

Pennsylvania's 2021 Ambient Air Monitoring Network Plan

Comment/Response Document

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**Tom Wolf, Governor
Commonwealth of Pennsylvania**

**Patrick McDonnell, Secretary
Department of Environmental Protection**

www.dep.pa.gov

Comment and Response Document
Concerning Pennsylvania's 2021 Annual Air Monitoring Network Plan

Overview

On June 19, 2021, the Pennsylvania Department of Environmental Protection published a notice in the *Pennsylvania Bulletin* concerning public inspection of Pennsylvania's 2021 Ambient Air Monitoring Network Plan (Plan) (51 Pa. B. 3395 3396). The Plan outlines the air monitoring program history, provides an overview of the air monitoring network, and discusses in detail monitoring sites, methods, and equipment. In addition, past and anticipated monitoring activities for a period of 18 months are addressed.

The Plan outlines several changes to the Department's ambient air monitoring network. First, the Plan outlines an expansion of the Ozone and PM_{2.5} monitoring network in Franklin County and Adams County. Second, the Plan discusses the relocation and expansion of the Vanport site. Finally, the Plan also provides updates on additional topics, including the Department's plan to meet the federally required Enhanced Monitoring Plan and the Department's update on meeting the continuing requirements of the SO₂ Data Requirements Rule. The Department has consulted with EPA Region 3 monitoring staff regarding most of these proposed changes.

The Department corrected Table C-7 in Appendix C of the Plan. A typographical error that incorrectly stated the total number of monitors was corrected. Also, in Appendix E, a typographical error in the 3 -year average date range was corrected.

Public Comment

Notice of the availability of the proposed Plan for public review and comment was published in the *Pennsylvania Bulletin* on June 19, 2021 (51 Pa. B. 3395-3396). The public comment period on the proposed Plan closed on July 19, 2021. This document summarizes the written comments received during the 30 -day public comment period. Comments were received from eighty-seven commentators. Comments and the Department's responses follow the List of Commentators in this document.

Comments and Responses

1. **Comment:** Several commentators asked that the Department increase air monitoring in Delaware County. In January 2022, Delaware County will open its own public health department and will need detailed and extensive data on county-wide air pollution in order to understand its impact on public health.

Response: The Department appreciates the commentator's concerns regarding air monitoring in Delaware County. The Department currently operates two air monitoring sites in Delaware County, the Chester site and the Marcus Hook site. At this time, the Department does not plan on any additional air monitoring parameters or sites in Delaware County, as it is currently using its full air quality monitoring capacity for the state. The Department will consider the placement of additional monitors as resources become available.

- 2. Comment:** Several commentators stated that in the cities of Chester and Marcus Hook there are at least two major industrial facilities currently listed in “high priority violation” of the Clean Air Act by the U.S. EPA. The Monroe refinery and the Delcora sewage incinerator both emit significant amounts of air pollution. Delaware County fails to meet federal health standards for asthma-causing ground-level-ozone pollution. Delaware County is also a “maintenance region” for federal particulate matter (PM_{2.5}) standards which means that it needs to continue its efforts to comply with the 2012 PM_{2.5} standard.

Response: The Department appreciates the commentators concerns with air pollution in Delaware County. While outside of the scope of this Monitoring Plan and Comment and Response Document, the Department continues to work toward reducing ground-level ozone and PM across Pennsylvania, including implementing updated Reasonably Available Control Technology requirements (RACT III) and proposing amendments to the Pennsylvania Clean Vehicles (PCV) Program, among other efforts. The Department maintains the monitors in Delaware County as part of its efforts to ensure the health of the public and the environment.

- 3. Comment:** Several commentators are concerned with the lack of monitoring stations in Delaware County and asked the Department to add an ozone monitor in Marcus Hook. Currently, there are only two air pollution monitoring stations in Delaware County, one in Chester and one in Marcus Hook, the second of which only monitors for particulate matter and volatile organic compounds (VOCs).

Response: The Department appreciates the commentators requests for increased air monitoring in Delaware County.

Ground-level ozone is a secondary pollutant, formed in the atmosphere from precursor compounds, mainly nitrogen dioxide (NO₂) and VOCs, in the presence of sunlight. For this reason, maximum ozone concentrations are generally measured downwind of precursor emitters (sources), often miles away. Measured ambient ozone concentrations may also reflect regional transport of ozone. Based on the geography, meteorology and located downwind location to precursor sources, the Department’s Chester monitor is sited where maximum concentrations of ozone are likely to occur.

Also, US EPA sets forth minimum monitoring requirements for ozone in 40 CFR Part 58, Appendix D. These requirements are based on Metropolitan Statistical Areas (MSAs) defined by the federal Office of Management and Budget. Delaware County is in the Philadelphia-Camden-Wilmington MSA. As outlined in the Plan, the Department is required by the monitoring requirements set forth in 40 CFR to locate at least three monitors in this MSA. The Department operates four monitors in this MSA while Philadelphia, Delaware, Maryland, and New Jersey operate an additional 11 monitors in this MSA, bringing the total number of ozone monitors in this MSA to 15.

- 4. Comment:** The commentator urged the Department to consider that temperatures are rapidly increasing in Delaware County because of climate change which means that even

with decreased oxides of nitrogen (NO_x) and volatile organic compound air pollution, higher temperatures will continue to accelerate the formation of ground-level-ozone.

In its 2021 Climate Change Impacts Assessment The Department specifies that while Pennsylvania as a whole will experience increased temperatures over the next century, “Southeastern and Southwestern PA will experience the highest temperatures.” This means that already significant air pollution in Delaware County will further react with extreme heat in the atmosphere to form dangerous ground-level-ozone. In order to address this complex situation, The Department must have more information about levels of NO_x , VOCs, and ground-level-ozone pollution in Delaware County.

Response: As climate change intensifies, the Department will continue ambient air monitoring to understand air quality impacts and act accordingly. Also see Response #3.

5. **Comment:** Several commentators are troubled that in May 2021 the Department issued the Covanta waste incinerator in Chester three violations for “Failure to meet the Department's continuous emission monitoring requirements.” The commentators gave the Department credit for actively monitoring the Covanta facility, but the commentators are concerned with Covanta’s negligence in pollution monitoring. The commentators stated this as a reason for the need to increase air pollution monitoring in the City of Chester.

Response: The Department appreciates the commentators concerns regarding air pollution in Chester, Delaware County. The Chester site currently monitors for ozone, NO_2 , $\text{PM}_{2.5}$, $\text{PM}_{2.5}$ speciation, lead, VOC and metals.

The ambient air monitoring network is one part of the Department's efforts to safeguard the health of Pennsylvanians and the environment. Other Bureau of Air Quality functions, such as facility permitting, continuous emissions monitoring and inspections are also part of that effort.

The Covanta Delaware Valley facility operates six municipal waste combustors at their Delaware Valley location. The facility has installed and the Department has certified Continuous Emission Monitoring Systems (CEMS) on each of these municipal waste combustors. These CEMS monitor for carbon monoxide (CO), sulfur dioxide (SO_2), hydrogen chloride (HCl), oxides of nitrogen (NO_x) and opacity. The facility operates and maintains the equipment in accordance with established EPA and the Department requirements. The facility submits hourly emissions data and incident data (minutes above or below a specified limit) to the Department on a quarterly basis through the Department's Continuous Emission Monitoring Data Processing System (CEMDPS). The Department generates a report which displays the information in a digestible format and is the basis for the violations noted above. These reports are made available to the public upon request.

