Response to Comments

West Virginia Department of Environmental Protection - Division of Air Quality

2019 Ambient Air Monitoring Annual Network Plan

June 25, 2019

Overview

On May 13, 2019, the West Virginia Department of Environmental Protection's Division of Air Quality (DAQ) posted the proposed 2019 Ambient Air Monitoring Annual Network Plan (ANP), and SO_2 Data Requirement Rule Annual Report, included as an appendix, to our website at www.dep.wv.gov/daq/ in the "Public Notice and Comment" section. The 30-day public review and comment period closed on June 12, 2019. No comments were received regarding the SO_2 Data Requirement Rule Annual Report. Five (5) comments were received regarding the 2019 Ambient Air Monitoring Annual Network Plan. All commenters requested air quality monitoring using federally-approved methods in Jefferson County due to concerns regarding the potential air quality impacts of Rockwool (permitted as ROXUL USA INC.), a new mineral wool manufacturing facility currently under construction in Ranson, West Virginia. Comment summaries and DAQ's responses follow the List of Commenters. A copy of the comments in their entirety will be shared with the United States Environmental Protection Agency (EPA) Region III.

List of Commenters for DAQ's 2019 Ambient Air Monitoring Annual Network Plan

1. David Michael Glenn PhD
2. Jeffrey Gustafson
3. Timothy Ross
4. Christine Marshall
5. Alix Hazel

Comment: The development of the Rockwool plant in Ranson, West Virginia has created a need for multiple Federal Reference Method (FRM) sampling sites for $PM_{2.5}$ and ozone in Jefferson County, West Virginia to protect the population and agricultural industry. Additional pollutants such as SO_2, NO_x and CO, should be also be monitored along with meteorological data and weather monitoring. There are concerns regarding hazardous air pollutant emissions. There is a need for government-approved monitoring data in Jefferson County, West Virginia.

Response: DAQ acknowledges the concerns expressed. Numerous factors are involved in determining a monitoring site location. DAQ's overall intent is to monitor ambient air, and not specifically fenceline or hotspot air quality associated with a single facility. The ambient air monitoring we conduct is designed to help assess compliance with the NAAQS, thereby, protecting air quality throughout the state. Currently, there are no federal or state regulations

that require the air agency to conduct fenceline or hotspot monitoring. In addition, DAQ does not have the staff or resources that would be necessary to operate multiple source-oriented monitors for a single facility. Currently, DAQ operates 18 ambient air monitoring stations located throughout the state. In general, procedures to establish a monitoring station are found in 40 CFR Part 58, Appendix D which can be found at: https://www.law.cornell.edu/cfr/text/40/appendix-D_to_part_58. Monitoring equipment and analysis methods must FRM or Federal Equivalent Method (FEM) standards. An updated list of these methods can be found at: https://www.epa.gov/sites/production/files/2018-12/documents/amtic_list_dec_2018_update_1.pdf. These are the guidelines used by DAQ to construct and maintain our ambient air monitoring network. While meteorological data collection guidelines are provided, weather monitoring is not included.

Information on air monitoring emissions across the state can be found at: https://dep.wv.gov/daq/. Scroll down the webpage to find the "Introduction to West Virginia Air Quality" which provides background information on air quality program implementation. Past annual reports can be found at https://dep.wv.gov/daq/Pubs/Pages/default.aspx.

A single monitoring site with FRM/FEM level monitors for criteria pollutants, including lead, and hazardous air pollutants, could be in the $200,000 - $300,000 range, when considering instrument and calibrator costs along with site construction (shelter, concrete pad, fencing, electricity). There would also be recurring costs for personnel, quality assurance, laboratory analyses, equipment maintenance and repair, and other unforeseen incidents.

