

Final Regulations for Oil and Gas Surface Activities (Amendments to 25 Pa. Code Chapters 78 and 78a, Subchapter C)

The purpose of this regulation is to update the performance standards for surface activities at conventional and unconventional oil and gas well sites. This rulemaking represents the first update to rules governing surface activities associated with the development of oil and gas wells since 2001 and implements provisions of the 2012 Oil and Gas Act. As a modernization of the Commonwealth's oil and gas regulations, these new rules address gaps that were identified in reviews of the Pennsylvania regulatory program conducted in 2010 and 2013 by the State Review of Oil and Natural Gas Environmental Regulations (STRONGER).

As part of the process of finalizing these new rules, DEP bifurcated the regulation into two separate chapters. Chapter 78 addresses conventional oil and gas development and Chapter 78a addresses unconventional oil and gas development. In general, a "conventional" well is a well that is drilled into permeable geologic formations, such as sandstone, which have accumulated oil or gas over centuries. An "unconventional" well typically refers to a well that is drilled into impermeable geologic formations, such as shale, which require horizontal well drilling and high volume hydraulic fracturing to expose more of the formation to the well bore. Hydraulic fracturing is also commonly used to develop conventional wells, although there are differences between conventional and unconventional well fracturing.

The exploration and production of oil is not new to Pennsylvania. In fact, the first commercial oil well was successfully drilled in 1859 by Edwin Drake in Titusville, Pennsylvania. In addition to historic oil reserves, Pennsylvania has also been a source of natural gas for more than a century. Although it had been suspected that deposits of natural gas existed within vast tight shale formations deep under Pennsylvania's surface, conventional extraction methods were unable to effectively unlock the natural gas from its source and the actual quantities were not well understood. By 2005, horizontal drilling methods combined with high-volume hydraulic fracturing techniques were beginning to be successfully and economically deployed to capture natural gas from Pennsylvania's shale deposits.

In addition to addressing the new challenges presented by unconventional development in Chapter 78a, Chapter 78 has been specifically tailored to meet the unique needs of the conventional industry, such as continuing to allow the use of onsite pits during well drilling, completion and servicing, and the ability to dispose of drill cuttings at the well site without first needing to obtain a permit. Broader developments since 2001 and statutory changes necessitate modest, common sense revisions.

Based on more than 30 years of oil and gas well inspections and experience, DEP has developed this regulatory package to strengthen the rules regarding oil and gas surface activities. These regulatory changes:

- Ensure the protection of public health, safety, and the environment.
- Protect public resources to minimize impacts from oil and gas drilling.
- Modernize the regulatory program to recognize advances in technology.
- Address landowner concerns.
- Enhance transparency and improve data management.

Background

DEP began developing concepts for revisions to the existing oil and gas regulations (Chapter 78) in 2010. In April of 2011, DEP initiated discussions with the Oil and Gas Technical Advisory Board (TAB) on those concepts. In February of 2012 the Oil and Gas Act was amended by the Pennsylvania Legislature (Act 13 of 2012). The purpose of the law was to ensure the safe and responsible development of oil and gas resources, and it included many new environmental safeguards. It also directed the Environmental Quality Board (EQB) to adopt new rules for certain activities at well sites. DEP incorporated these new rules into the rulemaking under development.

After 13 meetings and roughly two years of discussions with TAB (including concept-specific work groups), the Environmental Quality Board (EQB) adopted the proposed rulemaking on Aug. 27, 2013. On Dec. 14, 2013, a 90-day public comment period commenced, which included nine public hearings across the state. The comment period closed on March 14, 2014 after receiving comments from over 23,213 commentators.

DEP considered the comments received on the proposed rulemaking and discussed those comments with TAB on June 12, 2014. One of the most significant comments received during the comment period was that conventional operations and unconventional operations should have separate regulations. On September 25, 2015, DEP presented to TAB two separate chapters of the regulation: Chapter 78 for conventional operations and Chapter 78a for unconventional operations.

On March 20, 2015 and April 23, 2015, DEP presented and discussed the draft-final regulation with TAB. On March 26, 2015, DEP presented and discussed the draft-final regulation for Chapter 78 with the newly created Conventional Oil and Gas Advisory Committee (COGAC). On April 4, 2015, DEP used an Advance Notice of Final Rulemaking (ANFR) procedure to solicit additional public comment for 45 days, including three public hearings. During the ANFR public comment period, DEP received comments from 4,914 commentators on the draft-final rulemaking.