6. **Comment:** After evaluating the proposed changes in the 2021 Annual Ambient Air Monitoring Network Plan, the commentator states that two additional monitors and removal of one monitor is not enough to properly monitor the impacts to residents of

Pennsylvania from air pollution. The commentator requests more monitors be added in counties that are experiencing increased levels of industrialization, unconventional oil and gas development, and subsequent air pollution to establish a clear and accurate ambient air quality baseline. The commentator included a map to identify the locations of well pads and compressor stations in relation to DEP's Greensburg Air Monitoring in Westmoreland County.

Response: The Department appreciates the commentator's concerns with air pollution in Westmoreland County.

Although the current plan doesn't include additional monitors in Westmoreland County, The Department disagrees that the Plan proposes the addition of only two monitors. Also, the current Annual Network Plan does not call for the removal of any monitors. The discontinuation of the Potter Township site was originally proposed in 2019. The current Plan outlines the addition of seven monitors - two sites, one in Franklin County and one in Adams County, each of which will monitor for ozone and PM_{2.5}; two monitors, one for ozone and one for PM_{2.5}, added to the new location of the Vanport site; and a toxics metals monitor added to the Arendtsville site. That brings the total number of additional monitors in the network to seven.

Since 2012, The Department has added six sites in six counties to address the impact the shale gas industry has on public health and the environment. Each of the new sites monitor for PM_{2.5} and three of these sites also monitor for NO₂. In addition, PM_{2.5} monitors were added to four existing sites in an additional four counties, bringing the total number of counties with shale gas monitoring to ten.

EPA sets forth minimum monitoring requirements in 40 CFR, Part 58, Appendix D. These requirements are based on MSAs as provided by the Office of Management and Budget. Westmoreland County is located in the Pittsburgh MSA. The number of monitors for ozone, SO₂, NO₂, CO, and PM_{2.5} encompasses a substantially greater number of monitoring sites than the minimum requirement. The requirements for each type of monitor, as well as the number of monitors, can be found in Appendix C of the Plan.

7. **Comment:** The commentator states an explanation was not provided for the discontinuation of the Potter Township site, located 4 miles from the Shell Ethane Cracker Plant. Removal of the monitor before the Shell facility begins operations is very concerning. While it is acknowledged that the movement of the Vanport monitoring site will be better suited to monitor the plant's emissions in a more populous area, the nearest site to the west does not need to be removed. The next closest monitoring sites west are Glasgow, 12.6 miles west of the Shell plant, and Hookstown, 14.5 miles southwest of the facility. The removal of the Potter Township site appears unfounded according to the heavy industrialization that still remains within the area.

Response: The Department appreciates the commentator's concerns for the discontinuation of the Potter Township site. Details for the discontinuation of this site were presented on Page 29 of the 2019 Annual Network Plan that can be found at [DEP eLibrary \(state.pa.us\)](https://www.dep.pa.gov/eLibrary/state.pa.us).

8. **Comment:** The commentator states the measurement of criteria pollutant and air toxics parameters is prudent to supplement the other sites near the Shell facility. The addition of a VOCs monitor at the Vanport site should be imperative, since VOCs will be a major emission when cracker operations begin. The inclusion of VOCs and PM_{2.5} monitors at Glasgow would be logical as they could monitor any emission that follows the valley topography downriver. Finally, a PM_{2.5} monitor at the Beaver Valley site, 2 miles east of the Shell plant, should be necessary to gain a better understanding of the emissions.

Response: The Department appreciates the commentator's concerns with air pollution from the Shell facility. The Plan has taken into account the meteorology and topography in the river valley and has proposed a site downwind of this facility. As to the addition of VOC monitoring at the new expanded Vanport site, the Department agrees that VOCs will be a major emission from this facility and will consider the addition of this parameter as resources become available. A VOC sampler was moved from the Beaver Falls site to the Beaver Valley site in 2017 in anticipation of the Shell facility.

The ambient air monitoring network is one part of the Department's efforts to safeguard the health of Pennsylvanians and the environment. Other Bureau of Air Quality functions, such as facility permitting, continuous emissions monitoring and inspections are also part of that effort. The Shell facility is currently working with the Department to complete certification of CEMS for carbon monoxide and NO_x. Upon completion of the performance testing of the CEMS, the facility will be required to operate and maintain the equipment in accordance with established EPA and the Department requirements.

This Ambient Air Monitoring Network Plan is a federally required document to address proposed changes to the ambient air monitor network. The purpose of ambient air monitoring is to demonstrate ambient compliance with the NAAQS, collect environmental data for evaluation against health based benchmarks and provide data to supplement academic research on the effects of air pollution. Although generally outside the scope of the ambient air monitoring network, facility focused monitors are deployed when warranted to address local concerns on specific impacts.

9. **Comment:** The commentator requests that the Department consider planned and anticipated sources in its evaluation of the location of air monitoring network sites associated with increasing build-out and associated threats from additional industrial facilities in the Commonwealth.

The purpose of DEP's ambient air monitoring network is to help it to protect the air resources of the Commonwealth. The Department can use its monitoring network to evaluate airborne threats to human health and attempt to ameliorate these threats as they arise. The Department can also use its network to find potential violations of its air pollution control programs and identify and bring action against violators.

However, these purposes cannot be achieved if the monitoring network is too limited to capture new and expanded sources as they are built, particularly in parts of the Commonwealth where there are county-sized holes in the network. Significant portions

of Pennsylvania are in the throes of an industrial buildout that is highly likely – if not certain – to impact air quality.

However, the air quality in many of these sections of Pennsylvania is not covered by DEP's air monitoring network. Indeed, DEP's "monitoring strategy generally requires the installation of monitors in areas under DEP's jurisdiction having high population density and/or high levels of contaminants." This strategy does not necessarily incorporate consideration of emerging or anticipated air contaminants before the levels become "high."

There are many parts of Pennsylvania where industrial facilities, and in particular petrochemical and/or fracked gas facilities, have been multiplying and yet there is no coverage by the air monitoring network. For example, since at least 2015, the Department has been evaluating an application for a new fracked gas power plant to be built by Renovo Energy Center, LLC in Clinton County. Indeed, the Department granted an initial plan approval in 2018 and then a plan approval modification in April 2021. This is one facility but unquestionably a major source with the potential to significantly impact local and regional air quality, and this is a planned source of which the Department is unquestionably aware. However, Clinton County remains unmonitored by the air monitoring network – there is no monitor in Clinton County. Similarly, Potter and McKean Counties, to the north of Clinton County, are unmonitored by the air monitoring network, despite having a significant number of active air emitting sources in those counties, including multiple natural gas extraction and petrochemical manufacturing sources, according to DEP's own publicly-available eFacts data. Moreover, residents would be quick to point out the various new industrial participants, in different stages of planning or completion, in the petrochemical buildout of those counties.

Evaluating emerging and anticipated threats is important because it permits the the Department to establish baseline air quality levels. This would better enable the Department to evaluate and respond to acute and long-term threats to human health as they arise. Baseline data would also assist the Department in separating out the impacts of different facilities and different regional patterns. When the nearest monitoring station is two counties away, it is much harder to distinguish between different potential sources of air contamination.

