## SECTION 712
## SUMPS AND EJECTORS

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**712.3 Sump design.** The sump pump, pit, and discharge piping shall conform to the requirements of Sections 712.3.1 through 712.3.5.

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**712.3.3 Discharge ~~piping~~ pipe and fittings.** Discharge pipe and fittings ~~shall be constructed of *approved* materials.~~ **serving sump pumps and ejectors shall be constructed of materials in accordance with Sections 712.3.3.1 and 712.3.3.2 and shall be approved.**

**712.3.3.1 Materials. Pipe and filling materials shall be constructed of brass, copper, CPVC, ductile iron, PE, or PVC.**

**712.3.3.2 Ratings. Pipe and fittings shall be rated for the maximum system operating pressure and tempera-ture. Pipe filling materials shall be compatible with the pipe material. Where pipe and fillings are buried in the earth, they shall be suitable for burial.**

******

**712.3.5 ~~Ejector~~ Pump connection to the drainage system.** Pumps connected to the drainage system shall connect to the *building sewer*, ***building drain*, soil *stack*, waste *stack*, or *horizontal branch drain*** ~~or shall connect to a wye fitting in the *building drain* at a minimum of 10 feet (3048 mm) from the base of any soil *stack*, waste *stack*, or *fixture drain*~~. Where the discharge line connects into horizontal drainage piping, the connector shall be made through a wye fitting into the top of the drainage piping **and such wye fitting shall be located not less that 10 pipe diameters from the base of any soil *stack*, waste *stack*, or *fixture drain***.

******

**712.4 Sewage pumps and sewage ejectors.** A sewage pump or sewage ejector shall automatically discharge the contents of the sump to the building drainage system.

**712.4.1 Macerating toilet systems.** Macerating toilet systems ~~shall comply with CSA B45.9 or ASME A112.3.4 and shall be installed in accordance with the manufacturer's installation instructions~~ **require a variance approval from the Administrative Authority before installation**.

******

**AC-712.5 Duplex pumping equipment**. **Sumps in other than one- and two-family resident receiving the discharge of six or more water closets shall be provided with duplex pumping equipment.**

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## SECTION 715
## BACKWATER VALVES

**715.1 Sewage backflow**. ~~Where the flood level rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, such fixtures shall be protected by a backwater valve installed in the building drain, branch of the building drain or horizontal branch serving such fixtures. Plumbing fixtures having flood level rims above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve~~. **Where plumbing fixtures are installed on a floor with a finished floor elevation below the elevation of the manhole cover of the next upstream manhole in the public sewer, such fixtures shall be protected by a backwater valve installed in the building drain, or horizontal branch serving such fixtures. Plumbing fixtures installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve.**

> **Exception: In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not be prohibited from discharging through a backwater valve.**

## SECTION 716
## [RESERVED]

## SECTION 717
## REPLACEMENT OF UNDERGROUND SEWERS BY PIPE-BURSTING METHODS

**717.1 General. This section shall govern the replacement of existing building sewer piping by pipe-bursting methods.**

**717.2 Applicability. The replacement of building sewer piping by pipe-bursting methods shall be limited to gravity drainage piping of sizes 6 inches (152 mm) and smaller. The replacement piping shall be of the same nominal size as the existing piping.**

**717.3 Pre-installation inspection. The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.**

**717.4 Pipe. The replacement piping shall be manufactured with a standard dimension ratio (SDR) of 17 and in compliance with ASTM F 714.**

**717.5 Pipe fittings. Pipe fittings to be connected to the replacement piping shall be of extra-high molecular weight PE3408 material and shall be manufactured with an SDR of 17 and in compliance with ASTM D 2683.**

**717.6 Cleanouts**. **Where the existing building sewer did not have cleanouts meeting the requirements of this code, clean- out fittings shall be installed as required by this code.**

**717.7 Post-installation inspection. The completed replacement piping section shall be inspected internally by a recorded video camera survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system.**

**717.8 Pressure testing. The replacement piping system as well as the connections to the replacement piping shall be tested in accordance with Section 312.**

# CHAPTER 8
# INDIRECT/SPECIAL WASTE

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## SECTION 802
## INDIRECT WASTE

**802.1 Where required.** Food-handling equipment**, in other than dwelling units,** ~~and~~ clear water waste**, dishwashing machines and utensils, pots, pans and dishwashing sinks** shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. All health-care related fixtures, devices, and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter and Section 713.3. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.

> **AC-802.1.1 Food handling.** Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect waste pipe by means of an air gap. **Each well of a multiple-compartment sink shall discharge independently to a waste receptor. Figure AC-802.1.1**

******

**802.2 Installation.** All indirect waste piping shall discharge through an *air gap* or *air break* into a waste receptor or standpipe. Waste receptors and standpipes shall be trapped and vented and shall connect to the building drainage system. All indirect waste piping that exceeds ~~2 feet (610 mm)~~ **30 inches (762 mm)** in *developed length* measured horizontally, or ~~4 feet (1219 mm)~~ **54 inches (1372 mm)** in total *developed length*, shall be trapped.

> **Exception: Where a waste receptor receives only clear- water waste and does not directly connect to a sanitary drainage system, the receptor shall not require a trap.**

******

# CHAPTER 9
# VENTS

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## SECTION AC-902
## MATERIAL

**AC-902.1 Material.** Vent pipe and fittings for the venting system shall comply with the provisions of ~~IPC~~ Section 702.

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## SECTION AC-905
## VENT TERMINAL

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**AC-905.2 Waterproof flashing.** ~~Each vent terminated shall be made watertight with the roof by proper flashing.~~ **The juncture of each vent pipe with the roof line shall be made water tight by an approved flashing.**

******

**AC-905.4. Location of vent terminal**. No vent terminal shall be located directly beneath any door, window, or other ventilating opening of the building or of an adjacent building, nor shall the vent terminal be within ten (10) feet horizontally of such an opening unless it is at least ~~two (2) feet~~ **three (3) feet (914 mm) or more** above the top of such opening. Vent terminals shall not terminate under the overhang of a building.

******

## SECTION AC-911
## VENTING REQUIREMENTS FOR FLOOR DRAINS AND SIMILAR FLOOR LEVEL CONNECTED FIXTURES

**AC-911.1 Floor drains and similar floor level connected fixtures above basement floor.** Floor drains above the basement floor shall have traps a minimum size of three (3) inches, except emergency floor drains in laundry rooms of single-family homes, in which two (2) inch traps may be used. These emergency floor drains shall be considered plumbing fixtures~~,~~ and shall be properly vented. Floor drains or showers with a trap size of three (3) or four (4) inches, upstream of water closets or similar fixtures, may be circuit or loop vented. When floor drains or showers are placed on a common horizontal branch with water closets or similar fixtures and located on the downstream side of such fixtures, they shall be individually vented, or they shall be isolated on their own waste branch, and circuit or loop vented. Loop or circuit vents shall be sized as provided in Table AC-901.1. They shall vent or take off in front of the last fixture connection, or

be washed out by the fixture they serve, or the vent may be washed out by a higher connected fixture. **Floor drains shall not be stack vented.**

******

## SECTION AC-921
## ISLAND FIXTURE VENTING

**AC-921.1 Limitation. Island fixture venting shall not be permitted for fixtures other than sinks and lavatories. Residential kitchen sinks with a dishwasher waste connection, a food waste disposer, or both, in combination with the kitchen sink waste, shall be permitted to be vented in accordance with this section.**

**AC-921.2 Vent connection. The island fixture vent shall connect to the *fixture drain* as required for an individual or common vent. The vent shall rise vertically to above the drainage outlet of the fixture being vented before offsetting horizontally or vertically downward. The vent or *branch vent* for multiple island fixture vents shall extend to a point no less than 6 inches (152 mm) above the highest island fixture being vented before connecting to the outside vent terminal.**

**AC-921.3 Vent installation below the fixture flood level rim. The vent located below the *flood level rim* of the fixture being vented shall be installed as required for drainage piping in accordance with Chapter 7, except for sizing. The vent shall be sized in accordance with Chapter 9 and Table AC-901.1. The lowest point of the island fixture vent shall connect full size to the drainage system. The connection shall be to a vertical drain pipe or to the top half of a horizontal drain pipe. Cleanouts shall be provided in the island fixture vent to permit rodding of all vent piping located below the *flood level rim* of the fixtures. Rodding in both directions shall be permitted through a cleanout.**

# CHAPTER 10
# TRAPS, INTERCEPTORS, AND SEPARATORS

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## SECTION 1003
## INTERCEPTORS AND SEPARATORS

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**1003.3 Grease interceptors.** Grease interceptors shall comply with the requirements of Sections 1003.3.1 through 1003.3.5.

**1003.3.1 Grease interceptors and automatic grease removal devices required.** A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food

preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, pre-rinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without pre-rinse sinks. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged.

**AC-1003.3.1.1 Grease interceptor location.** ~~Grease interceptors, where necessary or required, shall not be located in any kitchen or room where food is prepared, cooked, mixed, baked, smoked, preserved, exposed, bottled, packed, handled, stored, or manufactured. This provision need not apply where a semi-automatic draw-off type grease interceptor is provided.~~ **A variance must be approved by the Administrative Authority for all grease interceptors located in areas where food is prepared, cooked, baked, smoked, preserved, exposed, bottled, packed, handled, stored, or manufactured regardless of what type of grease interceptor is used.**

******

**1003.3.4 Hydromechanical ~~G~~grease interceptors, fats oils and greases disposal systems and automatic ~~-~~grease removal devices.** ~~Grease interceptors and automatic grease removal devices shall be sized in accordance with PDI G101, ASME A112.14.3, or ASME A112.14.4. Grease interceptors and automatic grease removal devices shall be designed and tested in accordance with PDI G101, ASME A112.14.3 or ASME A112.14.4. Grease interceptors and automatic grease removal devices shall be installed in accordance with the manufacturer's instructions.~~ **Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be sized in accordance with ASME All2.14.3, ASME 112.14.4, ASME A112.14.6, CSA B481.3 or PDI G101. Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be designed and tested in accordance with ASME A112.14.3, ASME 112.14.4, ICSA B481.l, PDI G101 or PDI G102. Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be installed in accordance with the manufacturer's instructions. Where manufacturer's instructions are not provided, hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be installed in compliance with ASME Al 12.14.3, ASME112.14.4, ASME Al 12.14.6, CSA B481.3 or PDI G 101.**

**AC-Exception:** Interceptors that have a volume of not less than ~~500 gallons (1893 L)~~ **1000 gallons (3786 L)** and that are located outdoors shall not be required to meet the requirements of this section.

**TABLE 1003.3.4.1**
**CAPACITY OF GREASE INTERCEPTORS[a]**

| TOTAL FLOW-THROUGH RATING (gpm) | GREASE RETENTION CAPACITY (pounds) |
|---|---|
| ~~4~~ | ~~8~~ |
| ~~6~~ | ~~12~~ |
| ~~7~~ | ~~14~~ |
| ~~9~~ | ~~18~~ |
| ~~10~~ | ~~20~~ |
| ~~12~~ | ~~24~~ |
| ~~14~~ | ~~28~~ |
| ~~15~~ | ~~30~~ |
| ~~18~~ | ~~36~~ |
| ~~20~~ | ~~40~~ |
| 25 | 50 |
| 35 | 70 |
| 50 | 100 |
| 75 | 150 |
| 100 | 200 |

For SI: 1 gallon per minute + 3.785 L/m, 1 pound + 0.454 kg.

a. For total flow-through ratings greater than 100 (gpm), double the flow-through rating to determine the grease retention capacity (pounds).

**AC-1003.3.4.1 Grease interceptor capacity**. Grease interceptors shall have the grease retention capacity indicated in Table 1003.3.4.1 for the flow-through rates indicated. **The minimum size grease interceptor at point of use inside a building is 25 gpm (95 L/m). The minimum size outside grease interceptor is 1000 gallons (3786 L).**

******

**1003.3.6 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems. The required capacity of gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. Gravity grease interceptors shall be designed and tested in accordance with IAPMO/ANSI Z1001. Gravity grease interceptors with fats, oils, and greases disposal systems shall be designed and tested in accordance with ASME A112.14.6 and IAPMO/ANSI Z1001. Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases dis-posal systems shall be installed in accordance with manu-facturer's instructions. Where manufacturer's instructions are not provided, gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI Z1001.**

**1003.3.7 Direct connection**. **The discharge piping from a grease interceptor shall be directly connected to the sanitary drainage system.**

**1003.4 Oil separators required**. ~~At repair garages, car washing facilities, at factories where oily and flammable liquid wastes are produced and in hydraulic elevator pits,~~ **At repair garages where floor or trench drains are provided, car washing facilities, factories where oily and flammable liquid wastes are produced and hydraulic elevator pits, oil** separators shall be installed into which all oil-bearing, grease bearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.

**Exception:** An oil separator is not required in hydraulic elevator pits where an approved alarm system is installed. **Such alarm systems shall not terminate the operation of pumps utilized to maintain emergency operation of the elevator by fire fighters.**

# CHAPTER 11
# STORM DRAINAGE

## SECTION 1101
## GENERAL

**1101.1 Scope.** The provisions of this chapter shall govern the materials, design, construction and installation of storm drainage.

**AC-1101.1.1 Rain fall rate in Allegheny County. Rain fall rates, in inches per hour, are based on a storm of one-hour duration and a 100-year return period. The rain fall rate in Allegheny County is four inches per hour or shall be determined by the Administrative Authority.**

**AC-1101.6 Fittings and connections**. All connections and changes in direction of the storm drainage system shall be made with *approved* drainage-type fittings **and material** in accordance with ~~Table 706.3.~~ **Section 702.** The fittings shall not obstruct or retard flow in the system.

