

WELL PLUGGING

What is Meant by Well Plugging?

Plugging a well refers to the process of setting mechanical or cement plugs at specific intervals to stop the vertical flow of fluids (oil, water, or other fluids) or natural gas within the wellbore. Wells are plugged to prevent migration of fluids or natural gas that may otherwise contaminate the ground, a water supply or vent methane directly into the atmosphere.

Are Oil and Gas Operators in Pennsylvania Required to Plug Their Wells?

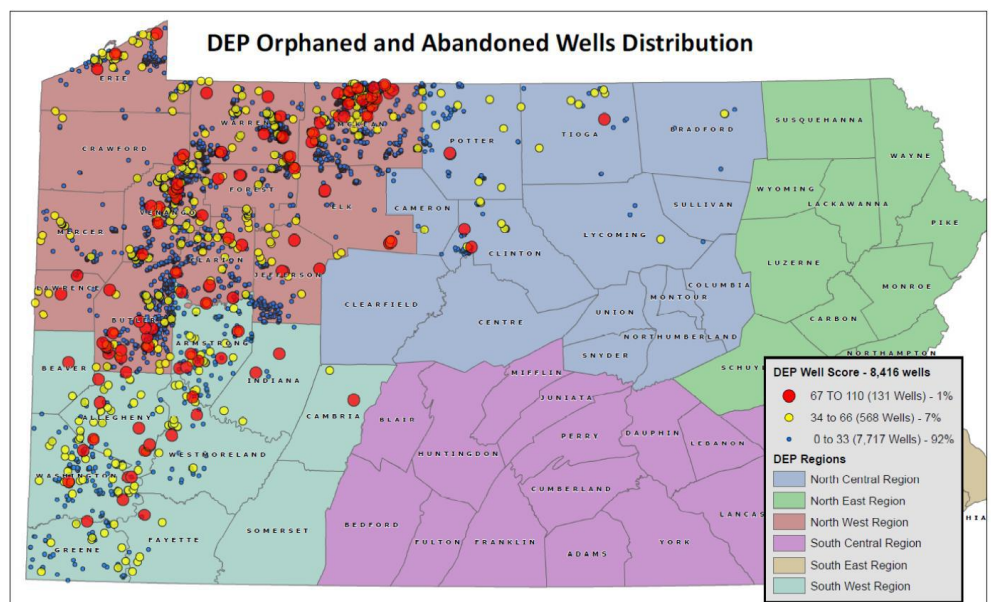
Yes. Under Pennsylvania [law](#), oil and gas operators must properly plug a well at the end of its useful life and must also reclaim and restore the surrounding well site. Wells must be plugged in accordance with Pennsylvania environmental regulations and reclaimed and restored well sites must pass an inspection by state environmental inspectors. This process is referred to as “abandoning” a well. Pennsylvania has required the plugging of oil and gas wells since 1891, but this early [law](#) lacked specifics and was not enforced vigorously.

Exactly how a well is plugged varies depending on the location of the well (coal vs non-coal area) and whether surface casing is present or has been cemented. Specific standards for plugging wells can be found [here](#); well-specific plugging plans must be approved by the Pennsylvania Department of Environmental Protection.

What are Abandoned and Orphan Wells?

Under Pennsylvania law, the term ‘abandoned well’ generally refers to a well which is no longer in production and not anticipated to be brought back into production. An ‘orphan well’ generally refers to a conventional legacy well which was abandoned prior to April 1985, where the owner, operator or other responsible party cannot be identified or located. As a result, the Commonwealth takes responsibility for plugging the well.

While the first commercial oil well was drilled in Titusville, PA in 1859, Pennsylvania did not require registration of oil or natural gas wells until 1955 and did not pass its first comprehensive Oil and Gas Act until 1984. As a result, Pennsylvania is home to several



hundred thousand conventional legacy wells where the owner or operator cannot be identified. As a result, it falls upon the Commonwealth to take ownership of these wells and assume liability for plugging them. Typically, this is done by the Commonwealth issuing contracts to well plugging professionals to plug these wells, with an emphasis on high-priority wells which pose a threat to public safety or the environment. More information is available on Pennsylvania's [Legacy Wells website](#).

What is Well Bonding?

A well bond represents the amount of money an oil or gas operator must set aside to help offset the cost of plugging a well when it is no longer anticipated to be used for future production. The amount of a bond is intended to represent a reasonable portion of the plugging cost that, combined with an operator's other assets, ensures sufficient resources are available to properly plug the well. In Pennsylvania, operators are responsible for 100% of the cost to properly plug a well and reclaim a well site. For additional details about well bonding, please see the MSC's [Oil & Gas Well Bonding Fact Sheet](#).

What Sources of Funding Are Available to Plug Orphan Wells?

There are several sources of funding available. Each applicant to drill a new well pays a surcharge with each application (\$150 for an oil well; \$250 for a natural gas well) that is collected by the Commonwealth to plug legacy wells. This revenue is only enough to plug a handful of wells each year, since it may cost tens of thousands of dollars to plug just one well.

Additionally, funds collected from the Act 13 [Impact Fee](#) paid by unconventional well operators can also be used for well plugging through grants provided to municipalities, businesses, non-profits and other organizations. This program is funded out of the Commonwealth's [Marcellus Legacy Fund](#).

Most recently, the 2021 Infrastructure Investment and Jobs Act allocates \$4.7 billion for states to plug abandoned wells. Pennsylvania could receive up to \$300 million over the life of this program.



Modern conventional oil well. Credit: PA Grade Crude Coalition

In addition to the state's efforts, conventional and unconventional well operators routinely plug wells that they encounter near their operations, either voluntarily or as a condition of their permit.

Lastly, many operators financially support non-profit organizations like the [Well Done Foundation](#), which are dedicated to plugging orphan wells throughout the Commonwealth and beyond.