Moreover, the Department does not have to guess where industrial buildout is occurring or where new facilities might be sited. The Department already has this information – among other things, the agency receives permit applications through its various permitting programs. The Department knows where new facilities are proposed to be built and can share this information across the agency to make its monitoring network more robust and useful.

Response: The Department appreciates the commentator's concerns regarding the threats to human health posed by pollution. the Department's ambient air monitoring network, maintained by the Division of Air Quality Monitoring, is only one part of the Bureau of Air Quality's effort to safeguard the health of Pennsylvanians and their environment. Other Bureau functions, such as facility permitting, continuous emissions monitoring, and emissions inventory reporting are also part of that effort. While specific

facility permitted emissions and associated emissions reporting requirements are not within the scope of the Plan or this document, links to the Bureau of Air Quality's information on permits, the permitting process, emissions reporting and monitoring are provided in the table below.

Selected PA Bureau of Air Quality Links

Subject	Web Link
Division of Permits	https://www.dep.pa.gov/Business/Air/BAQ/Permits/Pages/default.aspx
Continuous Emissions Monitoring (CEM)	https://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/ContinuousEmissionMonitoring/Pages/default.aspx
Source Testing	https://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/SourceTesting/Pages/default.aspx
Pennsylvania's Environment Facility Application Compliance Tracking System (eFACTS)	https://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx

Since 2012, the Department has added six sites in six counties to address the impact the shale gas industry has on public health and the environment. Each of the new sites monitor for PM_{2.5} and three of these sites also monitor for NO₂. In addition, PM_{2.5} monitors were added to four existing sites in an additional four counties, bringing the total number of counties with shale gas monitoring to ten. The Department is currently using all available resources to monitor air quality across the Commonwealth.

- 10. Comment:** The commentator has reviewed the comments submitted by other commentators and supports those comments. Specifically, the commentator believes that the department should incorporate environmental justice consideration into the air monitoring network, that the department should strengthen the air monitoring network in Westmoreland County, and that the department should explain how it uses the air monitoring network to determine reporting and forecasting for the Air Quality Index.

In addition, the commentator notes and supports comments from a number of residents in impacted communities regarding the need to strengthen the air monitoring network near large natural gas facilities in Washington County, Beaver County, and Westmoreland County.

Response: The Department shares the commentator's concern for environmental justice communities and disparate air quality outcomes. See responses #6, #8, #12, #13, #20, #25, and #27.

- 11. Comment:** Several commentators have many concerns about the quality of their air. The commentators state that their region, Beaver County, continues to suffer from some of the worst air quality in the entire country, as documented year after year in the American Lung Association's "State of the Air" annual reports. This poor air quality continues to affect their health and well-being, especially for people with pediatric and

adult asthma, chronic obstructive pulmonary disease and other respiratory problems, and cardiovascular disease.

Response: The Department appreciates the commentator's concerns about the air quality in Beaver County and its reference to the American Lung Association's "State of the Air" reports. The Department has repeatedly expressed its concerns with the basis of the grading system within the American Lung Association's State of the Air report and does not feel that it accurately reflects the improvements in air quality in Pennsylvania. The Department compares its data to the NAAQS to determine whether any of its counties are meeting the federal required health-based standards. For NAAQS comparisons, the Department calculates the design values (summary statistics), in accordance with calculation methods required by 40 CFR Part 50. In many instances, the American Lung Association's grading methodology differs from this direct design value to NAAQS threshold comparison. With respect to Beaver County, all ambient air monitors located within the county are currently monitoring attainment of their respective standards.

Air quality has improved across the Commonwealth as indicated by measurable statistics such as the Air Quality Index (AQI) and the emissions data. The AQI is a measurement of the air quality based on actual pollutant measurements collected by state, local and tribal agencies. The AQI is based on EPA's national air quality standards, which are established based on health studies. For each pollutant an AQI value of 100 generally corresponds to an ambient air concentration that equals the level of the short-term national ambient air quality standard for protection of public health. AQI values at or below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is unhealthy: at first for certain sensitive groups of people, then for everyone as AQI values get higher. (<https://www.airnow.gov>.) Using EPA's metric of AQI values at or below 100 as satisfactory, 99.5% of days in 2020 met this standard statewide as compared to 70% in 1980. Finally, by examining statewide emissions data, significant reductions in major categories of pollutants support the trends in both the AQI and the monitored data. Between 1990 and 2017, Sulfur Dioxide emissions are down 93%, Nitrogen Dioxide emissions are down 83%, Particulate Matter emissions are down 31% and Volatile Organic Compound emissions are down 60%. Overall, for the period between 1990 and 2017 emissions are down 88%.

12. **Comment:** Several commentators are concerned that there are not enough monitors for NO_x, hazardous air pollutants, and ozone. The Shell Pennsylvania Petrochemicals Complex (ethylene cracker plant) is under construction in Beaver County and is supposed to come online in 2022, and the public will be exposed to the emissions coming from this plant. The cracker plant is permitted to emit more than 516 tons of VOCs, 328 tons of NO_x, and 32 tons of hazardous air pollutants.

Lower income and non-white residents are disproportionately affected by poor air quality because they often live closer to the sources of pollution and are more vulnerable to the health problems related to bad air. Some communities, such as Aliquippa and Monaca--both downwind from the Shell cracker plant--are designated as environmental justice communities.

Not only does the public breathe the emissions from existing industrial sources of air pollution, the emissions from the cracker plant will be added to all the emissions from the petrochemical buildup that will supply ethylene to the cracker plant. Every day, residents in Beaver County are exposed to more and more emissions from fracking wells, frack waste impoundments and open-air holding tanks, compressor stations, pipelines, pigging stations, and flaring, on top of the increased truck traffic related to fracking operations.

The current monitors located in the prevailing wind direction are in Vanport and in Beaver Valley. These monitors do not have any sensing equipment for NOx and hazardous air pollutants, and the Beaver Valley site only samples ozone once every six days via a canister monitor. The Department plan report shows that continuous ozone monitors are located at Beaver Falls, Brighton, and Hookstown, but none of these sites is located in the direction of the prevailing winds, and they are not located in the river valley communities near the Shell cracker plant.

Because of these reasons, the commentator is asking that the Department consider adding continuous ozone monitors, NOx monitors, and hazardous air pollutant monitors at the Beaver Valley and Vanport locations. The Department also could try to obtain funding for more and better air monitoring from the \$100 million made available through the American Rescue Plan.

Response: The Department appreciates the commentator's concerns with regards to air pollution in Beaver County. As noted in the Plan, the Department plans on adding ozone and PM_{2.5} to the new expanded Vanport site. The commentator is not correct in stating that the "Beaver Valley site only samples ozone once every six days via a canister monitor." The Beaver Valley site does not have an ozone sensor. However, the site does have a VOC canister, which samples once every six days. This VOC canister was originally at the Department's Beaver Falls site, but was moved to its Beaver Valley site in anticipation of the construction and operation of the ethane cracker facility. Many of the VOCs the Department analyzes as part of its TO-15 analysis are precursors of ozone, which, although not providing a direct measurement of ozone concentrations, may provide monitoring data significant to evaluating ozone formation in or downwind of the region.