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## SECTION 1102
## MATERIALS

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**TABLE 1102.4**
**BUILDING STORM SEWER PIPE**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| Asbestos-cement pipe **[REPEALED]** | ~~ASTM C 428~~ **[REPEALED]** |
| ****** | ****** |

******

**TABLE 1102.5**
**SUBSOIL DRAIN PIPE**

| MATERIAL | STANDARD |
|---|---|
| ****** | ****** |
| ~~Asbestos-cement pipe~~ **[REPEALED]** | ~~ASTM C508~~ **[REPEALED]** |
| ****** | ****** |

******

**SECTION 1105**
**ROOF DRAINS**

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**AC-1105.5 General. Roof drains shall be installed in accordance with the manufacture's instructions. The inside opening for the roof drain shall not be obstructed by the roofing membrane material.**

******

**SECTION AC-1107**
**SECONDARY (EMERGENCY) ROOF DRAINS**

**AC-1107.1 Secondary drainage required.** Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. **Where primary and secondary roof drains are manufactured as a single assembly, the inlet and outlet for each drain shall be independent.**

******

**SECTION AC-1108**
**COMBINED SANITARY AND STORM SYSTEM**

**AC-1108.1 Size of combined drains and sewers.** The size of a combination sanitary and storm drain or sewer shall be computed in accordance with the method in Section 1106.3. The fixture units shall be converted into an equivalent projected roof or paved area. Where the total fixture load on the combined drain is less than or equal to 256 fixture units, the equivalent drainage area in horizontal projection shall be taken as ~~4,000~~ **1000** square feet (~~372~~ **93** $m^2$). Where the total fixture load exceeds 256 fixture units, each additional fixture unit shall be considered the equivalent of ~~15.6~~ 3.9 square feet (~~1.5~~ **.362** $m^2$) of drainage area. These values are based on a rainfall rate of ~~1~~**4** inch**es** (~~25~~ **101.6** mm) per hour.

******

### SECTION AC-1109
### VALUES FOR CONTINUOUS FLOW

**AC-1109.1 Equivalent roof area.** Where there is a continuous or semi-continuous discharge into the building *storm drain* or building storm *sewer*, such as from a pump, ejector, air conditioning plant or similar device, each gallon per minute (~~L/m~~**gpm**) of such discharge shall be computed as being equivalent to ~~96~~ **24** square feet (~~9~~ **2.23** $m^2$) of roof area, based on a rainfall rate of ~~1~~ **4** inch**es** (~~25.4~~ **101.6** mm) per hour.

## CHAPTER 12
## SPECIAL PIPING AND STORAGE SYSTEMS

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### SECTION 1202
### MEDICAL GASES

**[F] 1202.1 Nonflamable medical gases.** Nonflamable medical gas systems, inhalation anesthetic systems, and vacuum piping systems shall be designed and installed in accordance with NFPA 99~~C~~.

******

### SECTION 1203
### OXYGEN SYSTEMS

**[F] 1203.1 Design and installation.** Nonmedical oxygen systems shall be designed and installed in accordance with NFPA ~~50~~55 and NFPA 51.

## CHAPTER 13
## ~~REFERENCED STANDARDS~~
## NONPOTABLE WATER SYSTEMS

## SECTION 1301
## GENERAL

**1301.1 Scope. The provisions of Chapter 13 shall govern the materials, design, construction and installation of systems for the collection, storage, treatment and distribution of nonpotable water. The use and application of nonpotable water shall comply with laws, rules and ordinances applicable in the jurisdiction.**

**1301.2 Water Quality. Nonpotable water for each end use application shall meet the minimum water quality requirements as established for the intended application by the laws, rules and ordinances applicable in the jurisdiction. Where nonpotable water from different sources is combined in a system, the system shall comply with the most stringent of the requirements of this code that are applicable to such sources.**

**1301.2.1 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 ppm (4mg/L) of chloramines or free chlorine when tested in accordance with ASTM D 1253. Where ozone is used for disinfection, the nonpotable water shall not contain gas bubbles having elevated levels of ozone at the point of use.**

**Exception: Reclaimed water sources shall not be required to comply with these requirements.**

**1301.2.2 Filtration Required. Nonpotable water utilized for water closet and urinal flushing applications shall be filtered by a 100-micron or finer filter.**

**Exception: Reclaimed water sources shall not be required to comply with these requirements.**

**1301.3 Signage Required. Nonpotable water outlets such as hose connections, open ended pipes and faucets shall be identified at the point of use for each outlet with signage that reads as follows: "Nonpotable water is utilized for [application name]. CAUTION: NONPOTABLE WATER – DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and in colors in contrast to the background on which they are applied. In addition to the required wordage, the pictograph shown in Figure 1301.3 shall appear on the signage required by this section.**

**FIGURE 1301.3 PICTOGRAPH – DO NOT DRINK**

**1301.4 Permits. Permits shall be required for the construction, installation, alteration and repair of nonpotable water systems. Construction documents, engineering calculations, diagrams and other such data pertaining to the nonpotable water system shall be submitted with each permit application.**

**1301.4.1 Recording. The existence of a nonpotable water system shall be recorded on the deed of ownership for the property. The certificate of occupancy shall not be issued until the documentation for the recording required under this section is completed by the property owner.**

**1301.5 Potable Water Connections. Where a potable water system is connected to a nonpotable water system, the potable water supply shall be protected against backflow by a reduced pressure backflow prevention assembly or an air gap installed in accordance with Section 608.**

**1301.6 Approved Components and Materials. Piping, plumbing components and materials used in collection and conveyance systems shall be manufactured of material approved for the intended application and compatible with any disinfection and treatment systems used.**

**1301.7 Insect and Vermin Control. The system shall be protected to prevent the entrance of insects and vermin into storage tanks and piping systems. Screen materials shall be compatible with contacting system components and shall not accelerate the corrosion of system components.**

**1301.8 Freeze Protection. Where sustained freezing temperatures occur, provisions shall be made to keep storage tanks and the related piping from freezing.**

**1301.9 Nonpotable Water Storage Tanks. Nonpotable water storage tanks shall comply with Sections 1301.9.1 through 1301.9.11.**

**1301.9.1 Sizing. The holding capacity of the storage tank shall be sized in accordance with the anticipated demand.**

**1301.9.2 Location. Storage tanks shall be installed above or below grade. Above-grade storage tanks shall be protected from direct sunlight and shall be constructed using opaque, UV-resistant materials such as, but not limited to, heavily tinted plastic, fiberglass, lined metal, concrete, wood, or painted to prevent algae growth, or shall have specially constructed sun barriers including, but not limited to, installation in garages, crawl spaces or sheds. Storage tanks and their manholes shall not be located directly under soil piping, waste piping or any source of contamination.**

**1301.9.3 Materials. Where collected on site, water shall be collected in an approved tank constructed of durable, nonabsorbent and corrosion-resistant materials. The storage tank shall be constructed of materials compatible with any disinfection systems used to treat water upstream of the tank and with any systems used to maintain water quality in the tank. Wooden storage tanks that are not equipped with a makeup water source shall be provided with a flexible liner.**

**1301.9.4 Foundation and Supports. Storage tanks shall be supported on a firm base capable of withstanding the weight of the storage tank when filled to capacity. Storage tanks shall be supported in accordance with the International Building Code.**

> **1301.9.4.1 Ballast. Where the soil can become saturated, an underground storage tank shall be ballasted, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the weight of the storage tank when full, consistent with the bearing capability of adjacent soil.**
>
> **1301.9.4.2 Structural Support. Where installed below grade, storage tank installations shall be designed to withstand earth and surface structural loads without damage and with minimal deformation when empty or filled with water.**

**1301.9.5 Makeup Water. Where an uninterrupted supply is required for the intended application, potable or reclaimed water shall be provided as a source of makeup water for the storage tank. The makeup water supply shall be protected against backflow by a reduced pressure backflow prevention assembly or an air gap installed in accordance with Section 608. A full-open valve located on the makeup water supply line to the storage tank shall be provided. Inlets to the storage tank shall be controlled by fill valves or other automatic supply valves installed to**

**prevent the tank from overflowing and to prevent the water level from dropping below a predetermined point. Where makeup water is provided, the water level shall not be permitted to drop below the source water inlet or the intake of any attached pump.**

**1301.9.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table 606.5.4. The overflow pipe shall be protected from insects or vermin and shall discharge in a manner consistent with storm water runoff requirements of the jurisdiction. The overflow pipe shall discharge at a sufficient distance from the tank to avoid damaging the tank foundation or the adjacent property. Drainage from overflow pipes shall be directed to prevent freezing on roof walkways. The overflow drain shall not be equipped with a shutoff valve. A cleanout shall be provided on each overflow pipe in accordance with Section 708.**

**1301.9.7 Access. Not less than one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an approved locking device or other approved method of securing access. Below-grade storage tanks, located outside of the building, shall be provided with a manhole either not less than 24 inches (610 mm) square or with an inside diameter not less than 24 inches (610 mm). Manholes shall extend not less than 4 inches (102 mm) above ground or shall be designed to prevent water infiltration. Finished grade shall be sloped away from the manhole to divert surface water. Manhole covers shall be secured to prevent unauthorized access. Service ports in manhole covers shall be not less than 8 inches (203 mm) in diameter and shall be not less than 4 inches (102 mm) above the finished grade level. The service port shall be secured to prevent unauthorized access.**

> **Exception: Storage tanks less than 800 gallons (3028 L) in volume and installed below grade shall not be required to be equipped with a manhole, but shall have a service port not less than 8 inches (203 mm) in diameter.**

**1301.9.8 Venting. Storage tanks shall be provided with a vent sized in accordance with Chapter 9 and based on the aggregate diameter of all tank influent pipes. The reservoir vent shall not be connected to sanitary drainage system vents. Vents shall be protected from contamination by means of an approved cap or U-bend installed with the opening directed downward. Vent outlets shall extend not less than 4 inches (102 mm) above grade or as necessary to prevent surface water from entering the storage tank. Vent openings shall be protected against the entrance of vermin and insects in accordance with the requirements of Section 1301.7.**

**1301.9.9 Draining of Tanks. Where tanks require draining for service or cleaning, tanks shall be drained by using a pump or by a drain located at the lowest point in the tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7. Not less than one cleanout shall be provided on each drain pipe in accordance with Section 708.**

**1301.9.10 Marking and Signage. Each nonpotable water storage tank shall be labeled with its rated capacity. The contents of storage tanks shall be identified with the words "CAUTION: NONPOTABLE WATER – DO NOT DRINK." Where an opening is provided that could allow the entry of personnel, the opening shall be marked with the words, "DANGER – CONFINED SPACE." Markings shall be indelibly printed on the tank or on a tag or sign constructed of corrosion-resistant waterproof material that is mounted on the tank. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and shall be of a color in contrast with the background on which they are applied.**

**1301.9.11 Storage Tank Tests. Storage tanks shall be tested in accordance with the following:**

**Storage tanks shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain water tight without leakage for a period of 24 hours.**

1. **After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and that there are no leaks.**

2. **The tank drain shall be observed for proper operation.**

3. **The makeup water system shall be observed for proper operation and successful automatic shutoff of the system at the refill threshold shall be verified.**

**1301.10 System Abandonment. If the owner of an on-site nonpotable water reuse system or rainwater collection and conveyance system elects to cease use of, or fails to properly maintain such system, the system shall be abandoned and shall comply with the following:**

1. **All system piping connecting to a utility-provided water system shall be removed or disabled.**

2. **The distribution piping system shall be replaced with an *approved* potable water supply piping system. Where an existing potable pipe system is already in place, the fixtures shall be connected to the existing system.**

3. **The storage tank shall be secured from accidental access by sealing or locking tank inlets and access points, or filling with sand or equivalent.**

**1301.11 Trenching Requirements for Nonpotable Water Piping. Nonpotable water collection and distribution piping and reclaimed water piping shall be separated from the building sewer and potable water piping underground by 5 feet (1524 mm) of undisturbed or compacted earth. Nonpotable water collection and distribution piping shall not be located in, under or above cesspools, septic tanks, septic tank drainage fields or seepage pits. Buried nonpotable water piping shall comply with the requirements of Section 306.**

**Exceptions:**

1. **The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the sewer is not less than 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials conform to Table 702.3.**

2. **The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is a minimum of 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table 605.4.**

3. **Nonpotable water pipe is permitted to be located in the same trench with a building sewer, provided that such sewer is constructed of materials that comply with the requirements of Table 702.2.**

4. **The required separation distance shall not apply where a nonpotable water pipe crosses a sewer pipe, provided that the pipe is sleeved to at least 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing, with pipe materials that comply with Table 702.2.**

5. **The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe, provided that the potable water service pipe is sleeved for a distance of at least 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing, with pipe materials that comply with Table 702.2.**

6. **Irrigation piping located outside of a building and downstream of the backflow preventer is not required to meet the trenching requirements where nonpotable water is used for outdoor applications.**

**1301.12 Outdoor Outlet Access. Sillcocks, hose bibbs, wall hydrants, yard hydrants and other outdoor outlets supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.**

## SECTION 1302
## ON-SITE NONPOTABLE WATER REUSE SYSTEMS

**1302.1 General. The provisions of Section 1302 shall govern the construction, installation, alteration and repair of on-site nonpotable water reuse systems for the collection, storage, treatment and distribution of on-site sources of nonpotable water as permitted by the jurisdiction.**

**1302.2 Sources. On-site nonpotable water reuse systems shall collect waste discharge from only the following sources: bathtubs, showers, lavatories, clothes washers and laundry trays. Water from other approved nonpotable sources including swimming pool backwash operations, air conditioner condensate, rainwater, cooling tower blow-down water, foundation drain water, steam system condensate, fluid cooler discharge water, food steamer discharge water, combination oven discharge water, industrial process water and fire pump test water shall also be permitted to be collected for reuse by on-site nonpotable water reuse systems, as approved by the code official and as appropriate for the intended application.**

> **1302.2.1 Prohibited Sources. Waste water containing urine or fecal matter shall not be diverted to on-site nonpotable water reuse systems and shall discharge to the sanitary drainage system of the building or premises in accordance with Chapter 7. Reverse osmosis system reject water, water softener discharge water, kitchen sink waste water, dishwasher waste water and waste water discharged from wet-hood scrubbers shall not be collected for reuse in an on-site nonpotable water reuse system.**

