ENVIRONMENTAL HEALTH PROJECT
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Allegheny County Health Department
Board of Health and Air Quality Program
Public Hearing, 6:00 p.m. (EDT)
836 Fulton Street
Pittsburgh, PA 15233

Comments regarding public health risks associated with proposed operations at Champion Compressor Station

The Environmental Health Project (EHP) is submitting this written comment to the Allegheny County Health Department (ACHD) to express opposition to the authorization of operations at EQT Artemis Midstream LLC's Champion Compressor Station located in Elizabeth, Pennsylvania. The anticipated pollution from the two gas-fired compressor engines, glycol dehydrator, enclosed flare, gas-fired generator, water storage tanks, pipelines, and other components at the Champion Compressor Station puts undue risk on community members and the environment. EHP recommends that this operating permit application be rejected by the Board of Health and further study be conducted on the cumulative public health risks of oil and gas infrastructure in this community. EHP also recommends further scrutiny of the operators' ability to maintain a safe facility given their extensive history of violations and recent generator fire at this facility, as well as the consideration of alternative, less-emitting technology for this site.

EHP is a nonpartisan, data-driven, nonprofit organization that has defended public health in the face of oil and gas development since 2012. We provide frontline communities with data collection and analysis tools, health and wellness education, and policy and advocacy resources. Our team of public health professionals, community educators, analysts, and communications experts is committed to securing health-protective solutions to reduce harm from exposure to oil and gas pollution.

Authorizing operations will increase public health risks.

Every stage of shale gas development poses public health risks, including mid-stream facilities such as compressor stations. Gas compressor stations emit a mixture of chemicals that are known to be harmful to human health.[1] Moreover, compressor stations are unique in that they require routine maintenance through depressurization, which causes the direct release of methane and co-pollutants into the atmosphere.[2] Although blowdowns are supposed to be brief, most of the methane and other pollutants are emitted during this process.[3] Further, leaks from connectors, valves, seals, and other equipment are responsible for fugitive emissions and require timely maintenance.[4] Due to increased exposure to pollutants during blowdown and fugitive emissions events, we are concerned that these emissions are excluded from the permit.

The air emissions expected to be released at the Champion Compressor Station will include greenhouse gases and toxic air pollutants that will impact both the climate and human health. Below are the health impacts of these pollutants.

- **Greenhouse Gases**:
    - **Methane and Carbon Dioxide**: climate change-induced health impacts, such as insect-borne diseases, heat-related illnesses, and injuries and deaths from storms, floods, and wildfires.[5]
- **Toxic Air Pollutants**
    - **Nitrogen Oxides (NO_x):** respiratory irritation and infections; exacerbation of respiratory diseases, such as asthma.[6]
    - **Particulate Matter 2.5:** impaired lung function, asthma exacerbation, irregular heartbeat and heart attacks; can lead to premature death in those with heart and lung diseases, such as chronic obstructive pulmonary disease (COPD).[7]
    - **Volatile Organic Compounds, including benzene, toluene, hexane, xylene, and formaldehyde:** eye, nose, throat, and skin irritation; headaches, nausea; loss of coordination, dizziness; damage to liver, kidneys, and central nervous system; increased risk of cancer, fatigue, confusion, rapid heart rate, nausea, memory difficulties, and poor coordination;[8]
        - Note: the toxicity of individual volatile organic compounds varies widely, but some of those commonly emitted from compressor stations introduce greater health risks.[9]
    - **Carbon monoxide:** decreased exercise tolerance, decreased vigilance, and increased risk for cardiac ischemia in individuals with heart disease.[10]
    - **Sulfur dioxide**: Breathing difficulties, particularly during exercise; aggravation of existing respiratory illnesses.[11]
    - **Nitrous Oxide:** respiratory symptoms including worsening asthma; worsening heart diseases.[12]

Dozens of epidemiological studies and hundreds of supporting reports and investigations have thoroughly linked proximity to oil and gas operations to a range of negative health impacts.[13] 27 studies, including three conducted at the request of Pennsylvania's Governor, found statistically significant correlations with health impacts among those living half a kilometer to 16 kilometers (10 miles) from these facilities. Based on this research, we can reasonably expect community members living within 10 miles of the compressor station to be at greater risk of experiencing:

- upper and lower respiratory issues,[14] including asthma attacks,[15]
- adverse birth outcomes,[16] birth defects,[17] and pregnancy-related complications,[18]
- adulthood cancer;[19] childhood cancer diagnoses[20] and mortality,[21]
- atrial fibrillation (heart arrhythmia) in older adults and females,[22]
- COVID-19 infection, decreased COVID-19 survival,[23]
- skin rashes,[24]
- headaches and migraines,[25]
- fatigue,[26]
- stress,[27] anxiety,[28] depression,[29] and
- stroke.[30]

Preventing or reducing exposure to oil and gas pollution will lower these risks. As it currently stands, authorizing operations will increase the risk of these potential health impacts becoming reality for community members living near this facility.

The Elizabeth community is vulnerable to oil and gas pollution.

In addition to the level and duration of exposure, additional factors contribute to the health impacts experienced by individuals and communities. Some populations, including children, older adults, expecting or new parents, and individuals with chronic respiratory or cardiovascular conditions, are more vulnerable than the general population to the impacts of air pollution. Figure 1, below, shows 11 schools (green dots) within a 5-mile radius of the Champion Compressor Station (purple dot). Operations from this facility would impact young learners and other vulnerable groups of people living near this compressor station the most, especially considering the already existing air pollution in the area.

The 5,400 people living within 5 miles of this facility are already facing exposure from existing unconventional EQT sites, including the existing three compressor stations and 18 well pads within this radius. Further, there are several 2020 NEI facilities (red dots), including Basic Carbide Corp/Buena Vista, Rostraver Airport, Kelly Run Landfill, Donoro Dock LLC, Airgas Specialty Products, AKJ Clairton LLC, Clairton Coke Works, and Eastman Chemical Resins Inc.

According to publicly available data, within 5 miles of this facility, the community ranks higher than 85% of PA for (non-skin) cancer, more than 75% higher for arthritis, and higher than 75% for high cholesterol. There are notably higher portions of the population who face disabilities (70th percentile) and over the age of 64 (71st percentile). Of particular concern to environmental health are the rates of asthma and heart disease in sensitive populations. According to PennEnviroScreen, the census block group where the facility is located (42003496102) is in the 30.6th percentile for asthma and 87.8th percentile for heart disease.

Presently, the areas within 5 miles of the facility rank higher than 73% of the country for toxic releases to the air, higher than 63% for proximity to a facility that is regulated under the Risk Management Program, and more than 69% under the wastewater discharge indicator. According to the PennEnvironScreen, the census block group closest to the facility is inundated with hazardous waste and storage sites (80.4th percentile) and includes a lot of existing conventional and unconventional gas wells, at 48.4% and 56% (percentiles) respectively, compared to the rest of the state. Further, the PM2.5 and toxic air emissions in this same area are already high at 52.1 and 81 percentiles and the pollution burden is in the 84.5th percentile.

