

Drilling for Natural Gas in the Marcellus Shale Formation Frequently Asked Questions

What is Marcellus Shale and why the sudden interest in it?

The Marcellus Shale is a rock formation that underlies much of Pennsylvania and portions of New York and West Virginia at a depth of 5,000 to 8,000 feet and is believed to hold trillions of cubic feet of natural gas. This formation has long been considered prohibitively expensive to access but recent advances in drilling technology and rising natural gas prices have attracted new interest in this previously untapped formation. The geology of the Marcellus formation suggests that areas in the northcentral and northeastern regions of Pennsylvania that have not traditionally seen much gas well drilling might be especially productive.

How is Marcellus Shale different from other natural gas extraction?

Extracting natural gas from the Marcellus Shale formation requires horizontal drilling and a process known as ‘hydraulic fracturing’ that uses far greater amounts of water than traditional natural gas exploration. Drillers pump large amounts of water mixed with sand and other proppants into the shale formation under high pressure to fracture the shale around the well, which allows the natural gas to flow freely. Once the hydraulic fracturing process is completed, the used water, often referred to as “frac fluid,” must be treated to remove chemicals and minerals.

How is natural gas drilling regulated in Pennsylvania?

More than 350,000 oil and gas wells have been drilled in Pennsylvania since the first commercial oil well was developed in 1859. The commonwealth first began regulating drilling in 1956. Oil and gas exploration and drilling is regulated under all or part of the state oil and gas laws, the Clean Streams Law, the Dam Safety and Encroachments Act, the Solid Waste Management Act, the Water Resources Planning Act, and the Worker and Community Right to Know Act.

DEP is responsible for reviewing and issuing drilling permits, inspecting drilling operations and responding to complaints about water quality problems. DEP inspectors conduct routine and unannounced inspections of drilling sites and wells statewide. Other agencies directly responsible for monitoring the effects of drilling on water quality and aquatic life include the Pennsylvania Fish and Boat Commission, the Susquehanna and Delaware River basin commissions, the U.S. Fish and Wildlife Service and Pennsylvania’s county conservation districts.

Who regulates leasing of mineral rights in Pennsylvania?

A mineral lease is a private contractual agreement between the owner of the minerals and the producer (i.e. a drilling or mining company). County courts hear suits for property damage or disputed lease matters. The commonwealth does not regulate mineral leases, audit payments, or read or calibrate meters. DEP recommends that landowners who are contacted by companies wanting to purchase or lease mineral rights consult an attorney who is familiar with oil and gas law before signing any documents. Contact the local bar association for assistance finding an attorney in your area.

How is the collection and treatment of drilling water regulated?

Drilling companies must identify where they plan to obtain and store the water used in their drilling operations and where the used frac water is to be stored and treated as part of the drilling permit application process. The Department of Environmental Protection, in cooperation with the Susquehanna and Delaware River basin commissions, has created additional permit guidelines that create consistent rules for water usage and disposal in all areas of the state to ensure that surface water quality is not threatened by drilling operations. When applying for a permit, drillers must specify the sources and location of fresh water and the anticipated impacts of water withdrawals on water resources, and obtain approval from the appropriate river basin commission.

Are oil and gas drilling activities exempt from erosion and sediment control requirements?

No. Erosion and sediment control plan requirements under state law apply to any earth disturbance activities including oil and gas drilling (Pa Code Chapter 102). Earth disturbances of over five acres require a permit from DEP.

Can drilling companies keep the names of chemicals used at drilling sites a secret?

No. Drilling companies must disclose the names of all chemicals to be stored and used at a drilling site in the Pollution Prevention and Contingency Plan that must be submitted to DEP as part of the permit application process. These plans contain copies of material safety data sheets for all chemicals, and DEP recommends to operators that a copy be kept on each well site. This information is on file with DEP and is available to landowners, local governments and emergency responders.

Can natural gas companies use eminent domain to force landowners to accept gas collection pipelines?

No. Under Pennsylvania law, there is no eminent domain granted for natural gas collection pipelines. Drilling companies must negotiate with landowners for the rights to build gas lines on their property. This right may be included as part of a lease agreement.

How are drinking water supplies protected from the effects of drilling?

Pennsylvania law requires drillers to case and grout wells through all fresh water aquifers before drilling through deeper zones known to contain oil or gas. This casing protects groundwater from pollutants inside the well, and keeps water from the surface and other geologic strata from mixing with and contaminating groundwater.

What if drilling changes the water quality or flow in my water well?

Disruption of water quality or flow in water wells from drilling activities is often temporary. However, if problems persist, state law requires drilling operators to replace or restore water supplies affected by drilling. If you are not satisfied with the drilling company's response, you should contact the nearest DEP regional office. DEP will investigate complaints within 10 days and issue orders as necessary to replace or restore your water supply.

Is the drilling operator required to restore the land and plug the well?

Drilling operators must restore the land within 9 months of drilling completion. Once a well is no longer producing, the operator must plug the well and restore the site within 9 months of plugging the well.

Can drilling companies store drilling wastes and waste water in un-lined pits or discharge drilling fluids into streams?

No. Drilling wastes must be collected and stored in pits with synthetic liners. Waste fluids must be collected and treated at an authorized water treatment facility.

How close can a well be drilled to a house or stream?

Wells cannot be drilled within 200 feet of structures, or within 100 feet of streams and wetlands. The locations of wells, access roads and related drilling operations are usually negotiated as part of the lease agreement.

Who should I contact if I believe drilling activities have affected water resources or caused pollution?

Contact the nearest DEP Regional Office if you suspect drilling or any other earth disturbance activities have harmed water resources or the environment. Regional office phone numbers can be found in your phonebook or online at www.depweb.state.pa.us.

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