**1302.3 Traps. Traps serving fixtures and devices discharging waste water to on-site nonpotable water reuse systems shall comply with Section 1002.4.**

**1302.4 Collection Pipe. On-site nonpotable water reuse systems shall utilize drainage piping approved for use in plumbing drainage systems to collect and convey untreated water for reuse. Vent piping approved for use in plumbing venting systems shall be utilized for vents in the gray water system. Collection and vent piping materials shall comply with Section 702.**

> **1302.4.1 Installation. Collection piping conveying untreated water for reuse shall be installed in accordance with Section 704.**
>
> **1302.4.2 Joints. Collection piping conveying untreated water for reuse shall utilize joints *approved* for use with the distribution piping and appropriate for the intended applications as specified in Section 705.**

**1302.4.3 Size. Collection piping conveying untreated water for reuse shall be sized in accordance with drainage sizing requirements specified in Section 710.**

**1302.4.4 Labeling and Marking. Additional marking of collection piping conveying untreated water for reuse shall not be required beyond that required for sanitary drainage, waste and vent piping by Chapter 7.**

**1302.5 Filtration. Untreated water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.**

**1302.6 Disinfection and Treatment. Where the intended application for nonpotable water collected on site for reuse requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use. Nonpotable water collected on site containing untreated gray water shall be retained in collection reservoirs for a maximum of 24 hours.**

**1302.6.1 Gray Water Used for Fixture Flushing. Gray water used for flushing water closets and urinals shall be disinfected and treated by an on-site water reuse treatment system complying with NSF 350.**

**1302.7 Storage Tanks. Storage tanks utilized in on-site nonpotable water reuse systems shall comply with Sections 1301.9 and 1302.7.1 through 1302.7.3.**

**1302.7.1 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1302.7.1.**

**TABLE 1302.7.1**
**LOCATION OF NONPOTABLE WATER REUSE STORAGE TANKS**

| ELEMENT | MINIMUM HORIZONTAL DISTANCE FROM STORAGE TANK (feet) |
|---|---|
| Critical root zone (CRZ) of protected trees | 2 |
| Lot line adjoining private lots | 5 |
| Seepage pits | 5 |
| Septic tanks | 5 |
| Water wells | 50 |
| Streams and lakes | 50 |
| Water service | 5 |
| Public water main | 10 |

**For SI: 1 foot = 304.8 mm.**

**1302.7.2 Design and Construction. Storage tanks shall be designed and constructed in accordance with Chapters 16 through 22 of the *International Building Code* and in accordance with the following standards, as appropriate for the material of the storage tank: AWWA D100, AWWA D115, AWWA D120, UL 58, UL 1746, UL 1316, UL 142, API 12F or API 12D.**

**1302.7.3 Outlets. Outlets shall be located not less than 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.**

**1302.8 Valves. Valves shall be supplied on on-site nonpotable water reuse systems in accordance with Sections 1302.8.1 and 1302.8.2.**

**1302.8.1 Bypass Valve. One three-way diverter valve listed and labeled to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated on-site reuse sources to the sanitary *sewer* to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be marked to indicate the direction of flow, connection and storage tank or drainfield connection. Bypass valves shall be installed in accessible locations. Two shutoff valves shall not be installed to serve as a bypass valve.**

**1302.8.2 Backwater Valve. One or more backwater valves shall be installed on each overflow and tank drain pipe. Backwater valves shall be in accordance with Section 715.**

**1302.9 Pumping and Control System. Mechanical equipment including pumps, valves and filters shall be easily accessible and removable in order to perform repair, maintenance and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be appropriate for the application and in accordance with Section 604.**

**1302.10 Water Pressure-Reducing Valve or Regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the nonpotable water distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with Section 604.8.**

**1302.11 Distribution Pipe. Distribution piping utilized in on-site nonpotable water reuse systems shall comply with Sections 1302.11.1 through 1302.11.3.**

**Exception: Irrigation piping located outside of the building and downstream of a backflow preventer.**

**1302.11.1 Materials, Joints and Connections. Distribution piping shall conform to the standards and requirements specified in Section 605.**

**1302.11.2 Design. On-site nonpotable water reuse distribution piping systems shall be designed and sized in accordance with Section 604 for the intended application.**

**1302.11.3 Marking. On-site nonpotable water distribution piping labeling and marking shall comply with Section 608.8.**

**1302.12 Tests and Inspections. Tests and inspections shall be performed in accordance with Sections1302.12.1 through 1302.12.6.**

**1302.12.1 Collection Pipe and Vent Test. Drain, waste and vent piping used for on-site water reuse systems shall be tested in accordance with Section 312.**

**1302.12.2 Storage Tank Test. Storage tanks shall be tested in accordance with Section 1301.9.11.**

**1302.12.3 Water Supply System Test. The testing of makeup water supply piping and distribution piping shall be conducted in accordance with Section 312.5.**

**1302.12.4 Inspection and Testing of Backflow Prevention Assemblies. Testing of a backflow preventer shall be conducted in accordance with Section 312.10.**

**1302.12.5 Inspection of Vermin and Insect Protection. Inlets and vents to the system shall be inspected to verify that each is protected to prevent the entrance of insects and vermin into the storage tank and piping systems in accordance with Section 1301.7.**

**1302.12.6 Water Quality Test. The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction.**

**1302.13 Operation and Maintenance Manuals. Operation and maintenance materials shall be supplied with nonpotable on-site water reuse systems in accordance with Sections 1302.13.1 through 1302.13.4.**

**1302.13.1 Manual. A detailed operations and maintenance manual shall be supplied in hardcopy form with all systems.**

**1302.13.2 Schematics. The manual shall include a detailed system schematic, and the locations and a list of all system components, including manufacturer and model number.**

**1302.13.3 Maintenance Procedures. The manual shall provide a schedule and procedures for all system components requiring periodic maintenance. Consumable parts, including filters, shall be noted along with part numbers.**

**1302.13.4 Operations Procedures. The manual shall include system startup and shutdown procedures. The manual shall include detailed operating procedures for the system.**

## SECTION 1303
## NONPOTABLE RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS

**1303.1 General. The provisions of Section 1303 shall govern the construction, installation, alteration and repair of rainwater collection and conveyance systems for the collection, storage, treatment and distribution of rainwater for nonpotable applications, as permitted by the jurisdiction.**

**1303.2 Collection Surface. Rainwater shall be collected only from above-ground impervious roofing surfaces constructed from *approved* materials. Collection of water from vehicular parking or pedestrian surfaces shall be prohibited except where the water is used exclusively for landscape irrigation. Overflow and bleed-off pipes from roof-mounted appliances including, but not limited to, evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection surfaces.**

**1303.3 Debris Excluders. Downspouts and leaders shall be connected to a roof washer and shall be equipped with a debris excluder or equivalent device to prevent the contamination of collected rainwater with leaves, sticks, pine needles and similar material. Debris excluders and equivalent devices shall be self-cleaning.**

**1303.4 Roof Washer. A sufficient amount of rainwater shall be diverted at the beginning of each rain event, and not allowed to enter the storage tank, to wash accumulated debris from the collection surface. The amount of rainfall to be diverted shall be field adjustable as necessary to minimize storage tank water contamination. The roof washer shall not rely on manually operated valves or devices, and shall operate automatically. Diverted rainwater shall not be drained to the roof surface, and shall be discharged in a manner consistent with the storm water runoff requirements of the jurisdiction. Roof washers shall be accessible for maintenance and service.**

**1303.5 Roof Gutters and Downspouts. Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be water tight.**

**1303.5.1 Slope. Roof gutters, leaders and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than $^1/_8$ inch per foot (10.4 mm/m) along their entire length, and shall not permit the collection or pooling of water at any point.**

**Exception: Siphonic drainage systems installed in accordance with the manufacturer's instructions shall not be required to have a slope.**

**1303.5.2 Size. Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 and local rainfall rates.**

**1303.5.3 Cleanouts. Cleanouts shall be provided in the water conveyance system to allow *access* to all filters, flushes, pipes and downspouts.**

**1303.6 Drainage. Water drained from the roof washer or debris excluder shall not be drained to the sanitary sewer. Such water shall be diverted from the storage tank and discharge in a location that will not cause erosion or damage to property in accordance with the *International Building Code*. Roof washers and debris excluders shall be provided with an automatic means of self-draining between rain events, and shall not drain onto roof surfaces.**

**1303.7 Collection Pipe. Rainwater collection and conveyance systems shall utilize drainage piping approved for use within plumbing drainage systems to collect and convey captured rainwater. Vent piping approved for use within plumbing venting systems shall be utilized for vents within the rainwater system. Collection and vent piping materials shall comply with Section 702.**

**1303.7.1 Installation. Collection piping conveying captured rainwater shall be installed in accordance with Section 704.**

**1303.7.2 Joints. Collection piping conveying captured rainwater shall utilize joints approved for use with the distribution piping and appropriate for the intended applications as specified in Section 705.**

**1303.7.3 Size. Collection piping conveying captured rainwater shall be sized in accordance with drainage sizing requirements specified in Section 710.**

**1303.7.4 Marking. Additional marking of collection piping conveying captured rainwater for reuse shall not be required beyond that required for sanitary drainage, waste and vent piping by Chapter 7.**

**1303.8 Filtration. Collected rainwater shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves installed immediately upstream and downstream to allow for isolation during maintenance.**

**1303.9 Disinfection. Where the intended application for rainwater requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use. Where chlorine is used for disinfection or treatment, water shall be tested for residual chlorine in accordance with ASTM D 1253. The levels of residual chlorine shall not exceed that allowed for the intended use in accordance with the requirements of the jurisdiction.**

**1303.10 Storage Tanks. Storage tanks utilized in nonpotable rainwater collection and conveyance systems shall comply with Sections 1301.9 and 1303.10.1 through 1303.10.3.**

**1303.10.1 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.10.1.**

**TABLE 1303.10.1**
**LOCATION OF RAINWATER STORAGE TANKS**

| ELEMENT | MINIMUM HORIZONTAL DISTANCE FROM STORAGE TANK (FEET) |
|---|---|
| Critical root zone (CRZ) of protected trees | 2 |
| Lot line adjoining private lots | 5 |
| Seepage pits | 5 |
| Septic tanks | 5 |

**For SI: 1 foot = 304.8 mm.**

**1303.10.2 Inlets. Storage tank inlets shall be designed to introduce collected rainwater into the tank with minimum turbulence, and shall be located and designed to avoid agitating the contents of the storage tank.**

**1303.10.3 Outlets. Outlets shall be located at least 4 inches (102 mm) above the bottom of the storage tank and shall not skimwater from the surface.**

**1303.11 Valves. Valves shall be supplied on rainwater collection and conveyance systems in accordance with Section 1303.11.1.**

**1303.11.1 Backwater Valve. Backwater valves shall be installed on each overflow and tank drain pipe. Backwater valves shall be in accordance with Section 715.**

**1303.12 Pumping and Control System. Mechanical equipment including pumps, valves and filters shall be easily accessible and removable in order to perform repair, maintenance and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be appropriate for the application and in accordance with Section 604.**

**1303.13 Water Pressure-Reducing Valve or Regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the rainwater distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with Section 604.8.**

**1303.14 Distribution Pipe. Distribution piping utilized in rainwater collection and conveyance systems shall comply with Sections 1303.14.1 through 1303.14.3.**

**Exception: Irrigation piping located outside of the building and downstream of a backflow preventer.**

**1303.14.1 Materials, Joints and Connections. Distribution piping shall conform to the standards and requirements specified in Section 605 for nonpotable water.**

**1303.14.2 Design. Distribution piping systems shall be designed and sized in accordance with Section 604 for the intended application.**

**1303.14.3 Marking. Nonpotable rainwater distribution piping labeling and marking shall comply with Section 608.8.**

**1303.15 Tests and Inspections. Tests and inspections shall be performed in accordance with Sections 1303.15.1 through 1303.15.8.**

**1303.15.1 Roof Gutter Inspection and Test. Roof gutters shall be inspected to verify that the installation and slope is in accordance with Section 1303.5.1. Gutters shall be tested by pouring not less than 1 gallon (3.8 l) of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.**

**1303.15.2 Roofwasher Test. Roofwashers shall be tested by introducing water into the gutters. Proper diversion of the first quantity of water in accordance with the requirements of Section 1303.4 shall be verified.**

**1303.15.3 Collection Pipe and Vent Test. Drain, waste and vent piping used for rainwater collection and conveyance systems shall be tested in accordance with Section 312.**

**1303.15.4 Storage Tank Test. Storage tanks shall be tested in accordance with Section 1301.9.11.**

**1303.15.5 Water Supply System Test. The testing of makeup water supply piping and distribution piping shall be conducted in accordance with Section 312.5.**

**1303.15.6 Inspection and Testing of Backflow Prevention Assemblies. Testing of a backflow prevention assembly shall be conducted in accordance with Section 312.10.**

**1303.15.7 Inspection of Vermin and Insect Protection. Inlets and vents to the system shall be inspected to verify that each is protected to prevent the entrance of insects and vermin into the storage tank and piping systems in accordance with Section 1301.7.**

**1303.15.8 Water Quality Test. The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction. Except where site conditions as specified in ASTM E 2727 affect the rainwater, collected rainwater shall be considered to have the parameters indicated in Table 1303.15.8.**

**TABLE 1303.15.8**
**RAINWATER QUALITY**

| PARAMETER | VALUE |
|---|---|
| pH | 6.0-7.0 |
| BOD | Not greater than 10 mg/L |
| NTU | Not greater than 2 |
| Fecal coliform | No detectable fecal coli in 100 mL |
| Sodium | No detectable sodium in 100 mL |
| Chlorine | No detectable chlorine in 100 mL |
| Enteroviruses | No detectable enteroviruses in 100 mL |

**1303.16 Operation and Maintenance Manuals. Operation and maintenance manuals shall be supplied with rainwater collection and conveyance systems in accordance with Sections 1303.16.1 through 1303.16.4.**

