

October 21st, 2024

Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222

Re: Pennsylvania's 2024 Annual Ambient Network Plan

Introduction

We are writing on behalf of the members of our organization, Protect PT (Penn-Trafford). Protect PT is a nonprofit citizens group dedicated to ensuring that the safety, security, and quality of life of community members are protected from the effects of unconventional methane gas development. Please consider this comment regarding the proposed 2024 annual ambient network plan.

As an organization that works closely with impacted communities of Southwestern PA we witness firsthand the issues and concerns with air pollution. Protect PT has a history of working with the communities around a variety of different facilities that are known to cause an increase in air pollution in the surrounding areas.

Unconventional oil and gas development, also known as fracking, can negatively impact air quality by releasing harmful pollutants such as volatile organic compounds (VOCs), methane, and particulate matter into the atmosphere. The extraction process often involves the use of diesel-powered equipment, which emits nitrogen oxides and other contaminants that contribute to smog and respiratory issues. Methane, a potent greenhouse gas, can leak during drilling and transportation, exacerbating climate change. In addition, the Marcellus shale is known for being particularly radioactive. This is because fracking can lead to the release of naturally occurring radioactive materials, such as radium, from deep underground into water supplies and the environment. This contamination poses significant health risks to communities, including increased cancer rates and other serious illnesses. In areas near fracking sites, residents may experience increased exposure to air pollutants, leading to potential health risks such as asthma and other respiratory problems.

Protect PT is particularly concerned about the impact of air pollution on the health of community members. Air pollution poses significant health risks, particularly to the respiratory and cardiovascular systems. Prolonged exposure to pollutants like particulate matter (PM), nitrogen dioxide, ozone, and sulfur dioxide can cause or worsen conditions such as asthma, bronchitis, heart disease, and lung cancer. Children, the elderly, and people with pre-existing health issues are especially vulnerable. Fine particles (PM2.5) can penetrate deep into the lungs and even enter the bloodstream, increasing the risk of strokes and heart attacks. Long-term exposure to polluted air is also linked to reduced lung function and shorter life expectancy.

We have carefully reviewed this updated plan as outlined. While we commend the department for working to implement this policy we feel that this policy falls short of the protections needed by the communities. Our concerns and recommendations are outlined below and we ask that a stronger version of this document be created in order to ensure the protection of both communities and the environment.

Background

Volatile organic compounds (VOCs) are specifically of great concern with compressor stations. Short-term exposure can cause eye and respiratory tract irritation, headaches, dizziness, visual disorders, fatigue, loss of coordination, allergic skin reactions, nausea, and memory impairment. Long-term effects include loss of coordination and damage to the liver, kidney, and central nervous system.¹ There are many different types of VOCs including things like benzene, toluene, ethyl benzene, xylene, and formaldehyde. Formaldehyde specifically leads to short-term impacts of nose and eye irritation, increased risk of asthma and allergies, decrease in weight, stomach ulcers, and liver and kidney damage. Long-term impacts from exposure to formaldehyde include asthma, eczema, and nasal and throat cancer.²

Particulate matter (PM2.5), is the term for a mixture of particles and liquid droplets. PM2.5 are very fine particles; thirty times smaller than the diameter of a single hair. Because it is composed of such tiny components, it can reach deep into the lungs. Exposure to PM2.5 can also affect the heart. Health effects include heart attacks,

¹ Environmental Health Project (2023). Potential Health Effects Due to Inhalation of Air Pollutants. Environmental Health Project. Retrieved March 28th, 2024 from https://www.environmentalhealthproject.org/_files/ugd/a9ce25_531c2388f0dc4b6d902de330db6b1639.pdf?index=true

² Ibid.

irregular heartbeat, asthma attacks; and respiratory symptoms such as irritation of the airways, coughing, and difficulty breathing.³ Numerous epidemiological studies have demonstrated a consistent link between particulate matter and increased cardiopulmonary morbidity and mortality (Brook et al. 2004; Mann et al. 2002; Pope et al. 2002; Samet et al. 2009; Schwartz 1999).⁴ Previous studies have also suggested that PM2.5 exposure is significantly associated with increased heart rate and decreased heart rate variability (HRV; Gold et al., 2000; He et al. 2010; Liao et al. 1999; Luttmann-Gibson et al. 2006; Magari et al. 2001; Park et al. 2005). In addition, research has indicated that fossil fuel related particulate matter is particularly harmful and therefore we need more comprehensive monitoring of PM in areas of high fossil fuel development, transportation, or production.

