

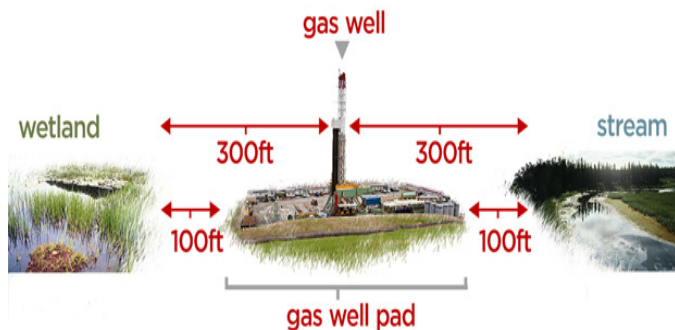
Public Health and Safety Protections for Siting Shale Gas Related Infrastructure

Protect Health and Natural Resources

A setback is the minimum distance required between a specific use (e.g., shale gas well pad) and an existing structure, boundary, natural resource, or any other area that needs protection in the interest of health, safety and the general welfare of the public.

Municipalities can establish setback standards for shale gas infrastructure through their local zoning ordinances. However, a significant number of municipalities in Pennsylvania lack zoning ordinances. According to a 2015 report by the PA Department of Community and Economic Development, 822 municipalities in PA had no zoning ordinance.

Therefore, it is necessary for the Pennsylvania Legislature to establish minimum setbacks for shale gas and related infrastructure to better protect the health, safety and general welfare of every person in the Commonwealth, regardless of where they live.



Act 13 Setback Graphic. Graphic by: Tom Downing / WITF

Water Resource Protection Benefits

Setbacks between shale gas-related infrastructure and water bodies are necessary to lessen the likelihood that aquatic habitats and drinking water supplies will be contaminated from shale gas infrastructure construction and operations.



Mountain View Elementary School in Kingsley, PA. Photo by Kelly Finan

Public Health Benefits of Setbacks

Shale gas infrastructure such as compressor stations and processing plants emit air pollution that is harmful to human health, which can cause adverse health effects, especially in vulnerable populations such as children and the elderly.

Benzene and formaldehyde, which are known carcinogens, have been found at levels above federal limits for health risk near shale gas infrastructure, especially near compressor stations. Toxic chemicals known to affect the central nervous system, such as ethylbenzene, toluene, and xylene, have also been identified near compressor stations.

Setback requirements for shale gas-related infrastructure helps prevent damage to nearby properties and buildings and better protects nearby residents from potential injuries or loss of life in the event of an accident or explosion. Numerous studies have found that living or working in close proximity to shale gas infrastructure has negative impacts on public health, and that there is an increased risk to health the closer a person lives to such infrastructure.

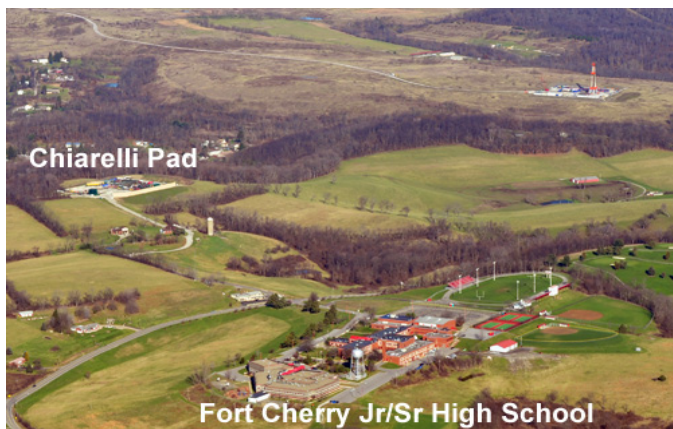
Studies have also determined that there is an increased risk of negative health outcomes with increased proximity and oil and gas development density within a half mile.

History of Setbacks in Pennsylvania

In the past, Pennsylvania attempted to require setbacks between wells and surrounding buildings, water supply sources, streams and wetlands. In 2012, Act 13 extended the setback distance for unconventional wells from 200 feet to 500 feet from existing buildings or water wells, unless the owner of the building or water well provides written consent allowing a company to drill closer. Additionally, Act 13 established a 1,000-foot setback for an unconventional well from a water supply extraction point used by a water purveyor, again unless the water purveyor provides written consent allowing a company to drill closer. While the Supreme Court of Pennsylvania has struck down several provisions of Act 13 over the years, these setback requirements remain in effect.

Act 13 also established minimum setbacks for well pads of 100 ft. and 300 ft. measured from the edge of the well pad and the center, respectively, to surrounding streams and wetlands. These setbacks were struck down by the Pennsylvania Supreme Court because the regulations would have allowed DEP to waive setback requirements if drilling companies submitted plans showing they would take adequate precautions to protect waterways.

Although the Pennsylvania Supreme Court had no issue with the setback distances, it found the allowance of these waivers to be unacceptable. Since the requirements for waivers and the setbacks were inextricably linked, both were struck down.