While DAQ does not plan to add additional monitoring locations to the network at this time, there are monitors located nearby in West Virginia, Maryland, Virginia, and Washington, D.C., that provide information on air quality in the area, and are shown on the map below, including:

Martinsburg, WV (approximately 13 air miles from Ranson, WV);

Hagerstown, MD (approximately 25 air miles from Ranson, WV);

Frederick, MD (approximately 26 miles from Ranson, WV);

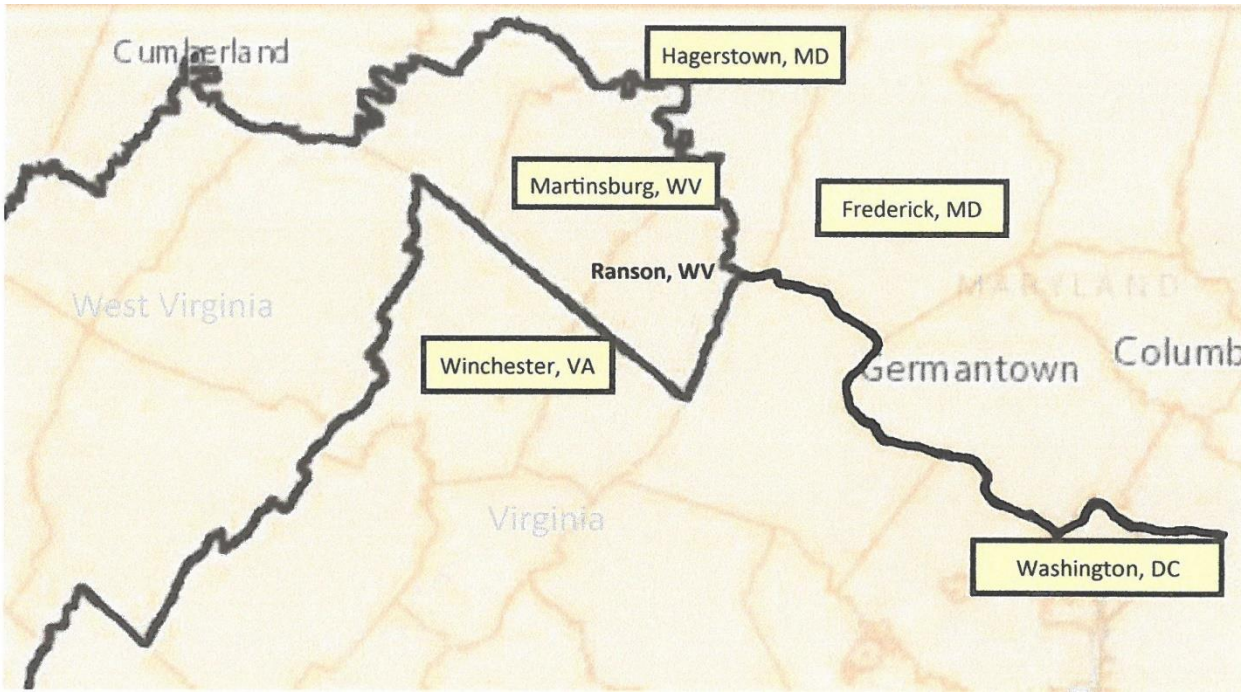
Winchester, VA (approximately 20 air miles from Ranson, WV); and,

Washington, D.C., McMillian air toxics trends site (approximately 52 air miles from Ranson, WV).

Data collected at outdoor air monitors across the United States, including those noted above as well as those located throughout West Virginia, can be found at https://www.epa.gov/outdoor-air-quality-data. The interactive map with monitor locations is useful; pre-generated data files are available for download as well. This data is updated on a quarterly basis.