The ambient air monitoring network is one part of the Department's efforts to safeguard the health of Pennsylvanians and the environment. Other Bureau of Air Quality functions, such as facility permitting, continuous emissions monitoring and inspections are also part of that effort. The Shell facility is currently working with the Department to complete certification of CEMS for carbon monoxide and NO_x. Upon completion of the performance testing of the CEMS, the facility will be required to operate and maintain the equipment in accordance with established EPA and Department requirements.

13. **Comment:** The commentator notes that Allegheny County Health Department (ACHD) is currently considering an air permit for yet another major pollution source: the proposed Invenergy Allegheny Energy Center, LLC. The commentator states that their concerns have been well documented through the comments submitted by Clean Air Council (CAC) and co-signed by the Environmental Integrity Project (EIP), Protect Penn

Township, Carnegie Mellon CREATE Lab and Mountain Watershed Association (MWA). The commentator supports those comments – particularly the section devoted to concerns raised about the lack of monitoring and thorough evaluation of cumulative impacts to communities: Elizabeth Township, Allegheny County, and the environmental justice communities of West Newton and Sutersville, Westmoreland County.

Positioned less than one thousand feet from the county line, the proposed Invenergy plant would not only increase pollution for the local community within Allegheny County, but also release pollution into environmental justice areas on the Westmoreland County side of the line, outside the jurisdiction of the ACHD and within the jurisdiction of the Department. The commentator is concerned that without additional monitoring closer to the oil and gas infrastructure buildup in their area, enforcement of pollution from the Invenergy plant would be made more difficult. Without appropriate monitoring, nearby communities would likely suffer unfair health and environmental impacts.

Response: The Department appreciates the commentator's concerns. EPA sets forth minimum monitoring requirements in 40 CFR, Part 58, Appendix D. These requirements are based on MSAs as provided by the Office of Management and Budget.

Westmoreland County is located in the Pittsburgh MSA. The number of monitors for ozone, SO₂, NO₂, CO, and PM_{2.5} encompasses a substantially greater number of monitoring sites than the minimum requirement. The requirements for each type of monitor, as well as the number of monitors, can be found in Appendix C of the Plan.

- 14. Comment:** The commentators noted their concerns with pollution from the heavy industry as well as proposed industry surrounding their rural residential and farming area. The commentators expressed their health concerns from overpowering odors that force them to remain indoors. The commentators are concerned with the number of permits the Department issues to polluting industries and request the Department place “pollution type specific” monitors at current known pollution sites and have monitors tied together to show cumulative effects. The commentators request the Department update the monitoring to take into account compliance by current industries and the effect of future industry in a cumulative way.

Response: The Department appreciates the commentator's concerns. The issuance of and compliance with air quality permits falls beyond the scope of this document. The Department is currently using all available resources to monitor air quality across the Commonwealth.

- 15. Comment:** Several commentators expressed concerns with the current placement of the Florence, Houston and Charleroi air monitors in Washington County.

The commentators feel three monitors in Washington County is inadequate given the massive Marcellus Shale development happening in the County. The commentators list specific concerns with each monitor mentioned. The commentators feel an accurate depiction of the air, once pollution is emitted from the plants that are part of the massive gas infrastructure buildup in these areas, is not represented by the readings from any of the current Washington County or Allegheny County monitors.

Response: The Department appreciates the commentator's concerns with the Marcellus Shale development. As described in previous Annual Network Plans, the Department has installed monitors to capture ambient air impacts from shale-gas related industries. Many factors, such as topography and meteorology as well as siting requirements set forth by EPA in 40 CFR, Part 58, go into site selection. The Houston and Charleroi monitors were sited to capture ambient air impacts from shale-gas related industries to comply with these factors. The Department continues to evaluate the need for additional monitoring and expansion in areas of Marcellus Shale gas extraction and transport operations, as resources permit.

The Department maintains the Florence PM_{2.5} monitoring site for purposes of regional background and transport monitoring. The Florence monitoring site is situated in a rural setting, located in Hillman State Park and is classified as a general/background monitor. The location of this monitoring site is such that PM_{2.5} impacts from any existing large SO₂, NO₂ and VOC sources would not be expected to influence the PM_{2.5} concentrations measured at this site. Located in Washington County, PM_{2.5} concentrations measured at the Florence monitoring site are used to assess the background PM_{2.5} concentrations for western Pennsylvania regions. PM_{2.5} background concentrations in western Pennsylvania are representative of air flow patterns primarily originating in Ohio and West Virginia.

16. **Comment:** Several commentators request a monitor be added upwind and northeast of the industrialization buildup area of Smith and Robinson Townships. The commentators believe the placement of a new monitor in the Imperial area is needed in order to accurately capture air pollution information from the buildup in the Smith and Robinson Township area. The commentators also request those monitors be updated to include monitoring for VOC on a more frequent basis than once every six days.

Response: The Department appreciates the commentator's concerns with pollution from industrialization and the natural gas industry emissions. Although Smith and Robinson Townships are within the Department's jurisdiction, the Imperial area is located inside Allegheny County. Ambient air quality monitoring in Allegheny County is performed independently by the Allegheny County Health Department (ACHD). The Department has referred this comment to ACHD for consideration in future network assessments.

17. **Comment:** The commentators described how they and their partners deployed low-cost monitors in Smith Township and Robinson Township in Washington County, and the results and observations they obtained. The commentators also listed news articles pertaining to pollution from the natural gas industry underscoring their concern related to air quality at oil and gas sites.

Response: The Department appreciates the commentator's concerns and efforts in community monitoring. As described in previous Annual Network Plans, The Department has installed monitors to capture ambient air impacts from shale-gas related industries. Many factors, such as topography and meteorology as well as siting requirements set forth by EPA in 40 CFR, Part 58, go into site selection. The Department continues to evaluate the need for additional monitoring and expansion in areas of Marcellus Shale gas extraction and transport operations, as resources permit.

The Department utilizes Federal Reference Methods (FRM) and Federal Equivalent Methods (FEM) in monitoring pollutants as required by the CAA. The equipment undergoes continuous calibration checks and regular maintenance to ensure data is of high quality. As to VOCs, the Department collects and analyzes VOC samples in accordance with the NATTS TAD.

- 18. Comment:** Several commentators provided information pertaining to the American Rescue Plan as a way for the Department to acquire additional funding to support the increased monitoring that is requested by commentators.

Response: The Department appreciates the commentators information about the EPA funds available under the American Rescue Plan. The Department is aware of the available funds and is evaluating how they could be used to improve the monitoring network. However, these funds are a one-time distribution to be used in a limited time period and will not be available to maintain an expanded monitoring network.

- 19. Comment:** Several commentators feel that too few monitors exist in Washington County and those that exist, are placed in areas that are not properly capturing the true picture of the air pollution. The commentators request that more monitors be strategically placed as neighborhood monitors located downwind of where the heaviest drilling and processing is occurring. The commentators also request all monitors test for VOCs more frequently than once every six days.

Response: The Department appreciates the commentator's concerns. EPA sets air monitoring requirements in 40 CFR Part 58, Appendix D.

VOC sampling is set forth in the Technical Assistance Document for the National Air Toxics Trends Stations Program (NATTS TAD) 4.2.3.3 which states "VOC sample collection must be performed according to the national sampling schedule at one-in-six days for 24 +- 1 hours...". The Department adheres to the NATTS TAD in monitoring for VOCs.

- 20. Comment:** The Department should incorporate environmental justice considerations into the Air Monitoring Network.