Most recently the University of Pittsburgh released the results of their three-part study around impacts from shale gas development in Western Pennsylvania. The study looks at impacts on asthma rates, birth impacts, and cancer. They found that people with asthma living near wells during the production phase had a four to five times greater chance of their asthma being exacerbated and increasing hospitalizations.⁵

It is also important to talk about the fact that toxicity of a chemical to the human body is determined by the concentration. This concentration is determined by the intensity and duration of the exposure. Once a receptor is activated, a health event might be produced immediately or in as little as one to two hours.⁶ In some instances, where there is a high concentration of an agent, a single significant exposure can cause injury or illness. This is the case in the instance of an air contaminant induced asthma event. On the other hand, after an initial exposure, future exposures might compound the impact of the first one, in time, producing a health effect.⁷ Repeated exposures will

³ Environmental Health Project. (2021). Particulate Matter: What is PM and Why Should You Be Concerned. In [environmentalhealthproject.org](https://www.environmentalhealthproject.org). Environmental Health Project. Retrieved February 25, 2024, from https://www.environmentalhealthproject.org/_files/ugd/a9ce25_ab5fa37038d94686ad6459027e203035.pdf?index=true

⁴ He, F., Shaffer, M. L., Rodriguez-Colon, S., Yanosky, J. D., Bixler, E., Cascio, W. E., & Liao, D. (2011). Acute Effects of Fine Particulate Air Pollution on Cardiac Arrhythmia: The APACR Study. *Environmental Health Perspectives*, 119(7), 927–932. <https://doi.org/10.1289/ehp.1002640>

⁵ University of Pittsburgh School of Public Health. (2023). Hydraulic Fracturing Epidemiology Research Studies: Asthma Outcomes. https://paenv.pitt.edu/assets/Report_Asthma_outcomes_revised_2023_July.pdf

⁶ Brook, R. D., Rajagopalan, S., Pope, C. A., Brook, J. R., Bhatnagar, A., Diez-Roux, A. V., Holguin, F., Hong, Y., Luepker, R. V., Mittleman, M. A., Peters, A., Siscovick, D., Smith, S. C., Whitsel, L., & Kaufman, J. D. (2010). Particulate Matter Air Pollution and Cardiovascular Disease. *Circulation*, 121(21), 2331–2378. <https://doi.org/10.1161/cir.0b013e3181d8bece1>

⁷ Pope, C. A., Muhlestein, J. B., May, H. T., Renlund, D. G., Anderson, J. L., & Horne, B. D. (2006). Ischemic Heart Disease Events Triggered by Short-Term Exposure to Fine Particulate Air Pollution. *Circulation*, 114(23), 2443–2448. <https://doi.org/10.1161/circulationaha.106.636977>

increase, for instance, the risk for ischemic heart disease. Individuals living near a facility are not just exposed in isolated incidents, but rather ongoing, and therefore the impacts will continue to compound and can lead to more serious health effects.

Recommendations

- Adding more air quality monitors in counties experiencing increased industrialization, unconventional oil and gas development, and rising air pollution levels. This will help establish a clear and accurate baseline for ambient air quality, ensuring better tracking of changes and potential impacts on public health.
- Placing air quality monitors closer to major facilities, as current locations are often too far from significant polluters. Proximity to these sources is essential for providing a more accurate assessment of local air quality and its potential health impacts.
- Increasing the overall number of air quality monitors, with a particular focus on pollution-dense counties. This will enhance monitoring coverage and provide more comprehensive data on areas with higher pollution levels, supporting more effective air quality management.
- Increasing the number of air quality monitors in environmental justice areas from 75% to 100%. This will provide a more complete understanding of the impact of future facilities on these communities, ensuring better protection and more informed decision-making. This would also complement the environmental justice policy in ensuring better protections for these communities going forward.
- Standardizing the chemicals measured at each monitoring site to allow for better cross-comparison between locations. This consistency will provide a more comprehensive understanding of air quality across the state and improve data accuracy for decision-making. In addition we would also like to see the monitoring for particulate matter radiation.

Thank you for your consideration of our comment. If you have questions or comments, please contact us at gillian@protectpt.org or call (724) 392-7023.

Sincerely,



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