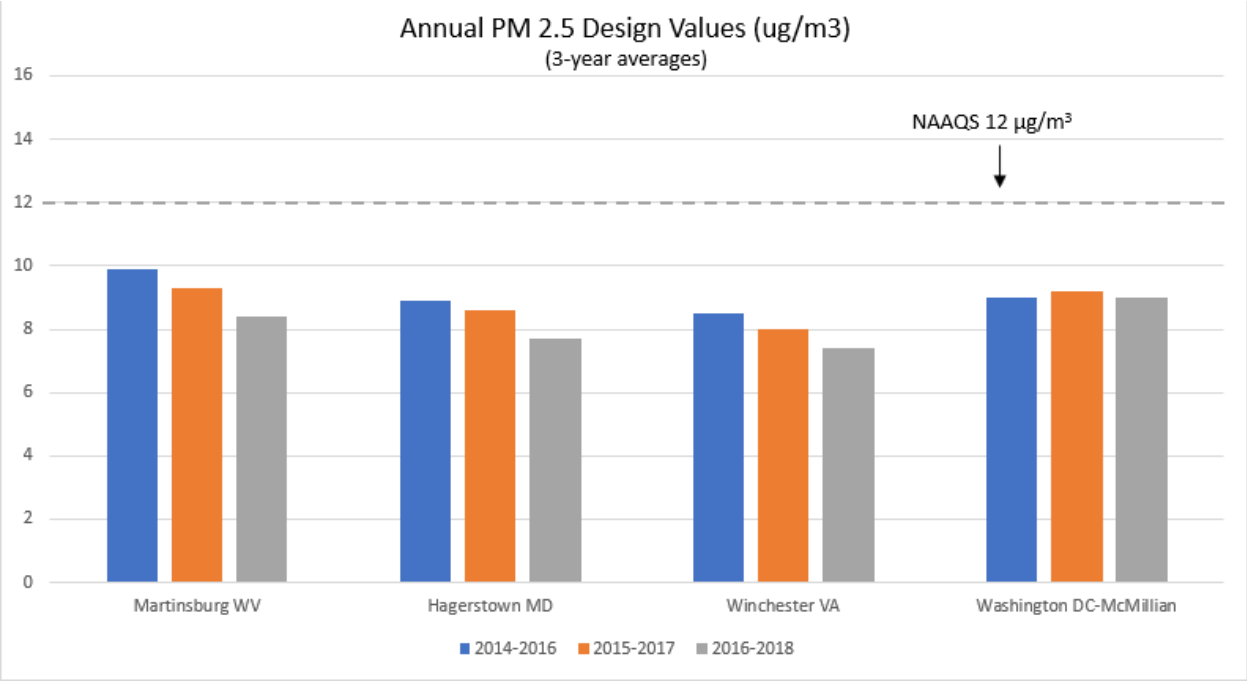
To help provide context for regional air quality, the charts below summarize the design values from monitoring data near Ranson, West Virginia, compared with EPA's National Ambient Air Quality Standards (NAAQS). These data show the current status of air quality and are evaluated on an on-going basis. The map below shows the relative locations of these air monitoring sites from Ranson, West Virginia.

Figure 1: Locations of federally-approved air monitoring sites near Ranson, West Virginia



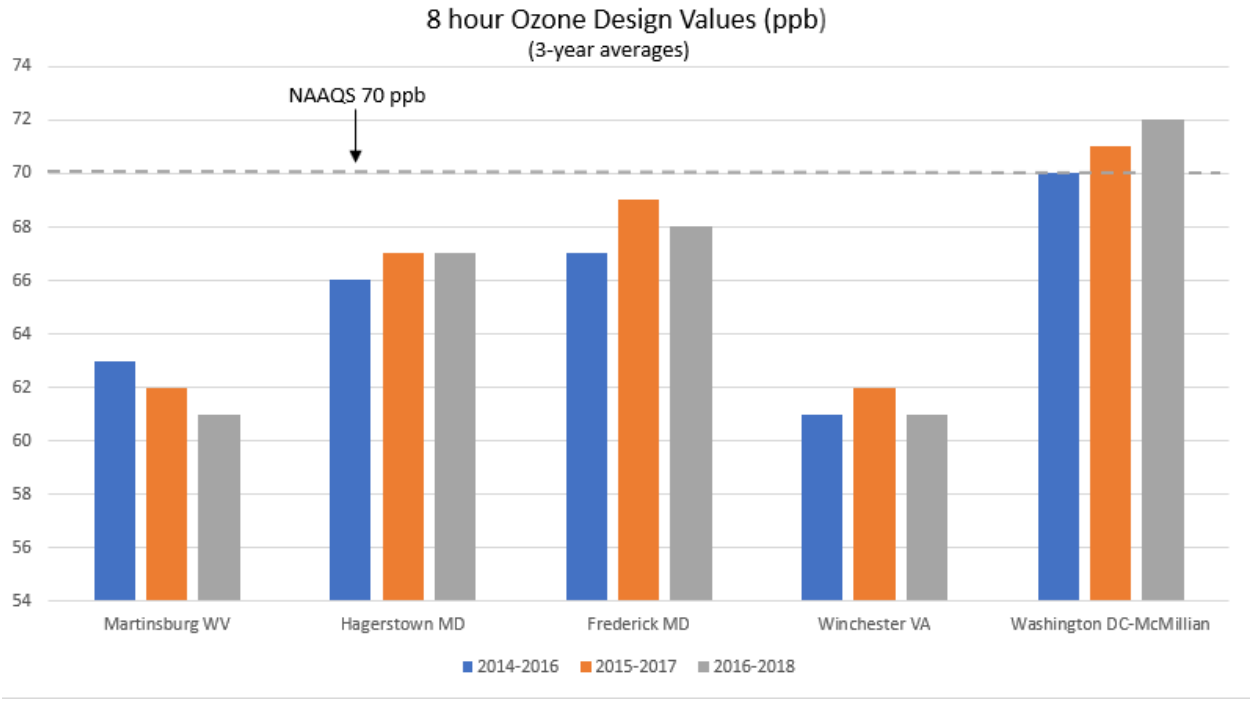
The chart below shows the Annual Mean three-year average for $PM_{2.5}$ over the past three design value years for air monitoring sites both upwind and downwind of Ranson, West Virginia. As can be seen, these monitors meet the NAAQS.