Chiarelli Pad Proximity to Fort Cherry Jr/Sr High School. Image Provided by FracTracker Alliance

Growing Support For Setbacks

A number of Pennsylvania municipalities, including Oakmont Borough, Bell Acres Borough and Smith Township, have adopted strong setbacks between shale gas infrastructure and buildings as well as other protections that have similar effects, such as minimum lot size requirements for shale gas infrastructure development. Oakmont adopted a setback of 2,000 feet between unconventional oil and gas wells and any lot or parcel of ground located in residential zoning districts. Trafford Borough requires a setback of 2,500 ft between drilling sites and any occupied structure, with the exception of structures owned by the oil and gas lessor and property owners who sign a waiver. In addition, Mt Pleasant Township in Washington County has a required setback of 2,500 ft for compressor stations and processing plants from schools.

In June 2020, the Pennsylvania Attorney General Grand Jury issued a report that recommended requiring a 2,500-foot setback between a building and a shale gas well and concluded that "the current 500 foot standard is woefully inadequate" (p.40). The report also advocated for even larger setbacks between shale gas wells and sites that serve vulnerable populations. The report's recommendations stated, "We were astonished to learn that the drilling set-back is no different even when it comes to sensitive sites, like a hospital, or an elementary school playground. It is the same 500 feet. We think the no-drill zone for schools and hospitals should be even bigger - 5,000 feet" (p.93).

In November 2020, Colorado approved a 2,000 foot setback between new oil and gas wells and schools and homes.

Recommendations for Strengthening Pennsylvania's Shale Gas-related Setbacks

The Pennsylvania General Assembly should adopt a bill with science-based minimum setback distances between the following infrastructure and areas of protection:

Unconventional Wells



Frack Pad in Burgettstown, PA. Photo taken by Ted Auch for FrackTracker Alliance

- 3,281 ft from any occupied building or water well
- 8,202 ft from any parcel with a structure serving vulnerable populations (e.g., schools, day care or child care, hospitals, nursing homes)
- 3,281 ft of any existing water well, surface water intake, reservoir or other water supply extraction point used by a water purveyor

Compressor Stations (and related equipment including condensate tanks and dehydrators)



Compressor station in Loyalsock State Forest, PA. Photo taken by Savanna Lenker

- Major sources requiring a Title V permit: 9,843 ft from any occupied building
- Minor sources not requiring a Title V permit: 3,281 ft from any occupied building
- Minor sources not requiring a Title V permit: 8,202 ft from any parcel with a structure serving vulnerable populations (e.g., schools, day care or child care, hospitals, nursing homes)

Ethane Cracker Plants

- 9,842 ft from any occupied building

Gas-Fired Power Plants

- 9,842 ft from any occupied building

Shale Gas Processing Plants



Shale Gas Processing Plant. Photo taken by Linda Krop, Environmental Defense Center



Mark West shale gas processing plant. Photo taken by Ted Auch for FrackTracker Alliance

- 16,404 ft from to any occupied building

Shale Gas Pipelines

- Gathering and transmission pipelines that are not providing public utility service and are not under the exclusive jurisdiction of the Federal Energy Regulatory Commission: 100 ft beyond the potential impact radius (PIR) of any occupied building
- Gathering and transmission pipelines that are not providing public utility service and are not under the exclusive jurisdiction of the Federal Energy Regulatory Commission: distance equal to the potential impact radius (PIR) plus 100 ft from any parcel with a structure serving vulnerable populations (e.g., schools, day care or child care, hospitals, nursing homes)

Recommendations for Strengthening Pennsylvania's Shale Gas-related Setbacks (cont.)

Hazardous Liquid Pipelines



Mariner East, 12" interconnect in Middletown, PA. Photo taken by Eve Miari



Mariner East, 12" interconnect in Middletown, PA. Photo taken by Eve Miari

- Pipelines carrying flammable gases, including refrigerated liquids (e.g., ethane, butane, propane): 2,640 ft from any occupied building and any parcel with a structure serving vulnerable populations (e.g., schools, day care or child care, hospitals, nursing homes)
- Pipelines carrying flammable liquids (e.g., crude oil, gasoline, fuel oil): 1,000 ft from any occupied building and any parcel with a structure serving vulnerable populations (e.g., schools, day care or child care, hospitals, nursing homes)

Horizon Directional Drilling Equipment for Natural Gas Gathering and Transmission Pipelines & Hazardous Liquids Transmissions Pipelines

- 250 feet from the edge of any water body.

Natural Gas Infrastructure and Aquatic Habitats

The following infrastructure shall not be constructed within 450 ft of any aquatic habitat (streams, rivers, seeps, springs, wetlands, lakes, ponds, or reservoirs):



EQT impaired water impoundment and rig, WV 2013. Photo taken by Brook Lenker

- Unconventional natural gas well pads
- Compressor stations
- Ethane cracker plants
- Natural gas processing plants
- Natural gas-fired power plants
- A pit or impoundment containing drilling cuttings, flowback water, produced water or hazardous materials, chemicals or waste
- A tank containing hazardous materials, chemicals, condensate, waste, flowback or produced water
- Any storage or handling of water, chemicals, fuels, hazardous materials or solid waste on a well site