During the past year following the social unrest over social injustice last summer, there has been a lot of talk about environmental justice. But this has not transformed into meaningful action by state and local air pollution control agencies. It is particularly striking that the proposed plan does not make any reference to environmental justice whatsoever.

In contrast, the proposed air monitoring network plan for Air Management Services for the City of Philadelphia makes some expression of an interest in addressing environmental justice in the development of the air monitoring network.

The Department should revise its Proposed Plan to discuss what efforts it has undertaken to strengthen its air monitoring network through a grant under that program, of which the City of Philadelphia was a beneficiary.

Given all the talk in the past year about environmental justice and all the money being made available by EPA, there does not appear to be any reason why the Department should not also integrate environmental justice considerations into its proposed air monitoring network.

The Department should revise the Proposed Plan to discuss how it will work to take advantage of these opportunities to strengthen its air monitoring network and address environmental justice.

Response: The Department appreciates the commentator's concerns regarding air quality disparities in environmental justice communities. The Department incorporated an analysis of the placement of monitors on page 8 of the Plan. There are currently a total of 45 ozone monitors throughout the Commonwealth, 45% of which are in environmental justice areas. Of the 34 PM_{2.5} monitors, 41% are in environmental justice areas. Of the 17 VOC monitors, 29% are in environmental justice areas. Of the total Pennsylvania population, 28.9% live in environmental justice areas. The Department believes the current network to be reasonably representative of air quality in environmental justice areas, and will give consideration to additional monitoring in environmental justice areas as resources become available. The Department adheres to all monitoring requirements set forth in 40 CFR Part 58.10, and can use the existing monitoring network to better understand any disparities. Monitor placements and environmental justice areas throughout the Commonwealth are depicted in the following maps.

Figure 1 - Environmental Justice Areas by Census Block
Blue Dots: Monitors in EJ Area; Black Dots: Monitors not in EJ Area

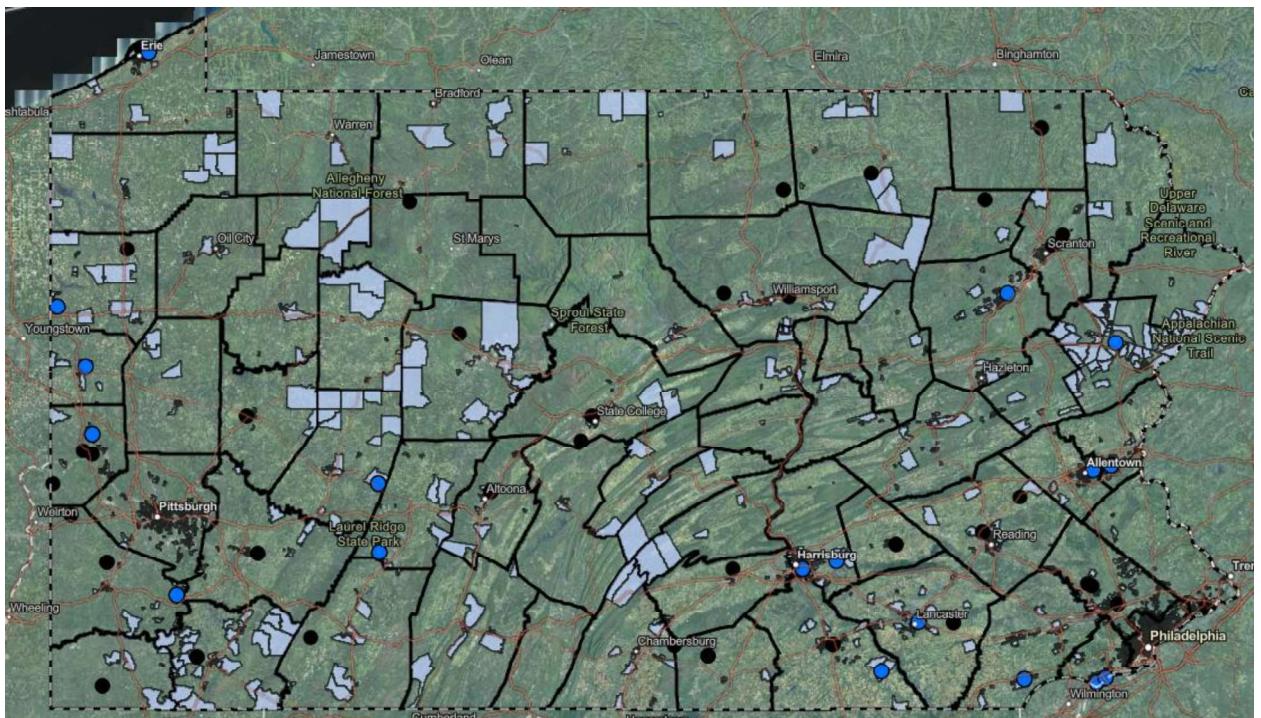


Figure 2 - Environmental Justice Areas by Census Tract
Green Stars: Monitors in EJ Area; Black Dots: Monitors not in EJ Area