Figure 2: Annual Mean three-year average for $PM_{2.5}$ over the past three design value years for air monitoring sites both upwind and downwind of Ranson, West Virginia



The chart below shows the 8-hr ozone values for the past three design value years for air monitoring sites both upwind and downwind of Ranson, West Virginia. As can be seen, all but one of the sites meet the ozone NAAQS. The Washington, DC site does not meet the 8-hr ozone NAAQS; this site is influenced by multiple sources including mobile sources, and that air agency has primacy to address air quality issues. DAQ works with these agencies via multi-jurisdictional organizations (MJOs).

Figure 3: 8-hour ozone values for the past three design value years for air monitoring sites both upwind and downwind of Ranson, West Virginia.



<u>Comment</u>: Wind direction varies with wind speed based on Automated Surface Observing System (ASOS) data from the Martinsburg Airport. Low wind speed increases the likelihood of ozone and $PM_{2.5}$ damage to the population and agriculture with low wind speeds coming primarily from the southerly direction. Moderate to high winds come predominantly from westerly directions which is the direction of several population centers: Charles Town, Ranson, and Harpers Ferry in West Virginia; Frederick, Maryland; and Leesburg, Virginia.

ASOS data from Martinsburg Airport demonstrates the frequency of calm air (<3 knots) is 30% and the range of calm air can exceed 20 hours. Jefferson County, West Virginia experiences inversions and stagnant weather frequently. The ASOS data cannot be assumed to be representative of Jefferson County; these data were designed to be representative of a five statute mile radius.

The Rockwool plant is within close proximity to 3 public schools and is surrounded by agricultural land in which the primary crop rotation is soybean which is highly sensitive to ozone damage. Tourism opportunities, and horses, may be impacted.

Response: The ANP is not meant to address permitting issues. Nevertheless, a brief explanation is provided below and additional information can be found on the West Virginia Department of Environmental Protection's (WVDEP's) Rockwool webpage (go to www.dep.wv.gov, click on the link "For more information on Rockwool, CLICK HERE"). DAQ reviewed and replicated air dispersion analyses of proposed emissions from the Rockwool facility using EPA's federally-required Guideline on Air Quality Models (GAQM) methodology for NO_x, CO, VOC, SO_2, PM_{10}, $PM_{2.5}$; and, EPA's modeled emission rates of precursors methodology for ozone. Five (5) years of meteorological data from the Martinsburg Airport was used to obtain a wide range of potential atmospheric conditions, including calm air. The air dispersion modeling analyses and criteria are established to be protective of EPA's NAAQS. The NAAQS are set for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two types of NAAQS. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. By meeting the intermediate air dispersion modeling thresholds, the NAAQS are met, thereby protecting human health, and crops, such as soybeans, and allowing for enjoyment of the natural environment, which allows for tourism.