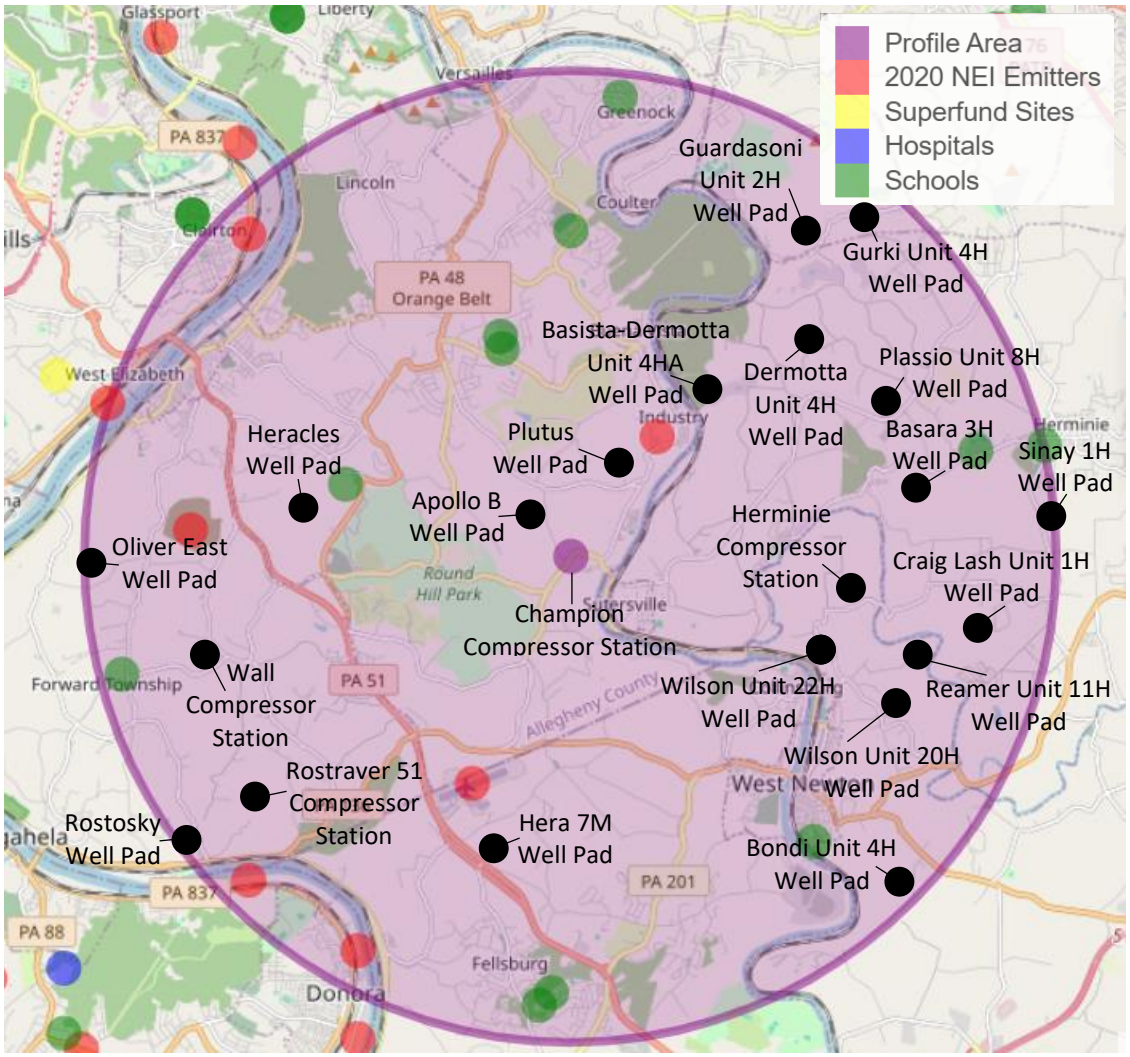

Figure 1. Schools, hospitals, and point source emitters within 5 miles of the Champion Compressor Station. Map created by EHP.

Emissions of toxic pollutants from compressor stations happen in a variety of ways. Blowdowns, incomplete combustion, leaks, and accidents are all sources of air emissions from compressor stations.[31] Once emitted, these pollutants can travel significant distances from the site of emission depending on various factors including weather conditions, wind direction, and topography.