**1303.16.1 Manual. A detailed operations and maintenance manual shall be supplied in hardcopy form with all systems.**

**1303.16.2 Schematics. The manual shall include a detailed system schematic, and locations and a list of all system components, including manufacturer and model number.**
**1303.16.3 Maintenance Procedures. The manual shall provide a maintenance schedule and procedures for all system components requiring periodic maintenance. Consumable parts, including filters, shall be noted along with part numbers.**

**1303.16.4 Operations Procedures. The manual shall include system startup and shutdown procedures, as well as detailed operating procedures.**

## SECTION 1304
## RECLAIMED WATER SYSTEMS

**1304.1 General. The provisions of this section shall govern the construction, installation, alteration and repair of systems supplying nonpotable reclaimed water.**

**1304.2 Water Pressure-Reducing Valve or Regulator. Where the reclaimed water pressure supplied to the building exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the reclaimed water distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with Section 604.8.**

**1304.3 Reclaimed Water Systems. The design of the reclaimed water systems shall conform to ASTM E 2635 and accepted engineering practice.**

**1304.3.1 Distribution Pipe. Distribution piping shall comply with Sections 1304.3.1.1 through 1304.3.1.3.**

**Exception: Irrigation piping located outside of the building and downstream of a backflow preventer.**

**1304.3.1.1 Materials, Joints and Connections. Distribution piping conveying reclaimed water shall conform to standards and requirements specified in Section 605 for nonpotable water.**

**1304.3.1.2 Design. Distribution piping systems shall be designed and sized in accordance with Section 604 for the intended application.**

**1304.3.1.3 Labeling and Marking. Nonpotable rainwater distribution piping labeling and marking shall comply with Section 608.8.**

**1304.4 Tests and Inspections. Tests and inspections shall be performed in accordance with Sections1304.4.1 and 1304.4.2.**

**1304.4.1 Water Supply System Test. The testing of makeup water supply piping and reclaimed water distribution piping shall be conducted in accordance with Section 312.5.**

**1304.4.2 Inspection and Testing of Backflow Prevention Assemblies. The testing of backflow preventers shall be conducted in accordance with Section 312.10.**

# CHAPTER AC-14
# REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date, and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.8.

**AHRI** — **Air-Conditioning, Heating, & Refrigeration Institute**
**4100 North Fair Fax Drive, Suite 200**
**Arlington VA 22203**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 1010 – 02 | Self-contained, Mechanically Refrigerated Drinking-Water Coolers | 410.1 |

# API

**American Petroleum Institute**
**1220 L Street NW**
**Washington, DC 20005-4070**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| **12D-2008** | **Specification for Field Welded Tanks for Storage of Production Liquids, effective April 1, 2009** | **1302.7.2** |
| **12F-2008** | **Specification for Shop Welded Tanks for Storage of Production Liquids, effective April l 2009** | **1302.7.2** |

# ANSI

**American National Standards Institute**
**25 West 43rd Street, Fourth Floor**
**New York, NY 10036**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| A118.10 – 99 | Specification for Load Bearing, Bonded, Waterproof Membranes for Thin Set Ceramic Tile and Dimension Stone Installation | 417.5.2.5 |
| Z4.3 – 95 | Minimum Requirements for Nonsewered Waste-disposal Systems | 311.1 |
| Z21.22 – 99 (R2003) | Relief Valves for Hot Water Supply Systems with Addenda Z21.22a-2000 (R2003) and Z21.22b-2001 (R2003) | 504.2, 504.4 |
| Z124.1 – 95 | Plastic Bathtub Units | 407.1 |
| Z124.2 – 95 | Plastic Shower Receptors and Shower Stalls | 417.1 |
| Z124.3 – 95 | Plastic Lavatories | 416.1, 416.2, 417.1 |
| Z124.4 – 96 | Plastic Water Closet Bowls and Tanks | 420.1 |
| Z124.6 – 97 | Plastic Sinks | 415.1, 418.1 |
| Z124.9 – 94 | Plastic Urinal Fixtures | 419.1 |

# ASME

**American Society of Mechanical Engineers**
**Three Park Avenue**
**New York, NY 10016-5990**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| A112.1.2 – 2004 | Air Gaps in Plumbing Systems | Table 608.1, 608.13.1 |
| A112.1.3 – 2000 Reaffirmed 2005 | | |

# ASME

**American Society of Mechanical Engineers**
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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | Air Gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances | Table 608.1, 608.13.1 |
| A112.3.1 – 2007 | Stainless Steel Drainage Systems for Sanitary, DWV, Storm, and Vacuum Appliances Above and Below Ground | 412.1, Table 702.1, Table 702.2, Table 702.3, Table 702.4, 708.2, Table 1102.4, Table 1102.5, 1102.6, Table 1102.7 |
| A112.3.4 – 2000 (Reaffirmed 2004) | Macerating Toilet Systems and Related Components | 712.4.1 |
| **A112.4 -14.6 – 2010** | **FOG (Fats, Oils and Greases) Disposal Systems** | **1003.3.6** |
| A112.4.1 – 1993 (R2002) | Water Heater Relief Valve Drain Tubes | 504.6 |
| **A112.4.2 - 2009** | **Water Closet Personal Hygiene Devices** | **424.9** |
| A112.4.3 – 1999 (Reaffirmed 2004) | Plastic Fittings for Connecting Water Closets to the Drainage System | 405.4 |
| A112.6.1M – 1997 (R2002) | Floor-affixed Supports for Off-the-floor Plumbing Fixtures for Public Use | 405.4.3 |
| A112.6.2 – 2000 (Reaffirmed 2004) | Framing-affixed Supports for Off-the-floor Water Closets with Concealed Tanks | 405.4.3 |
| A112.6.3 – 2001 (Reaffirmed 2007) | 2001 Floor and Trench Drains | 412.1 |
| A112.6.7 – 2001 (Reaffirmed 2007) | Enameled and Epoxy-coated Cast-iron and PVC Plastic Sanitary Floor Sinks | 427.1 |
| A112.14.1 – 2003 | Backwater Valves | 715.2 |
| A112.14.3 – 2000 | Grease Interceptors | 1003.3.4 |
| **A112.14.3 - 2000** | **Grease Interceptors** | **1003.3.4** |
| A112.14.4 – 2001 (Reaffirmed 2007) | Grease Removal Devices | 1003.3.4 |
| **A112.14.4 – 2001** | **Grease Removal Devices** | **1003.3.4** |
| A112.18.1 – 2005/ CSA B125.1 - 2005 | Plumbing Supply Fittings | 424.1, 424.2, 424.3, 607.4, 608.2 |
| A112.18.2 – 2005/ CSA B125.2 – 2005 | Plumbing Waste Fittings | 424.1.2 |

