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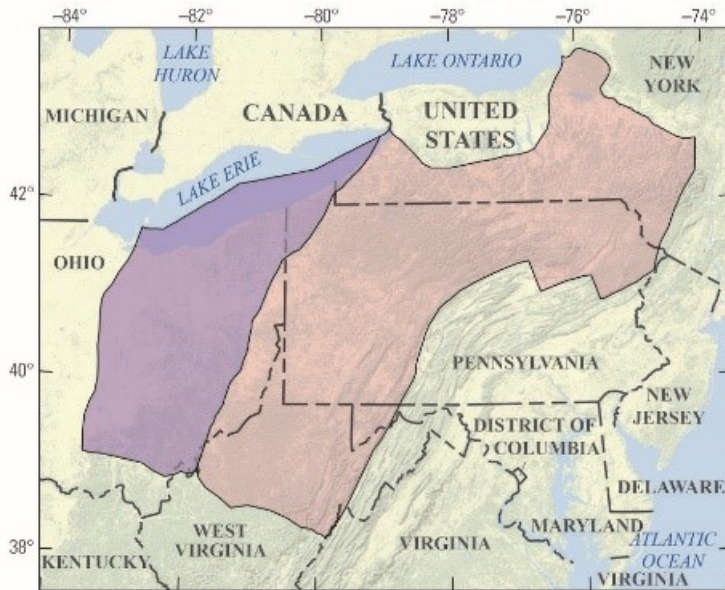
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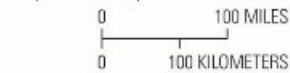
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Base map from U.S. Department of the Interior National Park Service



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-  Point Pleasant-Utica Shale Oil AU
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FRACKING IN THE MAHONING VALLEY'S BACKYARD

By yomag (<http://theyomag.com/index.php/author/yomag/>) / May 12, 2020

By Alyssa Lutker

“Not in my backyard.”

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This is a phrase coined nearly fifty years ago to indicate a person's objection to hazardous infrastructure or activities in their neighborhood. However, as the negative consequences of hydraulic fracturing, better known as "fracking," become more prominent, a knowledge of science illuminates that one person's backyard is everyone's backyard.

Activities related to fracking threaten both public and environmental health. At every stage of the fracking process there exists the potential for harmful ramifications, and the effects of fracking invade every home, school and workplace in the Mahoning Valley by means of water and air.

Fracking Explained

Fracking is a drilling technique used to capture oil and gas embedded below the Earth's surface. During fracking, an L-shaped well is drilled thousands of feet into the earth until it reaches black shale, a sedimentary rock which contains pockets of trapped fossil fuels.

The well is lined with cement and pipe, and then a mixture of water, sand and chemicals is pumped down at high pressures to fracture the shale, releasing the gas and oil. The pressure then pushes the fossil fuel back up to the surface, where it is captured for energy production. The thousands of gallons of wastewater are then trucked to a site with an injection well, where the wastewater is pumped back into the earth.

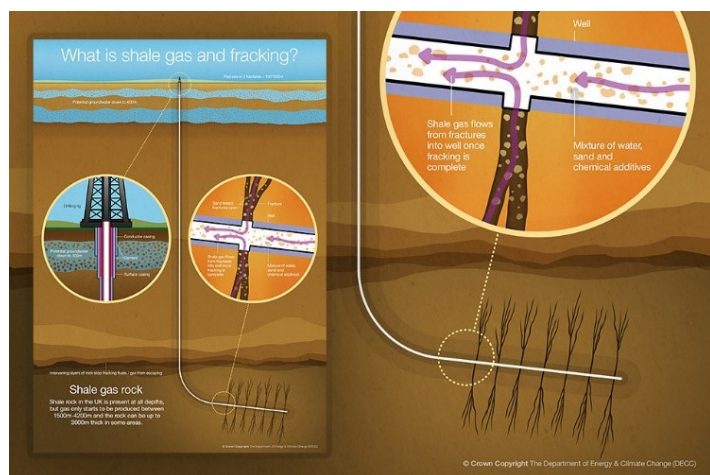


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Public Health Risks

Dr. Deborah Cowden, a physician in Northeast Ohio, helps register residents in the Ohio Health Registry, a project created to combat the lack of governmental funding to research the

effects fracking has on public health. She has become intimately familiar with the effects of fracking through her work with the Ohio Health Registry and presents on the topic of fracking and public health risks associated with it to various groups.

One example of a public health risk is that fracking as a method of gas and oil extraction produces a significant amount of air and water pollution.

Air pollution caused by fracking starts with the large number of diesel trucks used to carry materials as well as the diesel generator used to operate the equipment.

Cowden called diesel a “very problematic fuel because it puts a lot of small particulates into the air as well as volatile organics.” In addition to the diesel, Cowden explained that when the pressurized mixture resurfaces with the materials released from the shale, nitrogen oxides and volatile organic compounds react and form ground-level ozone, a highly irritating gas.

Due to air circulation patterns within the atmosphere, chemical pollutants released from the fracking process can expose dangerous concentration levels in large geographic areas.

Cowden further explained that inhalation of ground-level ozone can cause “chemical damage to your lungs... It may be holes or it may be a chemical burn, and then you have scar tissue that doesn’t exchange air so well.”



The effects of fracking-derived pollution are also seen in nearby water sources, as these sources can be greatly affected by both spills and leaks from wells, tanks and trucks. The wells are often drilled through aquifers and other water layers before reaching the shale, putting these water sources at risk for contamination.

