

ENVIRONMENTAL SAFETY AT THE WELL SITE

A strong regulatory framework enables the Division of Oil and Gas Resources Management (DOGRM) to ensure the safety of Ohio's citizens and environment, as well as the safety of drill-site employees.

Regulatory Safeguards

The Ohio Department of Natural Resources (ODNR), Division of Oil and Gas Resources Management is responsible for regulating:

- Oil and gas drilling, production and reclamation operations
- Salt solution mining operations
- Underground injection well operations

Can well-site safety be guaranteed?

A strong regulatory framework enables ODNR to ensure the safety of Ohio's citizens and environment as well as the safety of drill-site employees. Since 2010, several major revisions to oil and gas law have been passed, providing Ohio with some of the most comprehensive standards in the nation.

These revisions include areas of:

- *Well construction* – ensure casing is properly placed and witnessed by an inspector
- *Well pad construction* – standards that create a stable well site that offers maximum environmental protection
- *Well control* – testing of blow-out prevention devices
- *Fluid control* – standards for the monitoring, reporting and handling of oil-field fluids

DOGRM has increased staff to ensure increased drilling activity is properly monitored; an ODNR inspector spends an average of 72 hours overseeing the development of each horizontal well.

Protection of groundwater resources

During drilling, steel casings are inserted into and sealed with cement the well bore. The cemented casings make sure that the fluid to be pumped through the well, in addition to the oil and gas collected, remains isolated from groundwater and never enters the water supply.

Additional groundwater protections include cementing the casing(s) in place. The casing-cement specifications and cementing process are based on the American Petroleum Institute's highest standards. Division inspectors place a high priority on witnessing this critical phase to make certain of proper installation.

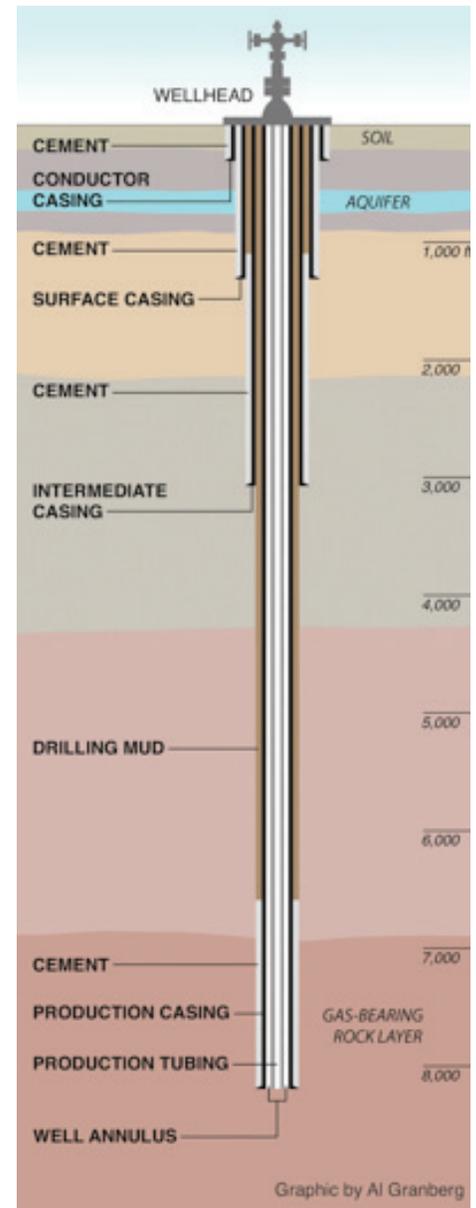
Once the cement has set, the drill hole (wellbore) is continued from the bottom of the first cemented steel casing to the next depth. This process is repeated using smaller steel casings each time until the oil and gas bearing reservoir is reached. Under new state law, operators are required to use four to six casing layers.

Casing program

Ohio's freshwater aquifers, including all underground surces of drinking water, were mapped in the 1980s; the deepest are located about 1,000 feet underground. Using the mapping information, the Division's permitting staff design a steel-and-cement casing program to protect groundwater resources.

Disposal of hydraulic fracturing fluid and brine (production fluid)

Oil and gas operators must dispose of hydraulic fracturing fluid through Class II deep injection wells – the safest, most environmentally friendly method of disposal. Through the primacy agreement with the U.S. Environmental Protection Agency, Ohio's Class II injection wells are regulated by the Division of Oil and Gas Resources Management.



Additional Resources

Ohio EPA:
epa.ohio.gov

Penn State Marcellus Center:
marcellus.psu.edu

Frac Focus:
fracfocus.org

Ohio Department of
NATURAL RESOURCES
Division of Oil and Gas Resources Management
oilandgas.ohiodnr.gov