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**American Society of Mechanical Engineers**
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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| A112.18.3 – 2002 | Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings | 424.2, 424.6 |
| A112.18.6 – 2003 | Flexible Water Connectors | 605.6 |
| A112.18.7 – 1999 (Reaffirmed 2004) | Deck-mounted Bath/Shower Transfer Valves with Integral Backflow Protection | 424.8 |
| **A112.18.9 – 2011** | **Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures** | **404.3** |
| A112.19.1M – 2004 (Reaffirmed 2004) | Enameled Cast Iron Plumbing Fixtures | 407.1, 410.1, 415.1, 416.1, 418.1 |
| A112.19.2 – 2003 | Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals | 401.2, 405.9, 408.1, 410.1, 416.1, 418.1, 419.1, 420.1 |
| **A112.19.3 – 2008** | **Stainless Steel Plumbing Fixtures** | **405.9, 407.1, 415.1, 416 .1, 418.1, 420.1** |
| A112.19.3M – 2000 (Reaffirmed 2007) | Stainless Steel Plumbing Fixtures (Designed for Residential Use) | 405.9, 415.1, 416.1, 418.1 |
| **A112.19.14 – 2006 (R2011)** | **Six-Liter Water Closets Equipped with a Dual Flushing Device** | **420.1** |
| A112.19.4M – 1994 (Reaffirmed 2004) | Porcelain Enameled Formed Steel Plumbing Fixtures | 407.1, 416.1, 418.1 |
| A112.19.5 – 2005 | Trim for Water-closet Bowls, Tanks, and Urinals | 425.4 |
| A112.19.6 – 1995 | Hydraulic Performance Requirements for Water Closets and Urinals | 419.1, 420.1 |
| A112.19.7M – 2006 | Hydromassage Bathtub Appliances | 421.1 |
| A112.19.8M – 2007 | Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs | 421.1 |
| A112.19.9M – 1991 (R2002) | Nonvitreous ceramic Plumbing Fixtures with 2002 Supplement | 407.1, 408.1, 410.1, 415.1, 416.1, 417.1, 418.1, 420.1 |
| A112.19.12-2006 | Wall Mounted and Pedestal Mounted, Adjustable, Elevating, Tilting and Pivoting Lavatory, Sink and Shampoo Bowl Carrier Systems and Drain Systems | 416.4, 418.3 |
| A112.19.13—200 (Reaffirmed 2007) | Electrohydraulic Water Closets | 420.1 |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| A112.19.15-2005 | Bathtub/Whirlpool Bathtubs with Pressure Sealed Doors | 407.4, 421.5 |
| A112.19.19—2006 | Vitreous China Nonwater Urinals | 419.1 |
| A112.21.2M—1983 | Roof Drains | 1102.6 |
| **A112.21.3 – 1985 (R2007)** | **Hydrants for Utility and Maintenance Use** | **Table 608.1, 608.13.6** |
| A112.36.2M-1991(R2002) | Cleanouts | 708.2 |
| **A112.1016** | **Performance Requirements for Individual Thermostatic, Pressure Balancing and Combination Control Valves for Individual Fixture Fittings** | **424.3, 424.4, 607.4** |
| B1.20.1—1983(R2006) | Pipe Threads, General Purpose (inch) | 605.10.3, 605.12.3, 605.14.4, 605.16.3, 605.18.1, 705.2.3, 705.4.3, 705.9.4, 705.12.1, 705.14.3 |
| B16.3—2006 | Malleable Iron Threaded Fittings Classes 150 and 300 | Table 605.5, Table 702.4, Table 1102.7 |
| B16.4-2006 | Gray Iron Threaded Fittings Classes 125 and 250 | Table 605.5, Table 702.4, Table 1102.7 |
| B16.9-2003 | Factory-made Wrought Steel Buttwelding Fittings | Table 605.5, Table 702.4, Table 1102.7 |
| **B 16.29 – 2012** | **Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings (DWV)** | **Table 702.4, Table 1102.7** |
| B16.11-2005 | Forged Fittings, Socket-welding and Threaded | Table 605.5, Table 702.4, Table 1102.7 |
| B16.12—1998 (Reaffirmed 2006) | Cast-iron Threaded Drainage Fittings | Table 605.5, Table 702.4, Table 1102.7 |
| B16.15—2006 | Cast Bronze Threaded Fittings | Table 605.5, Table 702.4, Table 1102.7 |
| B16.18—2001 (Reaffirmed 2005) | Cast Copper Alloy Solder Joint Pressure Fittings | Table 605.5, Table 702.4, Table 1102.7 |
| B16.22—2001 (Reaffirmed 2005) | Wrought Copper and Copper Alloy Solder Joint Pressure Fittings | Table 605.5, Table 702.4, Table 1102.7 |
| B16.23—2002 (Reaffirmed 2006) | Cast Copper Alloy Solder Joint Drainage Fittings DWV | Table 605.5, Table 702.4, Table 1102.7 |
| B16.26—2006 | Cast Copper Alloy Fittings for Flared Copper Tubes. | Table 605.5, Table 702.4, Table 1102.7 |
| B16.28—1994 | Wrought Steel Buttwelding Short Radius Elbows and Returns | Table 605.5, Table 702.4, Table 1102.7 |
| B16.29—2001 | Wrought Copper and Wrought Copper Alloy | |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | Solder Joint Drainage Fittings (DWV) | Table 605.5, Table 702.4, Table 1102.7 |
| **B16.51 – 2011** | **Copper and Copper Alloy Press-Connect Pressure Fittings** | **Table 605.5** |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 1001-02 | Performance Requirements for Atmospheric Type Vacuum Breakers | 425.2, Table 608.1, 608.13.6, 608.16.4.1 |
| 1002-99 | Performance Requirements for Antisiphon Fill Valves (Ballcocks) for Gravity Water Closet Flush Tanks | 425 3.1, Table 608.1 |
| 1003-01 | Performance Requirements for Water Pressure Reducing Valves | 604.8 |
| 1004-90 | Performance Requirements for Backflow Prevention Requirements for Commercial Dishwashing Machines | 409.1 |
| 1005-99 | Performance Requirements for Water Heater Drain Valves | 501.3 |
| 1006-89 | Performance Requirements for Residential Use Dishwashers | 409.1 |
| 1007-92 | Performance Requirements for Home Laundry Equipment Performance Requirements for Home Laundry Equipment | 406.1, 406.2 |
| 1008-89 | Performance Requirements for Home Laundry Equipment | 413.1 |
| 1009-90 | Performance Requirements for Commercial Food Waste Grinder Units | 413.1 |
| 1010-04 | Performance Requirements for Water Hammer Arresters | 604.9 |
| 1011-04 | Performance Requirements for Hose Connection Vacuum Breakers | Table 608.1, 608.13.6 |
| 1012-02 | Performance Requirements for Backflow Preventers with Intermediate Atmospheric Vent | Table 608.1, 608 13.3, 608.16.2 |
| 1013-05 | Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Principle Backflow Preventers | Table 608.1, 608 13.3, 608.16.2 |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 1015-05 | Performance Requirements for Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies | Table 608.1, 608.13.7 |
| 1016-96 | Performance Requirements for Individual Thermostatic, Pressure Balancing and Combination Control Valves for Individual Fixture Fittings | 424.3, 424.4, 607.4, |
| 1017-03 | Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems | 501.2, 613.1 |
| 1018-01 | Performance Requirements for Trap Seal Primer Valves; Potable Water Supplied | 1002.4 |
| 1019-04 | Performance Requirements for Vacuum Breaker Wall Hydrants, Freeze Resistant, Automatic Draining Type | Table 608.1, 608.13.6 |
| 1020-04 | Performance Requirements for Pressure Vacuum Breaker Assembly | Table 608.1, 608.13.5 |
| 1022-03 | Performance Requirements for Backflow Preventer for Beverage Dispensing Equipment | Table 608.1, 608.16.1, 608.16.10 |
| 1024-04 | Performance Requirements for Dual Check Valve Type Backflow Preventers (for Residential Supply Service or Individual Outlets) | 605.3.1, Table 608.1 |
| 1035-02 | Performance Requirements for Laboratory Faucet Backflow Preventers | Table 608.1, 608.13.6 |
| 1037-90 | Performance Requirements for Pressurized Flushing Devices for Plumbing Fixtures | 452.2 |
| 1044-01 | Performance Requirements for Trap Seal Primer Devices Drainage Types and Electronic Design Types | 1002.4 |
| 1047-05 | Performance Requirements for Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies | Table 608.1, 608.13.2 |
| 1048-05 | Performance Requirements for Double Check Detector Fire Protection Backflow Prevention Assemblies | Table 608.1, 608.13.7 |
| 1050-02 | Performance Requirements for Stack Air Admittance Valves for Sanitary Drainage Systems | 917.1 |
| 1051-02 | Performance Requirements for Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems-fixture and Branch Devices | 917.1 |
| 1052-04 | Performance Requirements for Hose Connection Backflow Preventers | Table 608.1, 608.13.6 |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 1055-97 | Performance Requirements for Chemical Dispensing Systems | 608.13.9 |
| 1056-01 | Performance Requirements for Spill Resistant Vacuum Breaker | Table 608.1, 608.13.5, 608.13.8 |
| 1060-96 | Performance Requirements for Outdoor Enclosures for Backflow Prevention Assemblies | 608.14.1 |
| 1061-06 | Performance Requirements for Removable and Nonremovable Push Fit Fittings | Table 605.5 |
| 1062-97 | Performance Requirements for Temperature Actuated, Flow Reduction Valves to Individual Fixture Fittings | 424.7 |
| 1066-97 | Performance Requirements for Individual Pressure Balancing In-line Valves for Individual Fixture Fittings | 604.11 |
| 1069-05 | Performance Requirements for Automatic Temperature Control Mixing Valves | 424.4 |
| 1070-04 | Performance Requirements for Water-temperature Limiting Devices | 408.3, 416.5, 424.5, 607.1 |
| 1079-2005 | Dielectric Pipe Unions | 605.24.1, 605.24.3 |
| 5013-98 | Performance Requirements for Testing Reduced Pressure Principle Backflow Prevention Assembly (RPA) and Reduced Pressure Fire Protection Principle Backflow Preventers (RFP) | 312.10.2 |
| 5015-98 | Performance Requirements for Testing Double Check Valve Backflow Prevention Assembly (DCVA) | 312.10.2 |
| 5020-98 | Performance Requirements for Testing Pressure Vacuum Breaker Assembly (PVBA) | 312.10.2 |
| 5047-98 | Performance Requirements for Testing Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies (RPDA) | 312.10.2 |
| 5048-98 | Performance Requirements for Testing Double Check Valve Detector Assembly (DCDA) | 312.10.2 |
| 5052-98 | Performance Requirements for Testing Hose Connection Backflow Preventers | 312.10.2 |
| 5056-98 | Performance Requirements for Testing Spill Resistant Vacuum Breaker | 312.10.2 |
| A53/A53M-06a | Specification for Pipe, Steel, Black and Hot-dipped, Zinc-coated Welded and Seamless | Table 605.3, Table 605.4, Table 702.1 |
| A74-06 | Specification for Cast-iron Soil Pipe and Fittings | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 708.2, 708.7, Table 1102.4, Table 1102.5, Table 1102.7 |
| A312-A312M-06 | Specification for Seamless and Welded | |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | Austenitic Stainless Steel Pipes | Table 605.3, Table 605.4, Table 605.5, 605.23.2 |
| A733-03 | Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples | Table 605.8 |
| A778-01 | Specification for Welded Unannealed Austenitic Stainless Steel Tubular Products | Table 605.3, Table 605.4, Table 605.5 |
| A888-07a | Specification for Hubless Cast-iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Application | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 708.7, Table 1102.4, Table 1102.5, Table 1102.7 |
| B32-04 | Specification for Solder Metal | 605.14.3, 605.15.4, 705.9.3, 705.10.3 |
| B42-02e01 | Specification for Seamless Copper Pipe, Standard Sizes | Table 605.3, Table 605.4, Table 702.1 |
| B43-98(2004) | Specification for Seamless Red Brass Pipe, Standard Sizes | Table 605.3, Table 605.4, Table 702.1 |
| B75-02 | Specification for Seamless Copper Tube | Table 605.3, Table 605.4, Table 702.1, Table 702.2, Table 702.3, Table 1102.4 |
| B88-03 | Specification for Seamless Copper Water Tube | Table 605.3, Table 605.4, Table 702.1, Table 702.2, Table 702.3, Table 1102.4 |
| B152/B 152M-06a | Specification for Copper Sheet, Strip Plate and Rolled Bar | 402.3, 417.5.2.4, 425.3.3, 902.2 |
| B251-02e01 | Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube | Table 605.3, Table 605.4, Table 702.1, Table 702.2, Table 702.3, Table 1102.4 |
| B302-02 | Specification for Threadless Copper Pipe, Standard Sizes | Table 605.3, Table 605.4, Table 702.1 |
| B306-02 | Specification for Copper Drainage Tube (DWV) | Table 702.1, Table 702.2, Table 1102.4 |
| B447-07 | Specification for Welded Copper Tube | Table 605.3, Table 605.4 |
| B687-99 (2005)e01 | Specification for Brass, Copper and Chromium-plated Pipe Nipples | Table 605.8 |
| B813-00e01 | Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube | 605.14.3, 605.15.4, 705.9.3, 705.10.3 |
| B828-02 | Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube | |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | and Fittings | 605.14.3, 605.15.4, 705.9.3, 705.10.3 |
| C4-04e01 | Specification for Clay Drain Tile and Perforated Clay Drain Tile | Table 702.3, Table 1102.4, Table 1102.5 |
| C14-07 | Specification for Nonreinforced Concrete Sewer, Storm Drain and Culvert Pipe | Table 702.3, Table 1102.4 |
| C76-07 | Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe | Table 702.3, Table 1102.4 |
| C296-(2004)e01 | Specification for Asbestos-cement Pressure Pipe | Table 605.3 |
| C425-04 | Specification for Compression Joints for Vitrified Clay Pipe and Fittings | 705.15, 705.19 |
| C428-97(2006) | Specification for Asbestos-cement Nonpressure Sewer Pipe | Table 702.2, Table 702.3, Table 702.4, Table 1102.4 |
| C443-05a | Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets | 705.6, 705.19 |
| C508-00(2004) | Specification for Asbestos-cement Underdrain Pipe | Table 1102.5 |
| C564-04a | Specification for Rubber Gaskets for Cast-iron Soil Pipe and Fittings | 705.5.2, 705.5.3, 705.19, Table 1102.4 |
| C700-07 | Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated | Table 702.3, 702.4, Table 1102.4, Table 1102.5 |
| C1053-00(2005) | Specification for Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications | Table 702.1, Table 702.4 |
| C1173-06 | Specification for Flexible Transition Couplings for Underground Piping System | 705.2.1, 705.7.1, 705.14.1, 705.15, 705.16.1, 705.19 |
| C1277-06 | Specification for Shielded Coupling Joining Hubless Cast-iron Soil Pipe and Fittings | 705.5.3 |
| C1440-03 | Specification for Thermoplastic Elastomeric (TPE) Gasket Materials for Drain, Waste, and Vent (DWV), Sewer, Sanitary and Storm Plumbing Systems | 705.19 |
| C1460-04 | Specification for Shielded Transition Couplings for Use with Dissimilar DWV Pipe and Fittings Above Ground | 705.19 |
| C1461-06 | Specification for Mechanical Couplings Using Thermoplastic Elastomeric (TPE) Gaskets for Joining Drain, Waste and Vent (DWV) Sewer, Sanitary and Storm Plumbing Systems for Above and Below Ground Use | 705.19 |
| C1540-04 | Specification for Heavy Duty Shielded Couplings Joining Hubless Cast-iron Soil Pipe and Fittings | 705.5.53 |

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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| C1563-04 | Standard Test Method for Gaskets for Use in Connection with Hub and Spigot Cast Iron Soil Pipe and Fittings for Sanitary Drain, Waste, Vent and Storm Piping Applications | 705.5.2 |
| D1527-99(2005) | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80 | Table 605.3 |
| D1785-06 | Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120 | Table 605.3 |
| D1869-95(2005) | Specification for Rubber Rings for Asbestos-cement Pipe | Table 605.3 |
| D2235-04 | Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings | Table 605.3 |
| D2239-03 | Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter | 605.11, 605.24, 705.3, 705.19 |
| D2241-05 | Specification for Poly (Vinyl Chloride) (PVC) Pressure-rated Pipe (SDR-Series) | 605.10.2, 705.2.2, 705.7.2 |
| D2282-(2005)99e01 | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR) | Table 605.3 |
| D2464-06 | Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 | Table 605.3 |
| D2466-06 | Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40 | Table 605.3 |
| D2467-06 | Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 | Table 605.5, Table 1102.7 |
| D2468-96a | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 40 | Table 605.5, Table 1102.7 |
| D2564-04e01 | Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems | Table 605.5, Table 1102.7 |
| D2609-02 | Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe | 605.21.2, 705.8.2, 705.14.1 |
| D2657-07 | Practice for Heat Fusion-joining of Polyolefin Pipe and Fitting | Table 605.5, Table 1102.7 |
| D2661-06 | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings | 605.19.2, 705.16.1 |
| D2665-07 | Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 705.2.2, 705.7.2, Table 1102.4, Table 1102.7 |
| D2672-96a(2003) | Specification for Joints for IPS PVC Pipe Using Solvent Cement | Table 605.3 |

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**American Society of Sanitary Engineering**
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| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| D2683-04 | Standard Specification for Socket-type Polyethylene fittings for Outside Diameter-controlled Polyethylene Pipe and Tubing | Table 605.5 |
| D2729-04e01 | Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings | Table 1102.5 |
| D2737-03 | Specification for Polyethylene (PE) Plastic Tubing | Table 605.3 |
| D2751-05 | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings | Table 702.3, Table 702.4, Table 1102.7 |
| D2846-D2846M-066 | Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot and Cold Water Distribution Systems | Table 605.3, Table 605.4, Table 605.5, 605.16.2 |
| D2855-96(2002) | Standard Practice for Making Solvent-cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings | 605.22.2, 705.8.2, 705.14.2 |
| D2949-01ae01 | Specification for 3.25-in Outside Diameter Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings | Table 702.1, Table 702.2, Table 702.3, Table 702.4 |
| D3034-06 | Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings | Table 702.3, Table 702.4, Table 1102.7, Table 1102.4 |
| D3035-03 | Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter | Table 605.3 |
| D3139-98(2005) | Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals | 605.10.1, 605.22.1 |
| D3212-96a(2003)e01 | Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals | 705.2.1, 705.8.1, 705.14.1, 705.16.2 |
| D3261-03 | Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing | Table 605. |
| D3311-06a | Specification for Drain, Waste and Vent (DWV) Plastic Fittings Patterns | Table 1102.7 |
| D4068-01 | Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-containment Membrane | 417.5.2.2 |
| D4551-96(2001) | Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-containment Membrane | 417.5.2.1 |
| F405-05 | Specification for Corrugated Polyethylene (PE) Tubing and Fittings | Table 1102.5 |
| F409-02 | Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings | 424.1.2, Table 1102.7 |

# ASSE

**American Society of Sanitary Engineering**
**901 Canterbury Road, Suite A**
**Westlake, OH 44145**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| F437-06 | Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80 | Table 605.5 |
| F438-04 | Specification for Socket-type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40 | Table 605.5 |
| F439-06 | Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80 | Table 605.5 |
| F441/F441M-02 | Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80 | Table 605.3, Table 605.4 |
| F442/F442M-99(2005) | Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR) | Table 605.3, Table 605.4 |
| F447-07 | Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe | 605.24, 705.19 |
| F493-04 | Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings | 605.16.2 |
| F628-06e01 | Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 705.2.2, 705.7.2, Table 1102.4, Table 1102.7 |
| F656-02 | Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings | 605.22.2, 705.8.2, 705.14.2 |
| F714-06a | Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter | Table 702.3 |
| F876-06 | Specification for Cross-linked Polyethylene (PEX) Tubing | Table 605.3, Table 605.4 |
| F877-07 | Specification for Cross-linked Polyethylene (PEX) Plastic Hot and Cold Water Distribution Systems | Table 605.3, Table 605.4, Table 605.5 |
| F891-04 | Specification for Coextruded Poly (Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core | Table 702.1, Table 702.2, Table 702.3, Table 1102.4, Table 1102.5, Table 1102.7 |
| F1055-98(2006) | Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing | Table 605.5 |
| F1281-07 | Specification for Cross-linked Polyethylene/Aluminum/ Cross-linked Polyethylene (PEX-AL-PEX) Pressure Pipe | Table 605.3, Table 605.4, Table 605.5, 605.21.1 |
| F1282-06 | Specification for | |