Map of geographic scale of Utica Shale, the shale being drilled in Mahoning County. Image provided courtesy of United States Geological Survey at: <https://www.usgs.gov/media/images/point-pleasant-utica-shale-assessment-map>

A fact sheet from the National Institute of Environmental Health Sciences (<https://www.niehs.nih.gov/health/topics/agents/fracking/index.cfm>) discloses that after the process is complete, the cracks made in the rock during fracking can leak gases and residual chemicals from the fracking fluid, contaminating these underground water sources.

The leaks can come from the wells too.

Quoted in the Belt Magazine article “A State of Quakes” (<https://beltmag.com/a-state-of-quakes/>) by Nika Knight, Ray Beiersdorfer, professor of geological and environmental sciences at Youngstown State University, now deceased, explained: “The industry’s own data shows that 6 percent of the vertical wells fail right from the get-go and then within thirty years fifty percent of those wells are leaking.”

Water contamination also affects farms and therefore the foods we eat.

In a study conducted in 2012 by researchers from Cornell University, Robert Oswald and Michelle Bamberger found that cows and other livestock on farms located near fracking sites had a significantly high number of deaths.

Although the study was not able to produce a direct link between the fracking and the high mortality, observations led the scientists to believe that the streams, ponds and puddles the livestock would drink from were contaminated with fracking fluids, which contributed to their deaths.

This finding is important because animal deaths represent not only an economic loss to the farming industry but also raises concerns for the safety of those who consume dairy and meat products from livestock exposed to fracking-related water pollution. Currently, there is no testing on these products before they enter the market to check if they contain the toxic chemicals the animals may have been exposed to as a result of consuming fracking polluted water, and this could cause serious health complications for product consumers in the future.

Susie Beiersdorfer, a part-time geology professor at Youngtown State University and spouse of the late Ray Beiersdorfer, also conducts research about the harmful effects of fracking.

She stated that black shale contains radioactive materials, such as uranium, radium 226, which causes bone cancer, and radon, which causes lung cancer.

When fracking cracks the black shale, these radioactive materials can contaminate the water and air. To make the toxic situation worse, the chemicals used in the mixture pumped down the well are allowed to be documented as “trade secrets” by the gas and oil drilling companies, and therefore, these companies have no legal requirement to disclose the chemicals to any government officials or health professionals.

Other than cancer, according to the Physicians for Social Responsibility, some other health problems related to the exposure to chemicals and radioactive materials include pregnancy complications, respiratory problems and cardiovascular problems.

Earthquakes Prompted by Fracking

Pollution is not the only concern with fracking. Earthquakes are caused by the movement of the Earth's tectonic plates, and some earthquakes have been linked to both the fracking process itself as well as the injection of wastewater back into the ground, because the combination of pressure and depth below the Earth's surface shifts tectonic plates.

On New Year's Eve in 2011, a 4.0 magnitude earthquake hit the city of Youngstown. According to Knight's article, Youngstown recorded 566 seismic events between 2011 and 2014. In March 2014 alone, there was an eight-day period in which Poland Township experienced 77 earthquakes ranging in magnitude from 1.0 to 3.0. The upper range of these earthquakes can cause minor damage to homes and other infrastructure.

The Future of Fracking

Two of the most common arguments in support of the fracking industry are the economic benefits from its byproducts, oil and natural gas and the use of natural gas as a replacement for coal.

Many people argue that the process of capturing and burning natural gas is cleaner than coal. However, there is much more extensive data on the effects of coal than there are on the effects of natural gas because studying the full effects of fracking, both negative and beneficial, remains a relatively new field.

“Science takes time, and unfortunately we don’t follow the cautionary principle that says, ‘Let’s find out a little more and see if this is safe before we do this,’” Susie Beiersdorfer explained.

Although the fracking industry does make money and create jobs, it is not a sustainable field. According to a web article published by the Millennium Alliance for Humanity and the Biosphere (<https://mahb.stanford.edu/>), an organization that originated at Stanford University, it is predicted that oil and natural gas will run out in approximately 30 to 40 years, respectively, with conflicting sources only deviating by about 10 years. Perhaps turning to a field that produces sustainable and renewable energy, such as solar or wind energy, could secure jobs for a longer period.

People like Susie Beiersdorfer and Cowden work to educate communities and citizens that the negative effects of fracking are a problem affecting everyone.

Susie Beiersdorfer is a founding member of Frackfree Mahoning Valley (<http://frackfreemahoning.blogspot.com/>), which helps people organize others in their neighborhood to fight against fracking in their community through educational forums.

One of the goals is to encourage people to engage with their city, state and federal representatives to push for more regulations within the fracking industry. The findings from the Ohio Health Registry could help encourage action from governments to reevaluate all the impacts of the fracking industry.

When air circulates around the entire world and water sources are interconnected across large geographic areas, pollutants from activities such as fracking are impossible to contain. The consequences are shared not just by those consenting to a role in the fracking industry but by an entire community as well, such as the communities in the Mahoning Valley.

In posts made by Frackfree Mahoning Valley, Susie Beiersdorfer called the issue of fracking “a violation of the community’s fundamental rights.”

“The fracking issue goes beyond politics. We want to be inclusive because we are all in this together. We share common ground, which is our concern for the public health, safety and well-being of our families and our local communities and our freedom as citizens to control how we want our communities to be,” she stated.

“Think about it. What if this was your mother, grandmother or another family member being forced to endure this unfair and unhealthy situation? We need to protect our loved ones from this kind [of] unjust intrusion and threat to public health, safety and well-being,” she stated.

“This is America. We can do better than this.”

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