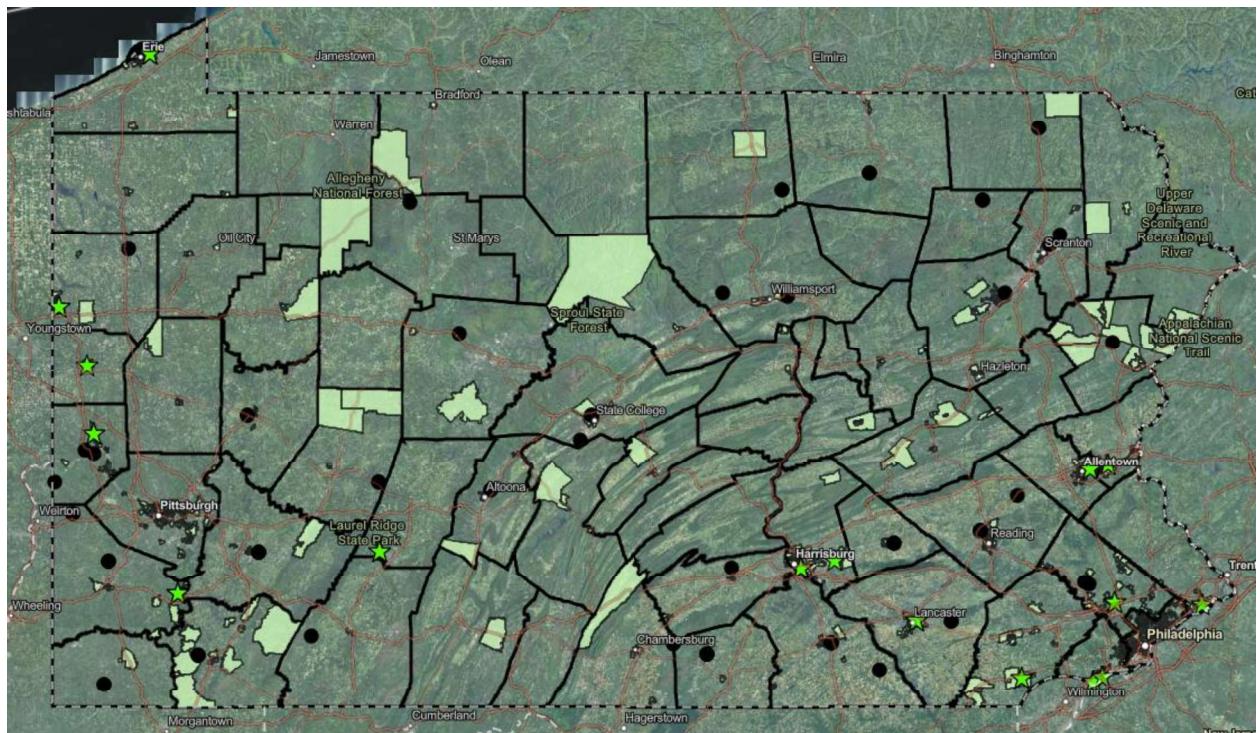
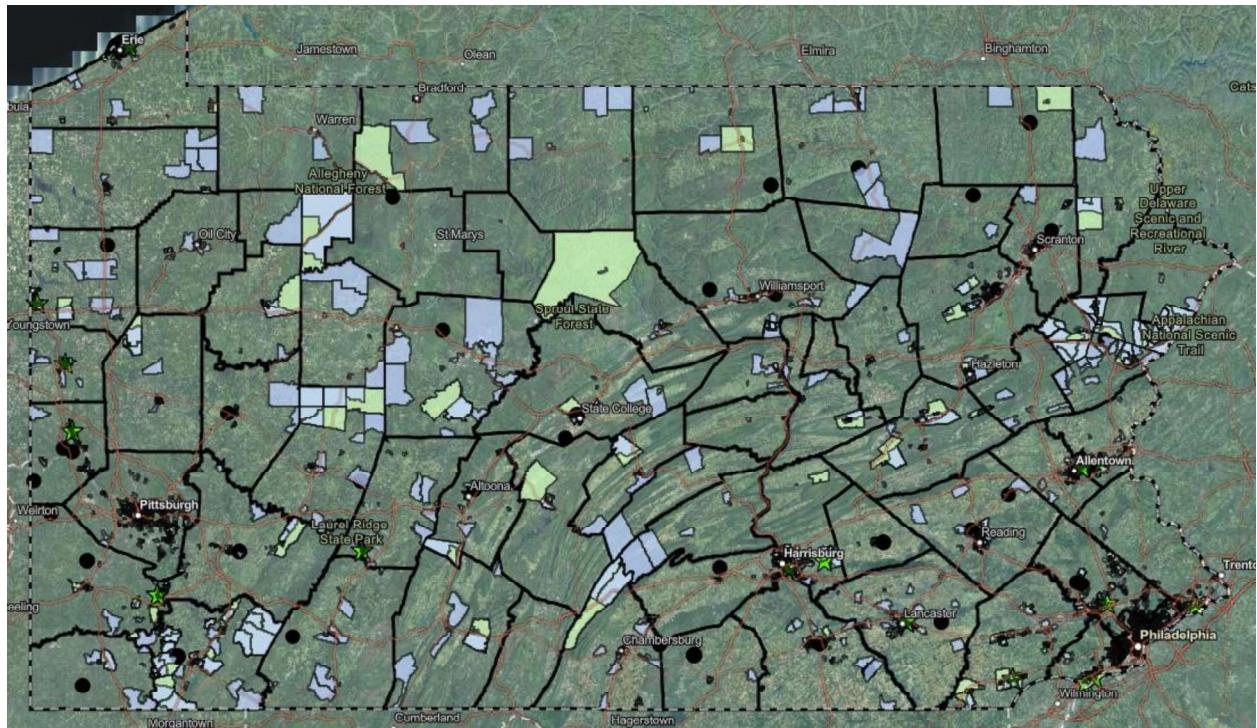


Figure 3 - Environmental Justice Areas by Census Block and Census Tract
Green Stars: Monitors in EJ Area; Black Dots: Monitors not in EJ Area



Note: Environmental Justice areas are designated based on census tract and census block. A census tract is a statistical subdivision of a county that aims to have roughly 4,000 inhabitants. A census block is the smallest geographical census unit and is not delineated based on population. Many census blocks do not have any population. In Pennsylvania, many census blocks and census tracks overlap.

Further, the ambient air monitoring network is one part of the Department's efforts to safeguard the health of Pennsylvanians and the environment. Other Bureau of Air Quality functions, such as facility permitting, continuous emissions monitoring and inspections, and the Department's other program areas, including the Office of Environmental Justice, are also part of that effort. These functions taken together with monitoring serve to protect public health in environmental justice areas and across the state.

- 21. Comment:** The commentator feels the Department should strengthen the Air Monitoring Network for Delaware County, including the City of Chester. The commentator states that as an environmental justice community, Chester deserves better air monitoring. The commentators cited a PBS television examination titled “Justice in Chester” to show the long history of polluting facilities. The commentator feels that the Department is partly responsible for this problem and should strengthen the air monitoring network to redress some of the harm.

Response: The Department appreciates the commentator’s concerns regarding impacts to environmental justice communities. The Department operates two air monitoring stations in Delaware County, both of which are in environmental justice areas. See also Response #20.

- 22. Comment:** The Department should update the network to provide monitoring for SO₂ in Chester. There are significant emissions of SO₂ from a number of sources in this community near the Delaware River.

The Department does not conduct monitoring for SO₂ at either of the two monitors in Delaware County, asserting that it already has enough SO₂ monitors for the core based statistical area (CBSA). Extending the air monitoring network to SO₂ may involve not only the installation of SO₂ sensors at existing monitors (Marcus Hook and Chester), but also the installation of a new monitor to the east of the Kimberly Clark facility, which lies to the east of the existing Chester monitor.

Response: The Department appreciates the commentator’s concerns with SO₂ monitoring in Delaware County. Appendix E of the Plan provides the SO₂ Data Requirements Rule Update as specified in 40 CFR Part 51, Subpart BB and the plan complies with these requirements. As noted in the update in Appendix E of the Plan, all facilities in the Delaware/Philadelphia Counties have reported a decrease in SO₂ emissions. For the Delaware/Philadelphia Counties cluster, SO₂ emissions dropped 57.6% from the initial 2014 reported emissions to the three-year average of 2017-2019.

- 23. Comment:** The commentator requests the Department update the network to provide monitoring throughout Delaware County. To support their request, the commentator provided attachments to news articles of a petroleum odor issue on October 25, 2019.

In the aftermath of all these releases, the commentator also feels the Department should explain how the air monitoring network will work to detect elevated levels of VOCs and other air pollutants throughout Delaware County, and not just at the Chester and Marcus Hook monitoring stations. It should also discuss where the investigation of releases in 2019 stands.

Response: The Department appreciates the commentator's concerns with air monitoring in Delaware County. The ambient air monitoring network is one part of DEP's efforts to safeguard the health of Pennsylvanians and the environment. Other Bureau of Air Quality functions, such as facility permitting, continuous emissions monitoring and inspections are also part of that effort.

EPA sets forth monitoring requirements in 40 CFR Part 58, Appendix D. The Department exceeds these requirements as outlined in Appendix C of the Plan.

Department activities related to enforcement and investigation of releases or leaks is beyond the scope of this document.

- 24. Comment:** The Department should provide informal unofficial monitors to supplement the official network, in Chester as well as throughout the county.