# ASSE

**American Society of Sanitary Engineering**
**901 Canterbury Road, Suite A**
**Westlake, OH 44145**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe | Table 605.3, Table 605.4, Table 605.5, 605.21.1 |
| F1412-01e01 | Specification for Polyolefin Pipe and Fittings for Corrosive Waste Drainage | Table 702.1, Table 702.2, Table 702.4, 705.17.1 |
| F1488-03 | Specification for Coextruded Composite Pipe | Table 702.1, Table 702.2, Table 702.3 |
| F1673-04 | Polyvinylidene Fluoride (PVDF) Corrosive Waste Drainage Systems | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 705.18.1 |
| F1807-07 | Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing | Table 605.5 |
| F1866-07 | Specification for Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings | Table 702.4, Table 1102.7 |
| F1960-07 | Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing | Table 605.5 |
| F1974-04 | Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene Composite Pressure Pipe | Table 605.5, 605.21.1 |
| F1986-01(2006) | Specification for Multilayer Pipe, Type 2, Compression Fittings and Compression Joints for Hot and Cold Drinking Water Systems | Table 605.3, Table 605.4, Table 605.5 |
| F2080-05 | Specifications for Cold-expansion Fittings with Metal Compression-sleeves for Cross-linked Polyethylene (PEX) Pipe | Table 605.5 |
| F2098-04e01 | Standard specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing to Metal Insert Fittings | Table 605.5 |
| F2159-05 | Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing | Table 605.5 |
| F2262-05 | Specification for Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene Tubing OD Controlled SDR9 | Table 605.3, Table 605.4 |
| F2306/F2306M-05 | 12" to 60" Annular Corrugated Profile-wall Polyethylene (PE) Pipe and Fittings for Gravity Flow Storm Sewer and Subsurface Drainage Applications | Table 1102.4, Table 1102.7 |

# ASSE

**American Society of Sanitary Engineering**
**901 Canterbury Road, Suite A**
**Westlake, OH 44145**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| F2389-06 | Specification for Pressure-rated Polypropylene (PP) Piping Systems | Table 605.3, Table 605.4, Table 605.5, 605.20.1 |
| F2434-05 | Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Cross-linked Polyethylene/ Aluminum/Cross-linked Polyethylene (PEX AL-PEX) Tubing | Table 605.5 |

# ASTM

**ASTM International**
**100 Barr Harbor Drive**
**West Conshohocken, PA 19428 – 2959**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| **D 1253 – 08** | **Standard Test Method for Residual Chlorine in Water** | **1301.2.1, 1303.9** |
| **E 2727 – 10** | **Standard Practice for the Assessment of Rainwater Quality** | **1302.8.1** |
| **F 1476 – 07** | **Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications** | **Table 605.5, 605.23.3** |
| **F 1548 – 01 (2006)** | **Standard Specification for the Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications** | **Table 605.5** |
| **F 2735 – 09** | **Standard Specification for Plastic Insert Fittings for SDR9 Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing** | **Table 605.5** |
| **F 2855 – 11** | **Specification Poly (Vinyl Chloride)/Aluminum/Poly (Vinyl Chloride) (CPVC/AL/CPVC) Composite Pressure Tubing** | **Table 605.3, Table 605.4** |

# AWS

**American Welding Society**
**550 N.W. LeJeune Road**
**Miami, FL 33126**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| A5.8-04 | Specifications for Filler Metals for Brazing and Braze Welding | 605.12.1, 605.14.1, 605.15.1, 705.4.1, 705.9.1, 705.10.1 |

# AWWA

**American Water Works Association**
**6666 West Quincy Avenue**
**Denver, CO 80235**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| C104-98 | Standard for Cement-mortar Lining for Ductile-iron Pipe and Fittings for Water | 605.3, 605.5 |
| **C104/A21.4 – 08** | **Cement-mortar Lining for Ductile-iron Pipe and Fittings for Water** | **605.3, 605.5** |
| C110-A21.10-03 | Standard for Ductile-iron and Gray-iron Fittings, 3 Inches through 48 Inches, for Water | Table 605.5, Table 702.4, Table 1102.7 |
| C111-00 | Standard for Rubber-gasket Joints for Ductile-iron Pressure Pipe and Fittings | 605.13 |
| C115/A21.15-99 | Standard for Flanged Ductile-iron Pipe with Ductile-iron or Gray-iron Threaded Flanges | Table 605.3, Table 605.4 |
| C151/A21.51-02 | Standard for Ductile-iron Pipe, Centrifugally Cast for Water | Table 605.3, Table 605.4 |
| C153-00/A21.53-00 | Standard for Ductile-iron Compact Fittings for Water Service | Table 605.5 |
| C510-00 | Double Check Valve Backflow Prevention Assembly | Table 608.1, 608.13.7 |
| C511-00 | Reduced-pressure Principle Backflow Prevention Assembly | Table 608.1, 608.13.2, 608.16.2 |
| C651-99 | Disinfecting Water Mains | 610.1 |
| C652-02 | Disinfection of Water-storage Facilities | 610.1 |
| **C901 – 08** | **Polyethylene (PE) Pressure Pipe and Tubing ½ inch (13 mm) Through 3 inch (76 mm) for Water Service** | **Table 605** |
| **C904 – 08** | **Cross-linked Polyethylene (PEX) Pressure Pipe ½ inch (13 mm) Through 3 inch (76 mm) for Water Service** | **Table 605.3** |
| **D100 – 05** | **Standard for Welded Carbon Steel Tanks for Water Storage** | **1302.7.2** |
| **D115 – 06** | **Standard for Tendon Prestressed-Concrete Water Tanks** | **1302.7.2** |
| **D 120 – 09** | **Standard for Thermosetting Fiberglass-Reinforced Plastic Tanks** | **1302.7.2** |

# CISPI

**Cast Iron Soil Pipe Institute**
**5959 Shallowford Road, Suite 419**
**Chattanooga, TN 37421**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 301-04a | Specification for Hubless Cast-iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 708.7, Table 1102.4, Table 1102.5, Table 1102.7 |
| 310-04 | Specification for Coupling for Use in Connection with Hubless Cast-iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications | 705.5.3 |

# CSA

**Canadian Standards Association**
**5060 Spectrum Way**
**Mississauga, Canada L4W 5N6**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| B45.1-02 | Ceramic Plumbing Fixtures | 408.1, 416.1, 418.1, 419.1, 420.1 |
| B45.2-02 | Enameled Cast-iron Plumbing Fixtures | 407.1, 415.1, 416.1, 418.1 |
| B45.3-02 | Porcelain Enameled Steel Plumbing Fixtures | 407.1, 416.1, 418.1 |
| B45.4-02 | Stainless-steel Plumbing Fixtures | 415.1, 416.1, 418.1, 420.1 |
| B45.5-02 | Plastic Plumbing Fixtures | 407.1, 416.2, 417.1, 419.1, 420.1, 421.1 |
| B45.9-99 | Macerating Systems and Related Components | 712.4.1 |
| **B 45.15 –2011** | **Flush Valves and Spuds for Water Closets, Urinals and Tanks** | **425.4** |
| **B 45.5 – 11** | **Plastic Plumbing Fixtures** | **407. 1, 415.1, 416.1, 416.2, 417.1, 419. 1, 420. 1** |
| **B 125.16 – 2011** | **Performance Requirements for Individual Thermostatic, Pressure Balancing and Combination Control Valves for Individual Fixture Fittings** | **424.3, 424.4, 607.4** |
| **B 64.1 – 11** | **Vacuum Breakers, Atmospheric Type (AVB)** | **425.2, Table 608.1, 608.13.6, 608.16.4.1** |
| B64.1.2-01 | Vacuum Breakers, Pressure Type (PVB) | Table 608.1, 608.13.5 |
| **B 64.1.2 – 11** | **Pressure Vacuum Breakers, (PVB)** | **Table 608.1, 608.13.5** |
| B64.2.1-01 | Vacuum Breakers, Hose Connection Type (HCVB) with Manual Draining Feature | Table 608.1, 608.13.6 |
| **B 64.2.1 – 11** | **Vacuum Breakers, Hose Connection Type** | **Table 608.1, 608.13** |

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | **(HCVB)** | |
| B64.2.1.1-01 | Vacuum Breakers, Hose Connection Dual Check Type (HCDVB) | Table 608.1, 608.13.6 |
| **B 64.2.2 – 11** | **Vacuum Breakers, Hose Connection Type (HCVB) with Automatic Draining Feature** | **Table 608.1, 608.13.6** |
| **B 64.3 – 11** | **Backflow Preventers, Dual Check Valve Type with Atmospheric Port (DCAP)** | **Table 608. I, 608.13.3, 608.16.2** |
| **B 64.4 – 11** | **Backflow Preventers, Reduced Pressure Principle Type (RP)** | **Table 608.1, 608.13.2, 608.16.2** |
| B64.4.1-01 | Backflow Preventers, Reduced Pressure Principle Type for Fire Sprinklers (RPF) | Table 608.1, 608.13.2 |
| B64.5-01 | Backflow Preventers, Double Check Type (DCVA) | Table 608.1, 608.13.7 |
| B64.5.1-01 | Backflow Preventers, Double Check Type for Fire Systems (DCVAF) | Table 608.1, 608.13.7 |
| B64.6-01 | Backflow Preventers, Dual Check Valve Type (DuC) | 605.3.1, Table 608.1 |
| B64.7-94 | Vacuum Breakers, Laboratory Faucet Type (LFVB) | Table 608.1, 608.13.6 |
| B64.10/B64.10.1-01 | Manual for the Selection and Installation of Backflow Prevention Devices/Manual for the Maintenance and Field Testing of Backflow Prevention Devices | 312.10.2 |
| B7994(2000) | Floor, Area and Shower Drains, and Cleanouts for Residential Construction | 412.1 |
| B125-01 | Plumbing Fixtures | 424.4, 424.6, 425.4 |
| B125.1/ASME A112.18.1-05 | Plumbing Supply Fittings | 424.1, 424.2, 424.3, 607.4, 608.2 |
| B125.2/ASME A112.18.2-05 | Plumbing Waste Fittings | 424.1.2 |
| B125.3-2005 | Plumbing Fittings | 416.5, 424.5, 425.3.1, Table 608.1 |
| B137.1-02 | Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services | Table 605.3 |
| B137.2-02 | PVC Injection-moulded Gasketed Fittings for Pressure Applications | Table 605.5, Table 1102.7 |
| B137.3-02 | Rigid Poly (Vinyl Chloride) (PVC) Pipe for Pressure Applications | Table 605.3, Table 605.4, Table 605.5, 605.22.2, 705.82, 705.14.2 |
| B137.5-02 | Cross-linked Polyethylene (PEX) Tubing Systems for Pressure Applications—with Revisions through September 1992 | Table 605.3, Table 605.4, Table 605.5 |
| B137.6-02 | CPVC Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems—with Revisions through May 1986 | Table 605.3, Table 605.4 |
| **B 137.9 – 13** | **Polyethylene/ Aluminum/ Polyethylene Composite Pressure Pipe Systems** | **Table 605.3, Table 605.5, 605.21.1** |
| **B 137.10 – 11** | **Cross-linked Polyethylene/Aluminum/ Polyethylene Composite Pressure Pipe Systems** | |

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| | | **Table 605.3, Table 605.4, Table 605.5, 605.21** |
| B137.11-02 | Polypropylene (PP-R) Pipe and Fittings for Pressure Applications | Table 605.3, Table 605.4, Table 605.5 |
| B181.1-02 | ABS Drain, Waste and Vent Pipe and Pipe Fittings | Table 702.1, Table 702.2, Table 702.3, Table 702.4, 705.2.2, 705.7.2, 715.2, Table 1102.4, Table 1102.7 |
| B181.2-02 | PVC Drain, Waste, and Vent Pipe and Pipe Fittings— with Revisions through December 1993 | Table 702.1, Table 702.2, 705.8.2, 705.14.2, 715.2 |
| **B 181.3 – 11** | **Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems** | **Table 702.1, Table 702.2, Table 702.3, Table 702.4** |
| B182.1-02 | Plastic Drain and Sewer Pipe and Pipe Fittings | 705.8.2, 705.14.2, Table 1102.4 |
| B182.4-02 | PVC Sewer Pipe and Fittings (PSM Type) | Table 702.3, Table 1102.4, Table 1102.5 |
| B182.6-02 | Profile PVC Sewer Pipe and Fittings | Table 702.3, Table 1102.4, Table 1102.5 |
| B182.8-02 | Profile Polyethylene Sewer Pipe and Fittings for Leak-proof Sewer Applications | Table 1102.5 |
| **B 182.8 – 11** | **Profile Polyethylene (PE) Storm Sewer and Drainage Pipe and Fittings** | **Table 1102.5** |
| **B 483.1** | **Drinking Water Treatment Units** | **611.1, 611.2** |
| **B 481.1 – 12** | **Testing and Rating of Grease Interceptors Using Lard** | **1003.3.4** |
| **B 481.3 – 12** | **Sizing, Selection, Location and Installation of Grease Interceptors** | **1003.3.4** |
| CAN/CSA-A257.1M-92 | Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings | Table 1102.5 |
| CAN/CSA-A257.2M-92 | Circular Concrete Culvert, Storm Drain, Sewer Pipe and Fittings | Table 702.3, Table 1102.4 |
| CAN/CSA-A257.3M-92 | Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe and Fittings | Table 702.3, Table 1102.4 |
| CAN/CSA-B64.1.1/01 | Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets | 705.6, 705.19 |
| CAN/CSA-B64.2-01 | Vacuum Breakers, Atmospheric Type (AVB) | 425.5, Table 608.1, 608.13.6 |
| CAN/CSA-B64.2.2-01 | Vacuum Breakers, Hose Connection Type (HCVB) with Automatic Draining Feature | Table 608.1, 608.13.6 |
| CAN/CSA-B64.3-01 | Backflow Preventers, Dual Check Valve Type with Atmospheric Port (DCAP) | Table 608.1, 608.13.3, 608.16.2 |
| CAN/CSA-B64.4-01 | Backflow Preventers, Reduced Pressure Principle Type (RP) | Table 608.1, 608.13.2, 608.16.2 |
| CAN/CSA-B64.10-01 | Manual for the Selection, Installation, Maintenance and Field Testing of Backflow Prevention Devices | 312.10.2 |

