

## WASHINGTON COUNTY, PA

### How Fracking Affects Your Health And What You Can Do About It

Washington County, Pennsylvania, features some of the most active unconventional shale gas extraction – commonly called fracking – in the Marcellus Shale formation. It's also one of the fastest growing areas for shale gas drilling in Pennsylvania.

Along with shale gas activities comes the risk of serious health effects to residents living, working, or going to school near shale gas operations. A growing body of public health studies have shown that air emissions, water contamination, and liquid and solid waste from shale gas facilities may cause a host of health problems, from stress to respiratory issues and from birth defects to cancer.

At the Southwest Pennsylvania Environmental Health Project (EHP), our team has done extensive fieldwork on shale gas activity in Washington County. We've monitored air quality in parts of the county and have gathered and analyzed a significant amount of data regarding shale gas operations and the impact these activities have on the health of local residents. Here's how fracking in Washington County can affect your health and that of your family, and some steps you can take to reduce that impact.



Gas processing plant. Photo courtesy of Bob Donnan.

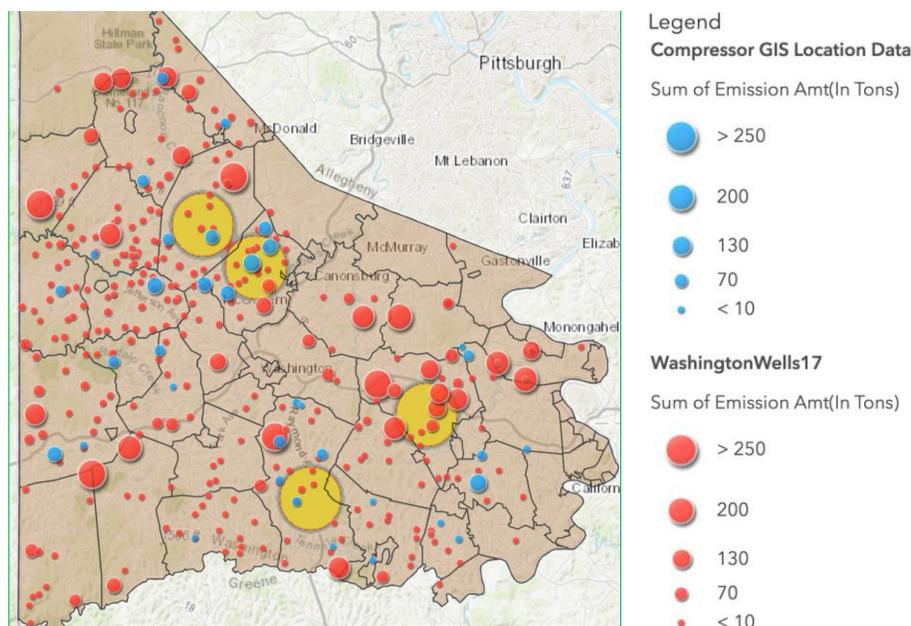
## The scope of fracking in Washington County is extensive – and growing

Shale gas activities – including facilities that extract, transport, and process shale gas – are located in 35 municipalities (boroughs and townships) in Washington County. That’s more than half of all county municipalities. Each of these facilities is considered a source of emissions that releases pollutants into the air, water, or soil.

There are 346 shale gas facilities spread throughout Washington County. These facilities include well pads, compressor stations (to move the gas through pipelines), and processing stations. Each well pad may contain 20 or more shale gas wells. Currently, the four municipalities experiencing the highest emissions are the townships of Somerset, Amwell, Chartiers, and Mount Pleasant.

The number of facilities is growing every year. Washington County saw 106 new shale gas wells drilled in 2018. As the density of well pads and compressor stations increases, there’s a greater chance that residents will be exposed to emissions from multiple facilities.

Municipalities with the highest emissions are highlighted in yellow. Blue and red dots represent compressor stations and well pads respectively. Emissions from shale gas facilities are proportionate to the size of dot.



## Fracking operations in Washington County emit large amounts of air pollutants

In 2017, in Washington County, shale gas facilities emitted more than 20,000 tons of pollutants into the air. That’s the equivalent of nearly 3,000 extra cars on the road. This doesn’t include emissions from non-Marcellus wells, pipelines, storage facilities, and diesel truck traffic at fracking operations.