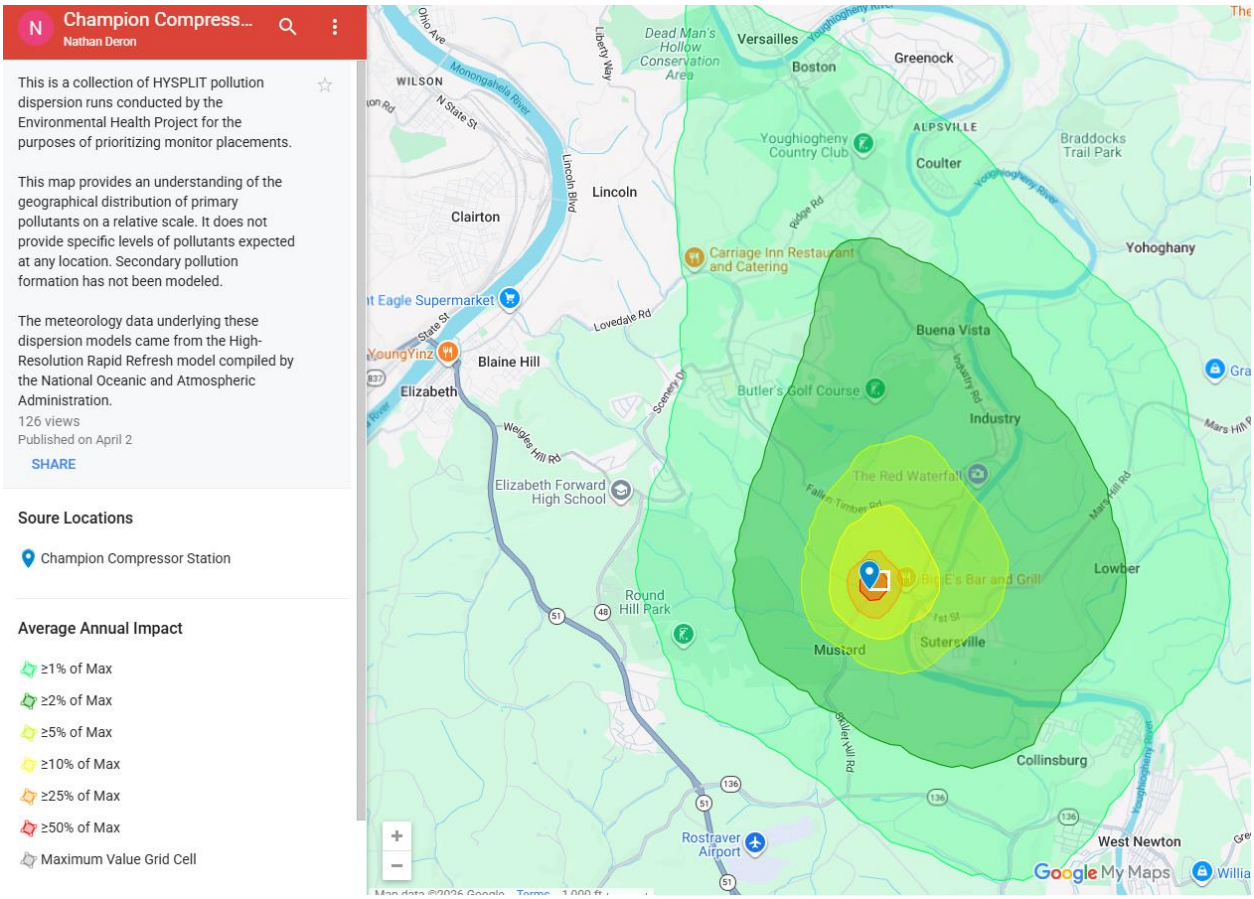

Figure 2. Modeled relative annual average airborne pollutant levels from the Champion Compressor Station. Modeling conducted by EHP.

The length and severity of exposure to these pollutants contribute significantly to health impacts experienced by community members. EHP utilized an emissions dispersion modeling tool from the National Oceanic and Atmospheric Administration (NOAA) called HYSPLIT[i] to map out where airborne pollutants will travel after being emitted from the Champion Compressor Station (*Figure 2*). This model utilizes High Resolution Rapid Refresh (HRRR) weather data, which is derived from radar stations, ground, airborne, and buoy-based weather stations, and weather satellites. Using HRR data from May 1, 2024 to April 30, 2025, we modeled how wind patterns, topography, temperature, and other geographic factors would impact where pollution from the compressor station will disperse on average over the course of a year.

The white box in *Figure 2* is the area that would receive the maximum average concentration of primary air emissions from the facility. Each of the shaded areas, shown in red, orange, yellow, and green, represents an area that will experience a percentage of the maximum average concentration. For example, those living near the intersection of Douglas Run Road and Nichols Hill Road will be exposed to at least 50 percent (red) and up to 100 percent (red) of the highest annual average concentration. Most of the emissions will disperse within approximately 200 to 400 feet of the compressor station, but community members living as far as 3 miles from the site are likely to be exposed to emissions from the

facility. It is important to note that this model does not indicate whether emissions that disperse to the edges of this map will result in elevated health risks in that area. Instead, it shows relative concentration ratios compared to the area that will receive the highest average concentration over the course of a year.