# CSA

**Canadian Standards Association**
**5060 Spectrum Way**
**Mississauga, Canada L4W 5N6**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| CAN/CSA-B137.9-02 | Polyethylene/Aluminum/Polyethylene Composite Pressure Pipe Systems | Table 605.3, Table 605.5, 605.21.1 |
| CAN/CSA-B137.10M-02 | Cross-linked Polyethylene/Aluminum/Polyethylene Composite Pressure Pipe Systems | Table 605.3, Table 605.4, Table 605.5, 605.21.1 |
| CAN/CSA-B181.3-02 | Polyolefin Laboratory Drainage Systems | Table 702.1, Table 702.2, Table 702.4, 705.17.1 |
| CAN/CSA-B182.4-02 | Profile PVC Sewer Pipe and Fittings | Table 702.3, Table 1102.4, Table 1102.5 |
| CAN/CSA-B602-02 | Mechanical Couplings for Drain, Waste and Vent Pipe and Sewer Pipe | 705.2.1, 705.5.3, 705.6, 705.7.1, 705.14.1, 705.15, 705.16.2, 705.19 |

# IAPMO

**IAPMO Group**
**4755 E. Philadelphia**
**Ontario, CA 91761**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| **Z 1001 – 2007** | **Prefabricated Gravity Grease Interceptors** | **1003.3.6** |
| **Z124 – 2011** | **Plastic Plumbing Fixtures** | **407.l, 415.1, 416.1, 416.2, 417.1, 419.1, 420.1** |

# ICC

**International Code Council**
**500 New Jersey Ave, NW**
**6th Floor**
**Washington, DC 2001**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| IBC-09 | International Building Code® | 201.3, 305.4, 307.1, 307.2, 307.3, 308.2, 309.1, 310.1, 310.3, 403.1, Table 403.1, 404.1, 407.3, 417.6, 502.6, 606.5.2, 1106.5 |
| IEBC-09 | International Existing Building Code® | 101.2 |
| IECC-09 | International Energy Conservation Code® | 313.1, 607.2, 607.2.1 |
| IFC-09 | International Fire Code® | 201.3, 1201.1 |
| IFGC-09 | International Fuel Gas Code® | 101.2, 201.3, 502.1 |

# ICC

**International Code Council**
**500 New Jersey Ave, NW**
**6th Floor**
**Washington, DC 2001**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| IMC-09 | International Mechanical Code® | 201.3, 307.6, 310.1, 422.9, 502.1, 612.1, 1202.1 |
| IPSDC-09 | International Private Sewage Disposal Code® | 701.2 |
| IRC-09 | International Residential Code® | 101.2 |

# ISEA

**International Safety Equipment Association**
**1901 N. Moore Street, Suite 808**
**Arlington, VA 22209**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| Z358.1-98 | Emergency Eyewash and Shower Equipment | 411.1 |

# NFPA

**National Fire Protection Assocation**
**1 Batterymarch Park**
**Quincy, MA 02169-7471**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 50-01 | Bulk Oxygen Systems at Consumer Sites | 1203.1 |
| 51-07 | Design and Installation of Oxygen-fuel Gas Systems for Welding, Cutting and Allied Processes | 1203.1 |
| **55 – 13** | **Compressed Gases and Cryogenic Fluids Code** | **1203.1** |
| 70-08 | National Electric Code | 502.1, 504.3, 1113.1.3 |
| 99C-05 | Gas and Vacuum Systems | 1202.1 |

# NSF

**NSF International**
**789 Dixboro Road**
**Ann Arbor, MI 48105**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 3-2007 | Commercial Warewashing Equipment | 409.1 |

# NSF

**NSF International**
**789 Dixboro Road**
**Ann Arbor, MI 48105**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| 14-2007 | Plastic Piping System Components and Related Materials | 303.3, 611.3 |
| 18-2007 | Manual Food and Beverage Dispensing Equipment | 426.1 |
| 42-2007e | Drinking Water Treatment Units—Aesthetic Effects | 611.1, 611.3 |
| 44-2004 | Residential Cation Exchange Water Softeners | 611.1, 611.3 |
| **50 – 2012** | **Equipment for Swimming Pools, Spas, Hot Tubs and other Recreational Facilities** | **1302.8.1** |
| 53-2007 | Drinking Water Treatment Units—Health Effects | 611.1, 611.3 |
| 58-2006 | Reverse Osmosis Drinking Water Treatment Systems | 611.2 |
| 61-2007a | Drinking Water System Components—Health Effects | 410.1, 424.1, 605.3, 605.4, 605.5, 605.7, 611.3, 611.3 |
| 62-2004 | Drinking Water Distillation Systems | 611.1 |
| **350 – 2011** | **Onsite Residential and Commercial Water Reuse Treatment Systems** | **1302.6.1** |

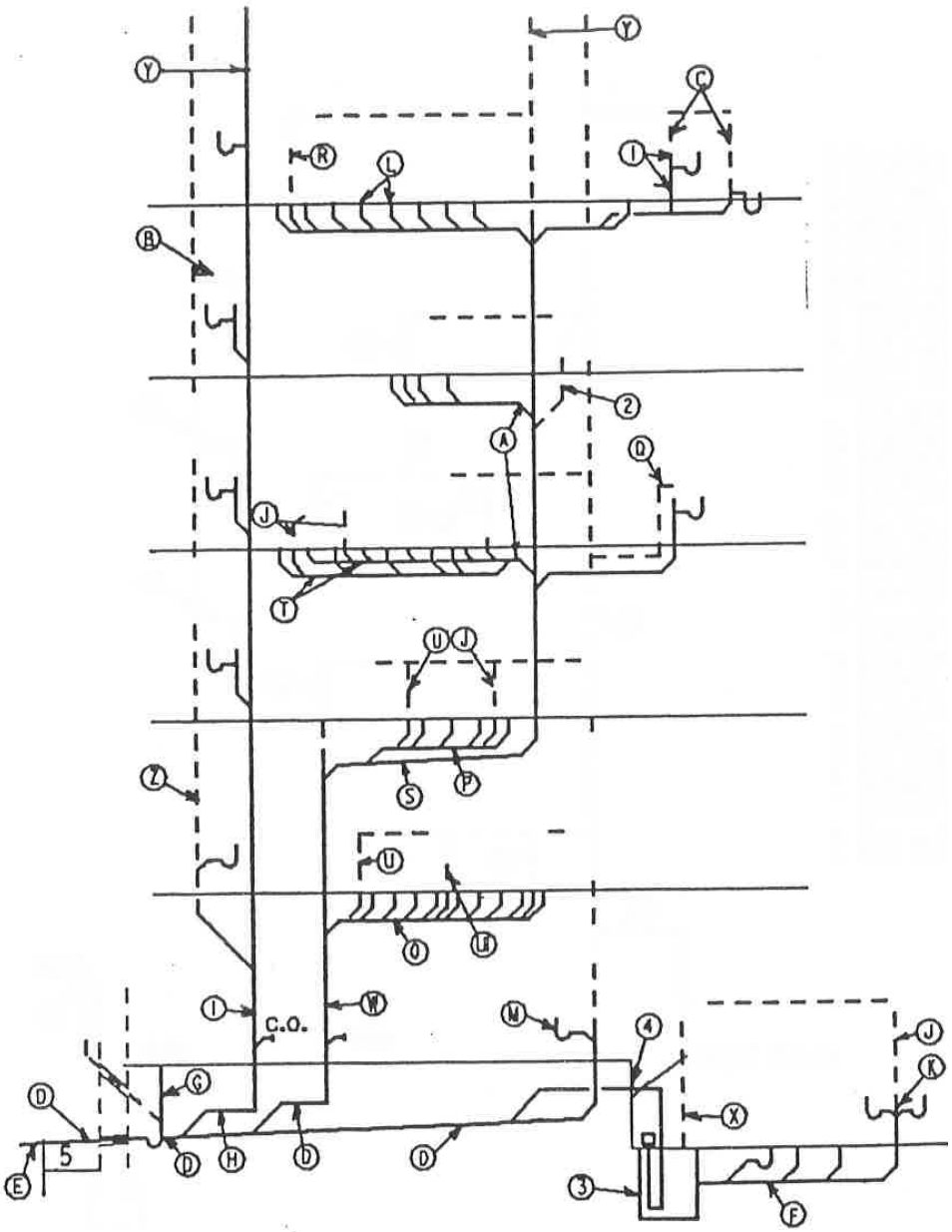
# PDI

**Plumbing and Drainage Institute**
**8000 Turnpike Street, Suite 300**
**North Andover, MA 01845**

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| G101(2003) | Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation | 1103.3.4 |
| **PDI G101 (2012)** | **Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data** | **1003.3.4** |
| **PDI G102 (2009)** | **Testing and Certification for Grease Interceptors with Fog Sensing and Alarm Devices** | **1003.3.4** |

| **UL** | **Underwriters Laboratories, Inc.<br>333 Pfingsten Road<br>Northbrook, IL 60062-2096** | |
|---|---|---|
| Standard reference number | Title | Referenced in code section number |
| **58 – 1996** | **Steel Underground Tanks for Flammable and Combustible Liquids with revisions through July 27, 1998** | **1302.7.2** |
| **142 – 2006** | **Steel Aboveground Tanks for Flammable and Combustible Liquids with revisions through February 12, 2010** | **1302.7** |
| **430 – 2009** | **Waste Disposers-with revisions through March 23, 2011** | **413 .1** |
| 508-99 | Industrial Control Equipment—with Revision through July 2005 | 314.2.3 |
| **1316 – 1994** | **Glass-Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols and Alcohol Gasoline Mixtures with revisions through May 12, 2006** | **1302.7.2** |
| **1746 – 2007** | **External Corrosion Protection Systems for Steel Underground Storage Tanks** | **1302.7** |

# APPENDIX AC-H
# ILLUSTRATION




A. Branch Interval
B. Branch Vent
C. Back Vent
D. Building Drain
E. Building Sewer
F. Building Sub-drain
G. Building (house) trap
H. Branches of Bldg. Drain
**I. Continuous Waste & Vent**
**J. Circuit Vent**
**K. Dual or Common Vent**
L. Fixture Drain
M. Fixture Drain at base of main or vent stack
N. Fresh Air Inlet
O. Horizontal Branch
P. Isolated Soil or Waste Branch
Q. Loop Vent Arrangement for Island Type Fixtures
R. Loop Vent (Regular)
S. Offset in Soil Stack
T. Parallel Soil Branches for back to back fixtures
U. Relief Vents
$U^1$ Intermediate Relief Vent for more than 8 WC's on one branch
V. Relief Vent for Offset
W. Soil Stack
X. Sump Vent Sized as a Branch Circuit or Loop Vent
Y. Stack Vent
Z. Vent Stack
1. Waste Stack
2. Yoke Vent – used when more than 10 Branch Interval
3. Sump or Ejector Cast Iron
4. Sump Discharge

Allegheny County Health Department

# Allegheny County Paid Sick Leave Proposal

Allegheny County Board of Health

Vote to Initiate Public Comment Period

May 5, 2021

# Access to Paid Sick Leave & Public Health Impact

- Paid sick leave policies increase the likelihood employees stay home when sick or keep children home when sick
- Fewer than half of low-wage workers have access to paid sick leave nationwide compared to 90% of high wage workers
- Workers without paid sick leave are three times more likely to forgo medical care when ill or injured for themselves and 1.6 times more likely to forgo medical care for family

# BOH Legal Authority to Require Paid Sick Leave

- **(c)** The board of health shall exercise the rule-making power conferred upon the county department of health by the formulation of rules and regulations for the prevention of disease, for the prevention and removal of conditions which constitute a menace to health, and for the promotion and preservation of the public health generally.16 Pa. Stat. § 12011

# Paid Sick Leave Accrual – Who is Covered & How it Works

- All employees of employers with twenty-six or more employees shall accrue at least one hour of paid sick time for every 35 hours worked
- Employees would be entitled to use accrued paid sick time beginning on the 90th calendar day following their first day on the job
- Employees can accrue a maximum of 40 hours of paid sick time, unless their employer allows more
- Paid sick time accrued by an employee may be used for:
  - - the employee's, or employee's family member's, mental or physical illness, injury or health condition; need for medical diagnosis, care or treatment of a mental or physical illness, injury or health condition; or employee's or employee's family member's need for preventive medical care; or
  - - closure of employee's place of business due to a public health emergency or an employee's need to care for a child whose school or place of care has been closed due to a public health emergency

# Exercise of Rights & Enforcement

- Employers shall not retaliate or discriminate against an employee as a result of an employee exercising the right in this Article 24 proposal
- Under this proposal, it shall be unlawful for an employer's absence control policy to count paid sick time taken under this regulation as an absence that may lead to or result in discipline or other adverse actions
- Employees will be able to file complaints for noncompliant employers with Allegheny County

# Requesting approval to submit proposed formulation of Article XXIV to the public for comment

# ALLEGHENY COUNTY
# HEALTH DEPARTMENT

## RULES AND REGULATIONS

## ARTICLE XXIV. PAID SICK DAYS

### Section 2401. AUTHORITY AND PURPOSE.

Pursuant to the authority granted to the Allegheny County Health Department under the Pennsylvania Local Health Administration Law, 16 P.S. §§ 12010(f) and 12011(c), this regulation has been promulgated to promote and preserve the health of the residents of Allegheny County. Providing paid sick time to employees will help prevent and control the transmission of illnesses and disease among coworkers and allow employees and their families with the time to recover from the illness and thereby reduce the likelihood of more severe illness, hospitalizations, and loss of work.

### Section 2402. DEFINITIONS.

The following words, terms and phrases when used in this Article shall be defined as follows, unless the context clearly indicates otherwise:

*Agency*. A Department or other County agency designated by the Allegheny County Manager to effectuate the provisions of this Article.

*Calendar Year*. A regular and consecutive 12-month period, as determined by an employer and communicated to all employees.

*Employ*. Is as defined in the Act of January 17, 1968, P.L. 11, No. 5, 43 P.S. § 333.103(f).