A copy of DAQ's March 2, 2018 Air Quality Impact Analysis Review can be found on WVDEP's Rockwool webpage (go to www.dep.wv.gov, click on the link "For more information on Rockwool, CLICK HERE"). The cumulative modeling analysis demonstrated that no modeled exceedances of the Class II increment for NO_2, $PM_{2.5}$ or PM_{10} are predicted, and that the proposed project will not cause or contribute to exceedances of the 1-hour SO_2 NAAQS. Additionally, Rockwool's cumulative impact on ozone formation (based on NO_x and VOC emissions) was below the modeled emission rates of precursors threshold. Analyses also predicted Rockwool's impacts based on both primary and secondary $PM_{2.5}$ formation was insignificant. EPA Region III reviewed DAQ's modeling approach and results; EPA provided comments to the agency which were responded to prior to issuance of the final air permit. This correspondence can also be found on WVDEP's Rockwool webpage.

Comment: Rockwool's emissions calculations [in the permit application] are suspect. They did not provide information to assess precursors to $PM_{2.5}$ emissions.

Response: The ANP is not meant to address permitting issues. However, please see the previous response for a discussion on DAQ's air quality impact analysis review conducted as part of the overall permitting evaluation for the Rockwool facility. Analyses predicted Rockwool's impacts based on both primary and secondary $PM_{2.5}$ formation would be insignificant. In addition to stack testing, the DAQ permit incorporates on-going parametric monitoring of process conditions, including continuous emissions monitoring on some processes, to determine if the

permitted emissions limits are being met. The permit can be found at WVDEP's Rockwool webpage (go to www.dep.wv.gov, click on the link "For more information on Rockwool, CLICK HERE").

Comment: Jefferson County, West Virginia abuts Loudoun County, Virginia and Frederick County, Maryland, both are 2015 8-hr ozone non-attainment areas. Rockwool's increase in NO_x emissions is a precursor for ozone.

Response: The ANP is not meant to address permitting issues. However, please see the previous response for a discussion on DAQ's air quality impact analysis review conducted as part of the overall permitting evaluation for the Rockwool facility. While there are ongoing ozone attainment issues in nearby areas, DAQ's air quality impact analysis review determined that proposed emissions from the Rockwool facility would be below EPA's significant impact level (SIL) for ozone (including NO_x and VOC precursors) and therefore would not cause or contribute to any violation of NAAQS.

Comment: DAQ should request EPA perform a detailed study of Jefferson County taking into account transport of pollutants into Jefferson County from the Southwest. The draft ANP states that $PM_{2.5}$ in Martinsburg, WV has not exceeded NAAQS in recent history, yet EPA fined Argos Cement $1.5 Million recently for over five years of exceeding their permitted emissions limits. The Martinsburg air monitor is in close proximity to the cement plant.

Response: Planning efforts at state, regional, and federal levels develop air inventories of emissions from a wide variety of sources, conduct air dispersion modeling, and evaluate the impacts both upwind and downwind to ensure the NAAQS are met. These efforts occur within DAQ, as well as MJOs, and EPA.

Permitted emission limits are established so that no one facility is allowed to cause or contribute to a violation of NAAQS. This approach also establishes a framework in which aggregate emissions from multiple facilities do not exceed NAAQS. Even in the unfortunate circumstance of a violation of an emission limit at a facility, a NAAQS violation typically does not occur.

Comment: West Virginia should work with Maryland to develop proper monitoring of the eastern panhandle, and Maryland should be made aware of the increase of pollution they should expect if the proposed Rockwool plant becomes operational. Maryland and the EPS [sic, EPA] should be informed of the state-supported industrialization of Jefferson County, West Virginia.