The Department does not make any mention about the use of low-cost sensors to supplement the air monitoring network. The commentator largely supports the development of a low-cost air monitoring network or a distributed air monitoring network that can be used to fill in the gaps of the official network. This could help to expand data on air quality that could be used to improve the positioning of official monitors and the expansion of the existing network. Low-cost monitoring could be used as a tool for expanding knowledge of air quality in areas that are not currently being monitored. The commentator acknowledges the limitations of these monitors in comparison with the official monitoring stations.

The Department should provide an analysis of how low-cost monitoring could be used in practice to supplement and improve the air monitoring network throughout Pennsylvania.

Response: The Department appreciates the commentator's concerns. EPA sets the monitoring plan requirements in 40 CFR Part 58.10. The Department adheres to all requirements. The Department has been closely following the rapid development of several categories of low cost sensors and will consider incorporating their use in some capacity into monitoring plans in the coming years as data quality and sensor reliability improves.

- 25. Comment:** The commentator feels the Department should strengthen the Air Monitoring Network for Westmoreland County, to address air emissions from industrial facilities in

Allegheny County. The commentator provided a list of six facilities operating in southeastern Allegheny County.

The commentator states the gap in the air monitoring network in Westmoreland County is highlighted by a recent application by Allegheny Energy Center, LLC (Invenergy) to the Allegheny County Health Department for a permit under the Prevention of Significant Deterioration program. The commentator feels the proposed plant would not only increase pollution for the local community within the county, but also release pollution into environmental justice areas on the other side of the county line, outside the jurisdiction of Allegheny County and within the jurisdiction of the Department.

Response: The Department appreciates the commentator's concerns with air pollution in Westmoreland County. EPA sets forth minimum monitoring requirements in 40 CFR, Part 58, Appendix D. These requirements are based on MSAs as provided by the Office of Management and Budget. Westmoreland County is located in the Pittsburgh MSA. The number of monitors for ozone, SO₂, NO₂, CO, and PM_{2.5} encompasses a substantially greater number of monitoring sites than the minimum requirement. The requirements for each type of monitor, as well as the number of monitors, can be found in Appendix C of the Plan.

26. **Comment:** The commentator feels the Department should require the Allegheny County Health Department to install a SLAMS monitor for lead near the Edgar Thomson Facility in Braddock.

Response: The Department appreciates the commentator's concerns. ACHD monitors the air independently of DEP's air monitoring network.

As stated in Section 12(b) of the Pennsylvania Air Pollution Control Act (PAPCA) (35 P.S. § 4012(b)):

The administrative procedures for the abatement, reduction, prevention and control of air pollution set forth in this act shall not apply to any county of the first or second class of the Commonwealth which has and implements an air pollution control program that, at a minimum, meets the requirements of this act, the Clean Air Act and the rules and regulations promulgated under both this act and the Clean Air Act and has been approved by the department.

Section 4 of the PAPCA does not give the Department the authority to require ACHD to install a SLAMS monitor. Instead, this section states that the Department should:

Encourage the formulation and execution of plans in conjunction with air pollution control agencies or civil associations of counties, cities, boroughs, towns and townships of the Commonwealth wherein any sources of air pollution or air contamination may be located, and enlist the cooperation of those who may be in control of such sources for the control, prevention and abatement of such air pollution and air contamination.

However, the Department has referred this comment to ACHD for consideration in future network assessments.

27. **Comment:** The commentator feels the Department should revise the Proposed Plan to provide a detailed explanation regarding how the reporting of AQI data is performed for all ten MSAs in the Commonwealth of Pennsylvania.

Response: The Department appreciates the comment. The Department is not required to address the reporting of AQI data in the Plan according to 40 CFR Part 58.10. For consistency, The Department removed the reference to the AQI in Appendix C. The Department continues to use NO₂, ozone, PM and SO₂ data in the AQI forecasts as outlined in EPA's Technical Assistance Document for the Reporting of Daily Air Quality – the Air Quality Index (AQI) ([aqi-technical-assistance-document-sept2018.pdf](#))

28. **Comment:** The commentator requests that the Department expand the monitoring of ambient ozone concentrations in urban areas, especially in Cumberland County. The commentator feels the lack of an ozone monitor in Cumberland County prevents residents from recognizing the true level of exposure to ozone pollution. This should be in addition to the planned new ozone monitors for Franklin and Adams County contained in the the Department's 2021 plan.

Response: The Department appreciates the commentator's request for an additional ozone monitor in Cumberland County.

U.S. EPA sets forth minimum monitoring requirements for ozone in 40 CFR Part 58, Appendix D. These requirements are based on Metropolitan Statistical Areas (MSAs) defined by the federal Office of Management and Budget. Cumberland County is part of the Harrisburg-Carlisle, PA MSA, which also includes Dauphin and Perry Counties. As outlined in the Plan, The Department is required by the minimum monitoring requirements set forth in 40 CFR to locate two ozone monitors in the Harrisburg-Carlisle MSA. The Department maintains two ozone monitors in this region at its Harrisburg and Hershey monitoring stations, both in Dauphin County.

Ground-level ozone is primarily a secondary pollutant, being formed in the atmosphere from precursor compounds, mainly NO₂ and VOC, in the presence of sunlight. For this reason, maximum ozone concentrations are generally measured downwind of precursor emitters (sources), often miles away. Measured ambient ozone concentrations may also reflect regional transport of ozone. Based on the geography, meteorology and downwind location to precursor sources, including mobile sources from major highways, DEP's Dauphin County monitors are located in areas where maximum concentrations of ozone are likely to occur in the MSA. In addition, both ozone monitors are located in areas in which ozone transported from western Pennsylvania, and from the Baltimore and Washington metropolitan areas, would be captured. Therefore, the Department considers the location of these monitors in the Harrisburg-Carlisle MSA to be the most protective of the MSA population as a whole, and adequate to properly characterize the region.

Similar to air quality characterizations within an MSA region, Air Quality Index (AQI) forecasting is based on maximum concentrations measured within a forecast region. With respect to the Susquehanna Valley AQI forecast area (which encompasses the counties of Cumberland, Dauphin, Lancaster, Lebanon and York), Cumberland County is the only county that does not have an ozone monitor. As with all of the other areas in PA, the highest ozone concentrations are found in areas downwind of the major metropolitan areas. In the case of the Susquehanna Valley, the maximum ozone concentration with respect to the 2015 ozone NAAQS is at the Lebanon monitor. The Department does not expect ozone concentrations in Cumberland County would exceed those measured at its monitoring sites in both Dauphin and Lebanon counties.

Over the past few years, the Allentown, PA area has undergone a similar transition to the one in Carlisle, PA, to handle increased truck traffic. In the Lehigh Valley air quality forecast area, both of the Department's Allentown and Freemansburg monitors are in attainment for the 2015 ozone NAAQS. A similar result is expected in Cumberland County, should an ozone monitor be installed there.

- 29. Comment:** The commentators have many concerns about the quality of their air. The commentators state that their region—Allegheny County as well as Beaver County—continues to suffer from some of the worst air quality in the entire United States, as noted year after year in the American Lung Association's "State of the Air" annual reports. The commentators are concerned about the impact this poor air quality continues to have on health and well-being, particularly for those suffering from pediatric and adult asthma, chronic obstructive pulmonary disease and other respiratory ailments, and cardiovascular disease.