*Employee*. Is as defined in 43 P.S. Section 333.103 (h). For the purposes of this Article, "employee" shall not include independent contractors, State and Federal employees or seasonal employees.

*Employer*. A person, partnership, limited partnership, association, or unincorporated or otherwise, corporation, institution, trust, government body or unit or agency, or any other entity situated or doing business within the geographical boundaries of Allegheny County and that employs one (1) or more persons for a salary, wage, commission or other compensation. For the purposes of this Article, "employer" does not include either of the following:

1. The United States Government; and

2. The State of Pennsylvania including any office, department, agency, authority, institution, association or other body of the state, including the legislature and the judiciary.

*Family Member*. Any one of the following:

1. A biological, adopted or foster child, stepchild or legal ward, a child of a domestic partner, or a child to whom the employee stands in loco parentis;

2. A biological, foster, adoptive, or step-parent, or legal guardian of an employee or an employee's spouse or domestic partner or a person who stood in loco parentis when the employee was a minor child;

3. A person to whom the employee is legally married under the laws of any state;

4. A grandparent or spouse or domestic partner of a grandparent;

5. A grandchild;

6. A biological, foster, or adopted sibling;

7. A domestic partner; or

8. Any individual for whom the employee has received permission from the employer to care for at the time of the employee's request to make use of paid sick time.

*Health Care Professional*. Any person licensed under Federal or Pennsylvania law to provide medical or emergency services, including but not limited to doctors, nurses, and emergency room personnel.

*Paid Sick Time*. Time that is compensated at the same base rate of pay, and with the same benefits, including health care benefits, as an employee would have earned at the time of their use of the paid sick time. In no case shall the hourly wage with which an employee making use of paid sick time is compensated be less than that provided under 43 P.S. § 333.104(a). Employees making use of paid sick time shall not be entitled to compensation for lost tips or commissions, and compensation shall only be required for hours that an employee was scheduled to have worked.

*Registered Apprenticeship Program*. An apprenticeship program that is registered with and approved by the United States Department of Labor and which meets not less than two of the following requirements: (A) has active, employed, registered apprentices; (B) has graduated apprentices to journey worker status during a majority of the years that the program has been in operation; or (C) has graduated apprentices to journey worker status during three of the immediately preceding five years, provides each trainee with combined classroom and on-the-job training under the direct and close supervision of a highly skilled worker in an occupation recognized as an apprenticeable trade and meets the program performance standards of enrollment and graduation under 29 C.F.R. Part 29, section 29.63.1.

*Seasonal Employee*. A person who has been hired for a temporary period of not more than sixteen weeks during a calendar year and has been notified in writing at the time of hire that the individual's employment is limited to the beginning and ending dates of the employer's seasonal period, as determined by the employer.

**Section 2403. ACCRUAL OF PAID SICK TIME.**

A. All employees shall be entitled to accrue paid sick time, as provided under the terms of this Article.

B. All employees of employers with twenty-six (26) or more employees shall accrue a minimum of one (1) hour of paid sick time for every 35 hours worked within the geographical boundaries of Allegheny County unless the employer provides a faster accrual rate, and shall be permitted to accrue no more than 40 hours of paid sick time in a calendar year, unless the employer designates a higher amount. At no point shall an employee of an employer with 26 or more employees be permitted to have access to more than 40 hours of paid sick time, unless the employer designates a higher amount.

C. Employees who are exempt from overtime requirements under 29 U.S.C. § 213(a)(1) of the Federal Fair Labor Standards Act will be assumed to work 40 hours in each workweek for purposes of paid sick time accrual, unless their normal workweek is less than 40 hours, in which case paid sick time accrues based upon that employee's normal workweek.

D. The accrual of paid sick time, as provided in this Article, shall begin on the effective date as provided in Section 2413, as to an employee who is employed as of such effective date. All employees who become employed after such effective date shall begin to accrue paid sick time at the commencement of their employment.

E. All employees shall be entitled to use accrued paid sick time beginning on the 90th calendar day following the commencement of their employment.

F. Accrued paid sick time shall be carried over to the following calendar year, except when an employer that employs twenty-six (26) or more employees provides at least 40 hours of paid sick time at the beginning of each calendar year. If such employer provides less than 40 hours of paid sick time at the beginning of each calendar year, then the employee may carry over accrued paid sick time so long as the total paid sick time available does not exceed 40 hours.

G. An employer shall not be obligated to provide financial or other reimbursement to an employee upon the employee's termination, resignation, retirement, or other separation from employment for unused paid sick time that has been accrued.

H. If an employee is transferred to a separate division, entity or location, but remains employed by the same employer, the employee is entitled to all paid sick time accrued at

the prior division, entity or location and is entitled to use all paid sick time as provided in this Section.

I. When there is a separation from employment and the employee is rehired within 6 months of separation by the same employer, previously accrued paid sick time that had not been used shall be reinstated. The employee shall be entitled to use accrued paid sick time and accrue additional paid sick time at the re-commencement of employment.

J. When a different employer succeeds or takes the place of an existing employer, all employees of the original employer who remain employed by the successor employer are entitled to all paid sick time accrued when employed by the original employer and are entitled to use all paid sick time previously accrued.

K. Any employer with a paid leave policy, such as a paid time off policy, who makes available an amount of paid sick leave sufficient to meet the accrual requirements of this Section that may be used for the same purposes and under the same conditions as paid sick time under this Article is not required to provide additional paid sick time.

L. Any employer with a collective bargaining agreement that makes available a sufficient amount of paid sick leave to meet the accrual requirements of this Section that may be used for the same purposes and under the same conditions as paid sick time under this Article is not required to provide additional paid sick time.

**Section 2404. USE OF PAID SICK TIME.**

A. The paid sick time accrued by an employee may be used for:

1. An employee's mental or physical illness, injury or health condition; an employee's need for medical diagnosis, care, or treatment of a mental or physical illness, injury or health condition; an employee's need for preventive medical care;

2. Care of a family member with a mental or physical illness, injury or health condition; care of a family member who needs medical diagnosis, care, or treatment of a mental or physical illness, injury or health condition; care of a family member who needs preventive medical care; or

3. Closure of the employee's place of business by order of a public official due to a public health emergency or an employee's need to care for a child whose school or place of care has been closed by order of a public official due to a public health emergency, or care for a family member when it has been determined by the health authorities having jurisdiction or by a health care provider that the family member's presence in the community would jeopardize the health of others because of the family member's exposure to a communicable disease, whether or not the family member has actually contracted the communicable disease.

B. A request shall be provided to the employer by the employee upon the use of paid sick time. The request shall include the anticipated duration of the absence when possible. An employer shall be permitted to maintain its own notification policy that shall dictate how soon before an employee's shift the employee must make their oral request to make use of paid sick time, provided:

1. The employer's notification policy shall be reasonable and shall not obstruct an employee's use of paid sick time.

2. If an employer does not maintain its own notification policy, an employee shall provide their request for the use of paid sick time to the employer at least one (1) hour prior to the start of their shift.

3. In the event such need for paid sick time is not foreseeable by the employee, the employee shall make a good faith effort to notify the employer as soon as possible.

C. In the event that the need for the use of paid sick time is known to the employee in advance, such as a scheduled appointment with a health care provider, the employer may require reasonable advance notice of the intention to use such paid sick time not to exceed seven days prior to the date such paid sick time is to begin. The employee shall make a reasonable effort to schedule the use of paid sick time in a manner that does not unduly disrupt the operations of the employer. In the event of such need for paid sick time is not foreseeable by the employee, or should an employee be unable to meet the seven-day requirement contained herein, an employee shall make a good faith effort to notify the employer as soon as possible of the need to use paid sick time in such a situation.

D. An employee may use their paid sick time in the smaller of hourly increments or the smallest increment that the employer's payroll system uses to account for absences or use of other time.

E. For the use of paid sick time that lasts three (3) or more full consecutive days, an employer may require the employee to present reasonable documentation that the paid sick time has been used for a purpose covered and protected by the terms of this Article. For the purposes of this Section, documentation signed by a health care professional indicating that paid sick time is necessary shall be considered reasonable documentation. An employer may not require that the documentation explain the precise nature of the illness.

F. An employer may not require that an employee making use of accrued paid sick time search for or find a replacement worker to cover the hours during which the employee is on using paid sick time as a condition for providing paid sick time.

**Section 2405. EXERCISE OF RIGHTS PROTECTED; RETALIATION PROHIBITED.**

A. It shall be unlawful for an employer or any other person to interfere with, restrain, or deny the exercise of, or the attempt to exercise, any right protected under the terms of this Article.

B. An employer shall not retaliate or discriminate against an employee because the employee has exercised rights protected under the terms of this Article. Such rights include but are not limited to the right to use paid sick time pursuant to this Article; the right to file a complaint with the Agency or a court; the right to inform any person about any employer's alleged violations of this Article; and the right to inform any person of his or her potential rights under this Section.

C. It shall be a violation of this Article for any employer's absence control policy to count paid sick time taken under this Article as an absence that may lead to or result in discipline, discharge, demotion, suspension, or any other adverse action unless the Employee does not follow the applicable notification and documentation procedures in Section 2404.

D. The protections afforded pursuant to the terms of this Section shall apply to any person who mistakenly but in good faith alleges violations of this Section.

E. There shall be a rebuttable presumption of unlawful retaliation under this Section whenever an employer takes adverse action against a person within 90 days of when that person:

1. Files a complaint with the Agency or a court alleging violation of any provision of this Section;

2. Informs any person about an employer's alleged violation of this Section;

3. Cooperates with the Agency or other persons in the investigation or prosecution of any alleged violation of this Section;

4. Opposes any policy, practice, or act that is unlawful under this Section; or

5. Informs any person of his or her rights under this Section.

**Section 2406. NOTICE.**

A. Employers shall give written notice that employees are entitled to paid sick time, the amount of paid sick time, and the terms of its use guaranteed under this Article, that retaliation against employees who request or use paid sick time is prohibited and that each employee has the right to file a complaint with the Agency if paid sick time as required by this Section is denied by the employer or the employee is retaliated against for requesting or taking paid sick time.

B. The Agency shall have the power to determine the mechanism by which employers comply with this Section and shall make this determination before the effective date of this Article.

C. The Agency shall promulgate all material relevant to this Section and necessary for an employer to comply with the requirements of this Section, making said material available through the County website.

D. All County Departments shall allow the Agency, with appropriate notice and at a mutually agreeable time, to access the records necessary to enforce compliance under this Section.

E. An employer who willfully violates the notice requirements of this Section shall be subject to a civil fine in an amount not to exceed $100 for each separate offense.

**Section 2407. EMPLOYER RECORDS.**

A. Employers shall retain records documenting hours worked by employees and paid sick time taken by employees, for a period of two years, and shall allow the Agency access to such records, with appropriate notice and at a mutually agreeable time, to monitor compliance with the requirements of the Article.

B. When an issue arises as to an employee's entitlement to paid sick time under this section, if the employer does not maintain or retain adequate records documenting hours worked by the employee and paid sick time taken by the employee, or does not allow the Agency reasonable access to such records, it shall be presumed that the employer has violated the Article, absent clear and convincing evidence otherwise.

**Section 2408. ENFORCEMENT.**

A. An employer, employee, or authorized representative may report to the Agency any suspected violation of this Article. The complaint shall be filed within six months of the date the complainant knew or should have known of the alleged violation.

B. The Agency shall have the authority to enforce this Article and may adopt appropriate policies or guidelines relating to the confidentiality of the complainant and to implement and enforce this Article.

C. An employer who willfully violates the rules of this Article shall be subject to a fine or penalty in an amount not to exceed $100 for each separate offense, provided, however, that no fines or penalties shall be levied by the Agency against any employer within one calendar year of the effective date of this Article.

**Section 2409. CONFIDENTIALITY AND NONDISCLOSURE.**

A. An employer may not require disclosure of details relating to an employee's or an employee's family member's medical condition as a condition of providing paid sick time under this Article.

B. If an employer possesses health information about an employee or an employee's family member, such information shall be treated as confidential and not disclosed, except to the affected employee or with the written permission of the affected employee in accordance with applicable Federal and State medical privacy provisions.

**Section 2410. EFFECT ON OTHER LAW, POLICY, REGULATION OR CONTRACT.**

A. Nothing in this Article shall be construed to discourage or prohibit an employer from the adoption or retention of a paid sick time policy more generous than the one required herein.

B. Nothing in this Article shall be construed as diminishing the obligation of an employer to comply with any contract, collective bargaining agreement, employee benefit plan or other agreement providing more generous paid sick time to an employee than required herein.

C. Nothing in this Article shall be construed as diminishing the rights of public employees regarding paid sick time or use of paid sick time as provided in the laws of Pennsylvania.

**Section 2411. EFFECT OF ARTICLE; MINIMUM STANDARDS; APPLICABILITY.**

A. This Article provides minimum requirements pertaining to paid sick time and shall not be construed to preempt, limit, or otherwise affect the applicability of any other law, ordinance, regulation, requirement, policy or standard that provides for greater accrual or use by employees of paid sick time or that extends other protections to employees.

B. Except as provided in Subsection C, this Article shall not apply to any municipality within Allegheny County that has enacted an ordinance on paid sick time so long as such ordinance is not less stringent than the requirements under this Article.

C. The Agency shall have the authority to enforce this Article in a municipality within Allegheny County that has enacted an ordinance on paid sick time if the Agency determines that the municipality is unwilling or unable to enforce its ordinance.

**Section 2412. PUBLIC EDUCATION/OUTREACH.**

The Agency shall develop multilingual informational materials to inform employers and employees about the availability of paid sick time under this Article. This program shall include the development of notices and other written materials in English and in other languages and outreach to employers and employees for whom English is not a first language and/or who may otherwise have difficulty interpreting or understanding the provisions of this Article when expressed in written English.

**Section 2413. EFFECTIVE DATE.**

The provisions of Section 2406 shall become effective immediately upon final approval. The remaining provisions of this Article shall take effect on the 90th calendar day following the posting of the notice information for employers by the Agency, pursuant to the terms of Section 2406.