Response: As discussed in the response to the first comment, there are monitors located near Ranson, in West Virginia itself, as well as Maryland, Virginia, and Washington, D.C. that provide information on air quality in the area. The ANP is not meant to address permitting

issues. However, the permitting public review procedures of 45CSR13 and 45CSR14 provide for notice to a number of officials and agencies. A copy of the preliminary determination, draft permit, and public notice were forwarded to EPA Region 3, the National Park Service (NPS) and the US Forest Service (USFS). A non-confidential copy of the application, complete file, preliminary determination and draft permit were made available for public review during the public comment period at the DAQ Headquarters in Charleston and on DAQ's website. Additionally, a copy of the public notice was sent to the mayor of Ranson, West Virginia; the County Clerk of Jefferson County, West Virginia; the Virginia Department of Environmental Quality (VDEQ); and the Maryland Department of the Environment (MDE).

Comment: A large industrial park is planned in Ranson/Kearneysville along State Route 9; Rockwool will be the anchor industry. There is concern with increasing air quality impacts, and a baseline of ambient air monitoring data is needed before the Rockwool facility begins operation sometime in mid-2020 as well as prior to further industrialization of Jefferson County, West Virginia.

Response: DAQ's statewide air program requires that facilities obtain permits with emission limits on air pollutants that meet state and federal emissions standards. As noted above, permitted emission limits are established so that no single facility is allowed to cause or contribute to a violation of NAAQS. This approach also establishes a framework in which aggregate emissions from multiple facilities do not exceed NAAQS.

Comment: Rockwool has promised to install sensors at their plant site and have not.

Response: DAQ is not aware of any activity Rockwool has undertaken to install and operate either sensors or FRM/FEM air monitors.

Comment: The ANP should include more than just one picture of a station. One should be able to have a 360 perspective in order to see obstructions and provide metadata.

Response: The requirements for the ANP are found in 40 CFR 58.10 and these do not mention photographs – photographs were requested by EPA to be included over the years in order to bolster the site description. The latitude/longitude coordinates are part of the monitor description, and provide enough information to locate the site on GIS tools such as Google Earth.

Comment: The description of the Kanawha County NCore site lists an ultrasonic meteorological sensor. This should be referred to as an ultra-sonic wind sensor.

Response: Thank you for pointing this out; it has been corrected.

<u>Comment</u>: The Purple Air Network shows a significantly different situation from the $PM_{2.5}$ monitor data in Martinsburg, West Virginia. We have many green days and we need to keep them that way as much as possible. When Purple Air Monitors report $PM_{2.5}$ significantly higher than the Weather Channel, clearly something is not right.

<u>Response</u>: DAQ agrees that air quality should be maintained and improved to meet EPA's NAAQS, including for $PM_{2.5}$. The $PM_{2.5}$ NAAQS is met statewide in West Virginia. The $PM_{2.5}$ monitor in Martinsburg, West Virginia meets the FRM criteria and shows that air quality is within the NAAQS. Purple Air sensors do not meet EPA's FRM/FEM criteria for data acceptability. EPA is currently evaluating a number of sensors (commercially available, lower cost air monitoring devices), including Purple Air, for comparison with FRM/FEM monitors. We were unable to verify that the Weather Channel provides Air Quality Index (AQI) data and if so, from what data source.

EPA's AQI is a tool that provides timely, easy-to-understand information on local air quality and whether air pollution levels pose a health concern. EPA's interactive map with AQI data can be found at https://gispub.epa.gov/airnow/. DAQ's AQI information in tabular format can also be found at https://dep.wv.gov/daq/air-monitoring/Pages/AirQualityIndex.aspx. The Martinsburg, West Virginia AQI is from the ozone monitor which provides continuous data. The $PM_{2.5}$ monitor is not continuous and, therefore, is not included in the instantaneous AQI. Instead, the $PM_{2.5}$ monitor at the Martinsburg, West Virginia site is a filter-based FRM monitor that runs on EPA's national one-in-three day schedule. This $PM_{2.5}$ data is easily accessible, along with additional air monitoring data collected by state and local agencies. Please see the response to the first comment for these links.

As part of an overall effort by EPA to develop sensors and citizen science, the South Coast Air Quality Management District in California is conducting side-by-side evaluations of sensors with FRM/FEM air monitoring equipment. A summary of evaluations, including for the Purple Air sensor, can be found at http://www.aqmd.gov/aq-spec/evaluations/summary-pm.