Within this area of likely pollution dispersion are several recreational and community gathering spaces including parks, trails, schools, childcare centers, businesses, and churches. The varied terrain in this area, as well as changing weather conditions, and intermittent emissions from the compressor station, contribute to short-term episodic exposures to air pollution that can trigger acute and chronic health concerns.

Furthermore, the average estimated annual particulate matter concentration within a five-mile radius of the facility is currently 8.3 ug/m3, which is above the World Health Organization's guideline of 5 ug/m3 for annual exposure. Introducing emissions from this compressor station would increase the cumulative particulate matter pollution burden for this area, and thus the public health impacts for community members.

More health-protective technology exists to reduce emissions in the gas dehydration and compression processes.

This facility's enclosed combustors, or flares, for the glycol dehydrator are intended to destroy nearly all air emissions. This level of efficiency has not been observed in the field where these enclosed combustors have been installed. Certified thermographers with the non-profit EarthWorks have captured significant fugitive emissions[32] coming from these devices using optical gas imaging (OGI) technology. This puts into question the effectiveness of enclosed combustion devices and their ability to successfully control emissions.

Fortunately, there are alternative dehydration devices that would reduce the total amount of emissions and avoid the need for a combustor. For example, desiccant dehydrators[33] are simple dehydrators recommended by the U.S. EPA STAR program that run wet gas through moisture-removing salt tablets. The only emissions from these dehydrators are released when the device is refilled with tablets approximately once a week. They do not require an external power source and typically require much less material, disposal, and maintenance costs than a glycol dehydrator.

Further, gas-fired engines can emit methane and co-pollutants through leaks and incomplete combustion.[34] To protect the health of nearby residents, electric compressor motors should be considered. These motors would reduce fugitive emissions and increase efficiency while decreasing noise.[35] Electric compressor motors are more effective at restarting after scheduled blowdowns, and they decrease necessitation for a glycol dehydrator because less gas would need to be treated.[36]

EQT has a concerning track record of violating emergency management protocols, putting the nearby community at an increased risk of danger.

In addition to the public health and air quality risks outlined above, EQT's history of violations across their Allegheny County sites and recent emergency management violation at the Leto Well Pad are another reason for ACHD to further consider this permit application before making a final decision. In the last five years, EQT Production received 131 violations at their Allegheny County well pads and 1,492 violations across all their wells in Pennsylvania. Most of these violations (1,411) were related to health and safety. EQT's violation history does not inspire confidence among community members living as few as 800 feet away especially given how compressors are subject to fugitive emissions and blowdown events.

Further, EQT has continued to operate six wells at the Heracles Well Pad and Interconnect without a conditional use permit and against court orders.[37]

Recommendations

Further scrutiny of the air quality and public health impacts of this facility are required before approving the final approval for the Champion Compressor Station.

- The Allegheny County Health Department has the authority to go beyond the minimal environmental and health protections afforded by existing state and federal regulations. EHP urges the ACHD Air Quality program to require a cumulative assessment of the potential air emissions from facilities within a 10-mile radius of the Champion Compressor Station before making a final decision about the operating permit. This assessment should include the three compressor stations and 18 well pads within a 5-miles radius of the facility, as well as the following facilities from the 2020 NEI: Basic Carbide Corp/Buena Vista, Kelly Run Landfill, Rostraver Airport, Donor Dock LLC, Airgas Specialty Products, AKJ Clairton LLC, Clairton Coke Works, and Eastman Chemical Resins, Inc.

If this impact assessment produces results contrary to the extensive body of literature on the health impacts associated with proximity to oil and gas operations, then EHP recommends ACHD explore the inclusion of better health protective technology, such as desiccant dehydrators and electric turbines that produce much fewer emissions.

Thank you for the opportunity to comment on this matter.

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