The commentators also feel environmental justice concerns come into play as well, as lower income and non-white residents are disproportionately affected since they often live closer to pollution sources and are more vulnerable to the health effects.

The commentators feel that there are inadequate monitors for ozone, NO_x, and hazardous air pollutants. These concerns are related to the air emissions from the Shell Pennsylvania Petrochemicals Complex (Shell ethylene cracker plant) that reportedly will come online in 2022. The cracker plant, located in Potter Township, Beaver County, is permitted to emit 516.2 tons of VOCs, 328 tons of NOx, and 32 tons of hazardous air pollutants. Moreover, the emissions from the Shell cracker plant will be additive to the emissions from pollution sources already in the region. The various emissions from all sources should be measured cumulatively rather than considering each pollution source individually.

The commentators state that the monitors in Vanport and Beaver Valley do not have any sensing equipment for NOx and hazardous air pollutants. The Beaver Valley site only samples ozone once every 6 days via a canister monitor.

The commentators request that the The Department consider adding continuous ozone monitors, NOx monitors, and hazardous air pollutant monitors at the Beaver Valley and Vanport locations. These updates to the monitoring network in Beaver County are

essential for protecting the health of residents in Beaver County as well as in Allegheny County.

Response: See responses #11,#12, and #20.

30. **Comment:** The commentator is very disappointed in regards to Allegheny County. The commentator sees nothing new in regards to air monitoring proposed in Allegheny County. The commentator feels there are several issues within Allegheny County's monitoring. The commentator asks to add a monitoring system for multiple pollutants in an area that will capture a better snapshot of what is going on now and what will be going on in the future.

Response: The Department appreciates the comment. Ambient air quality monitoring in Allegheny County is performed independently by the Allegheny County Health Department (ACHD). The Department has referred this comment to ACHD for consideration in future network assessments.

31. **Comment:** The commentator feels the current monitoring in Westmoreland County is not adequate to protect the citizens that reside there. The commentator feels extra monitoring should be done in affected environmental justice communities, with multiple sources of air pollution, so that their cumulative amounts can be measured to safeguard the residents. The commentator feels extra monitoring stations should be placed in communities where the topography, combined with concentrated, polluting industries, will create a deadly situation. The commentator feels the Greensburg monitoring site should also monitor for SO₂, NO₂, CO, lead, carbonyls or metals, as many of these non-monitored pollutants are released during the drilling and production of natural gas wells and release by natural gas-powered generating plants.

Response: Please see responses #20 and #25.

Appendix A – List of Commentators

LAST NAME	FIRST NAME	AFFILIATION	CITY	STATE	ZIP
Ahlers	Christopher	Clean Air Council	Philadelphia	PA	19103
Allan	Arianne		Wallingford	PA	19086
Au	Thomas	Clean Air Board of Central Pennsylvania	Carlisle	PA	17013
Barcomb	Carolyn		Media	PA	19063
Bardol	Diane		Philadelphia	PA	19115
Baxter	Cynthia Jama		Linwood	PA	19061
Bentivegna	Peter		Media	PA	19063
Bianco	Susan		Norwood	PA	19074
Bolton	Elizabeth		Swarthmore	PA	19081
Bomstein	Alex		Philadelphia	PA	19147
Bradshaw	Barbara		Springfield	PA	19064
Burridge	Nora		Wallingford	PA	19086
Castellan	James		Media	PA	19063
Chabot	Allison		Media	PA	19063
Collins	Rosemarie		Glen Mills	PA	19342
Coster	Carol		Lansdowne	PA	19050
Cross	Holly		Broomall	PA	19008
Cutler	Barry		Springfield	PA	19064
Cylinder	Aaron		Media	PA	19063
Daliessio	Lorraine		Marcus Hook	PA	19061
Dattilo	Shiela		Freedom	PA	15042
Delaney	Melissa	Communities First Sewickley Valley	Sewickley	PA	15143
DiCenzo	Julie	Communities First Sewickley Valley	Sewickley	PA	15143
D'Orazio	Gina		HAVERTOWN	PA	19083
Duncan	Susan		Media	PA	19063
English	Victoria		VILLANOVA	PA	19085
Fanconi	Carol		Media	PA	19063
Fine-Marsh	Audrey		Media	PA	19063
Focht	Tara		Springfield	PA	19064
Friedman	Bonnie		Glen Mills	PA	19342
Galloway	Allyson		Media	PA	19063
Gavin	Knar		Drexel Hill	PA	19026
Gordon	William		Glenolden	PA	19036
Gottlieb	Arlana		Havertown	PA	19083
Graber	Gillian	Protect PT	Harrison City	PA	15636
Grice	Ted		Elizabeth	PA	15037
Hall	Joanne		West Newton	PA	15089
Hallowell	Lisa		Radnor	PA	19087
Harkins	Nancy		West Chester	PA	19382
Harper	Marilynn		Media	PA	19063
Harris	Dale		Lansdowne	PA	19050
Henson	Geoffrey		Glen Mills	PA	19342
Hoffman	Patty		McKeesport	PA	15135
Hoffman	Patty		McKeesport	PA	15135
Josephs	Ira		Media	PA	19063
Keenan	James		Lansdowne	PA	19050
Kelly	Judy		Chadds Ford	PA	19317
Kronheim	David		Chester	PA	19013
LeFever	Yvonne		Prospect Park	PA	19076
Lodge	Cathy		Bulger	PA	15019

LAST NAME	FIRST NAME	AFFILIATION	CITY	STATE	ZIP
Mann	Robin		Rosemont	PA	19010
McCaney	Tom		Havertown	PA	19083
McCullough	Joseph		Woodlyn	PA	19094
McGrath	Jessica		Media	PA	19063
McKay	Sarah		Media	PA	19063
Miari	Eve		MEDIA	PA	19063
Mino	Julio Paz y		Havertown	PA	19083
Moore	Janet		Broomall	PA	19008
Morfei	Ellen		Media	PA	19063
Murray	Frances		Brookhaven	PA	19015
Nash	Nora		Aston	PA	19014
Nelson	Thomas		Lansdowne	PA	19050
Nguyen	Tuan		Media	PA	19063
O'Neill	Jessica	PennFuture	Philadelphia	PA	19102
Patton	Peter		Havertown	PA	19083
Pegan	Philip		Aston	PA	19014
Pegan	Susan		Aston	PA	19014
Raizman	Joshua		WYNNEWOOD	PA	19096
Reeves	Jamie		Brookhaven	PA	19015
Roane	Patricia		Upper Darby	PA	19082
Rosenbaum	Joanne		Media	PA	19063
Rosin	Berte		Garnet Valley	PA	19060
Rowan	Dennis		lansdowne	PA	19050
Sarazin	Stephen		Prospect Park	PA	19076
Shaw	Bruce		Brookhaven	PA	19015
Smith	Julie		Media	PA	19063
Smith	Donna		Havertown	PA	19083
Spadaro	Maureen		Media	PA	19063
Steele	Alison	Environmental Health Project	Pittsburgh	PA	15317
Treat	Emily		Aston	PA	19014
Werner	Lora		Media	PA	19063
Whitaker	Gail		Media	PA	19063
White-Marley	Megan		Havertown	PA	19083
Williams	Steven A.		Brookhaven	PA	19015
Young	Connor		Exton	PA	19341
Young	John		Broomall	PA	19008
Zerega	Pat		Oakmont	PA	15139