Most (80%) of the air emissions are methane (the primary component of shale gas) or carbon dioxide (CO<sup>2</sup>). Methane is as much as 86 times more efficient at trapping dangerous greenhouse gases than CO<sup>2</sup>, so it contributes to warming the planet at a time when we need to be reversing that trend.

The rest (20%) of the air emissions from shale gas operations are toxic pollutants known to cause a number of health issues. These pollutants include nitrogen oxides, carbon monoxide, volatile organic compounds, formaldehyde, and particulate matter. They can enter your body when you breathe, drink water, or eat food grown nearby, or you can absorb them through your skin.

## Exposure to air pollutants can lead to health problems

Pollutants released into the air by shale gas operations may affect people living up to 3 miles from a facility. Studies show that exposure to these toxic pollutants can lead to a host of health issues, including:

- Eye, nose, and throat irritation
- Skin rashes
- Headaches and nausea
- Shortness of breath and chest pain
- Changes in blood pressure or heart rate
- Asthma and other respiratory problems
- Stress, anxiety, and palpitations
- Confusion and difficulty concentrating
- Depression
- Low-birth weight and preterm babies
- Congenital heart problems in infants
- Cancer

Not everyone's health is affected equally. People at higher risk, such as children and elderly persons, may be impacted more severely than healthy adults. Oftentimes, a symptom may not begin with the exposure but will be aggravated by it, as in the case of worsening asthma.

## Your exposure to air pollutants can be affected by a number of factors

Residents who live near shale gas operations can be exposed to pollutants both indoors and outdoors. How often and how intensely you are exposed depends on several factors:

- **Location in relation to a facility.** How far you live or work from a shale gas facility and the direction of the facility can play a role in your exposure. People living within 1.25 miles of facilities typically experience 2 to 3 extremely high levels of exposure per day. These last from 30 minutes to one and a half hours. Most pollutants aren't visible and don't have an odor, so you may not even know they're present.
- **Number and types of facilities.** The more facilities within 3 miles of you, the more likely you are to experience higher and more frequent exposures. Also, processing plants and compressor stations release much higher levels of pollutants than other facilities.
- **Intensity of exposure.** Your overall exposure may be affected by the number of high exposure episodes you experience, the length of exposures, the time between exposures, and the level of physical activity you typically perform while being exposed.
- **Kind of exposure experienced.** Exposure on any given day is determined by local weather conditions (wind speed and direction, cloud cover, etc.). Exposures may also be highest at night when there's little or no wind and the air is settling. If you live in a mountain valley or at the base of a hill, your exposure may be double that of people living at or near the top of the same mountain or hill.

Long-term, continuous monitoring – as routinely done by EHP to understand the above effects – is essential for detecting extremely high episodes of exposure. The Pennsylvania Department of Environmental Protection requires only short-term monitoring that averages results over a few hours or a day. This gives only a partial picture of your full exposure.

## What can you do to reduce the risk of exposure?

Here are some measures you can take to reduce the risk of exposure to you or your family:

- Have an EHP public health nurse visit you (call 724-260-5504) or come in to our offices for a complimentary health assessment
- Request free air or water monitoring equipment from EHP
- Register your health effects (see our website)
- Place a HEPA-certified air filter in your home
- Remove avoidable indoor air pollutants such as harmful cleaning products, cigarette smoke, etc.
- Keep surfaces clean of dust and dirt
- Pay attention to the weather – stay inside when conditions for exposure are high
- Find an alternative water source if you have serious concerns about the quality of your well water
- See your health care provider for a full health checkup
- Keep a health diary to track patterns in your health and the factors that might affect it
- Encourage your community to perform a Health Impact Assessment (see our website)
- Urge your child's school to cancel or reduce outdoor activities if dangerous pollution episodes occur
- Educate yourself about emergency plans for your school and community in the event of an explosion or sudden release of toxins, and report unusual activity to authorities
- Contact your local government representatives to demand better monitoring and regulations that protect your health

Join the Health Effects Registry



**Contact us for more information about how you and your family can take action to reduce exposures to fracking pollutants.**

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