After considering the comments received from the ANFR procedure, DEP presented and discussed the revised draft-final Chapter 78 with COGAC on August 27, 2015. DEP presented and discussed the revised draft-final regulation with TAB on September 2, 2015. TAB and COGAC suggested changes to the revised draft-final regulation which were further discussed during a joint webinar on September 18, 2015. On October 27, 2015 DEP presented and discussed the final regulation with TAB. On October 29, 2015 DEP presented and discussed the final Chapter 78 regulation with COGAC.

The EQB is currently scheduled to consider the final-form rulemaking for adoption at a meeting on February 3, 2016.

Rulemaking Package

A rulemaking package is comprised of an Executive Summary, an Annex, an Order, a Comment and Response Document, and a Regulatory Analysis Form (RAF).

The Executive Summary provides a brief overview of the final rulemaking for the members of the EQB. This document outlines the purpose of the regulation.

The Annex is the regulatory language that is being changed. Words that are in normal text are unchanged from the existing law. Words that appear as **bold** are additions the Department made to the existing regulation during the proposed stage of the rulemaking process. Words that are **BOLD AND CAPITALIZED** are additions made by the Department to the final regulation. Words that are **[bold**

and inside brackets] are deletions the Department made to the regulation in the proposed stage of the rulemaking process. Words that are [~~**bold and inside brackets with a strikethrough**~~] are deletions the Department made to the final regulation. This document will be published in its entirety in the *Pennsylvania Bulletin* to become final and effective.

The Order (referred to as the Preamble in a proposed rulemaking) is published in the *Pennsylvania Bulletin* with the Annex as an explanation and justification for the regulation. It articulates how the regulation will improve environmental quality in the Commonwealth, including the improvement of public health and safety and the environment. The Order also provides a background of the regulatory amendments; summaries of significant comments; and information on benefits, costs, and compliance.

The Comment and Response Document lists the comments received during the comment periods and the Department's response. The Comment and Response Document for this rulemaking is provided in two parts: one for the comment period held on the proposed regulation (Dec. 14, 2013 – March 14, 2014) and one for the comment period held on the draft final regulation (April 4, 2015 – May 19, 2015). Commentators are identified by their commentator number in the corresponding commentator list.

The Regulatory Analysis Form (RAF) includes 30 questions about the regulation and is submitted to IRRC and the Standing Committees. This document provides justifications for changes and describes the considerations made by the Department during the rulemaking process. For instance, the Department must compare the regulation with the rules of other states and identify the financial, economic and social impacts of the regulation.

Significant Differences Between Conventional and Unconventional Rules

The regulations pertaining to conventional oil and gas regulations are significantly different from the rules for unconventional operations. The conventional rules (25 Pa. Code Chapter 78) treat all conventional operators as small businesses and are appropriately tailored to meet this industry's needs.

Use of pits to store drilling wastes: The unconventional industry will be prohibited from utilizing pits to store drill cuttings and waste fluids. The conventional industry will continue to be able to use pits that are less than 3,000 square feet and store less than 125,000 gallons of fluid under a permit by rule. Larger pits will require an individual permit.

Vandal proofing tanks: The unconventional industry will be required to install valve locks, open end caps, retractable ladders or other similar protective measures to prevent vandalism to their tanks. No such requirement exists for the conventional industry.

Disposal of drill cuttings: The unconventional industry will be required to obtain an individual permit to dispose of drill cuttings at the well site. This practice is permitted by rule for the conventional industry and no changes to this practice are proposed through this rulemaking.

Secondary containment at well sites: The unconventional industry will be required to employ secondary containment around all storage vessels, trucks used to store polluttional substances and drill rigs. Secondary containment is only required at new, replaced or refurbished brine tanks at conventional sites.

Gathering lines: The unconventional rules contain new sections on gathering line construction and horizontal directional drilling beneath streams. The conventional rules do not contain these sections.

Temporary pipelines: The unconventional rules contain a new section on the installation and use of temporary lines used to transport freshwater and wastewater. The conventional rules do not contain this provision.

Water management plans: The unconventional rules require operators to obtain a water management plan before they withdraw water for hydraulic fracturing purposes. The conventional rules do not contain this requirement.

Beneficial use of brine: Conventional operators have the ability to beneficially use their brine for dust suppression and de-icing purposes. Waste fluid from unconventional wells may not be used.

Reporting: Unconventional operators must report their product (gas and condensate) and waste on a monthly basis. Conventional operators must report annually.

Key Provisions of the Regulation

Addressing Potential Impacts to Public Resources

The Department has an obligation to protect public resources under Article I, Section 27 of the Pennsylvania Constitution, the Administrative Code of 1929, the 2012 Oil and Gas Act, the Clean Streams Law, the Dam Safety and Encroachments Act, the Solid Waste Management Act and other statutes. Moreover, the Department shares responsibility for the protection of natural resources with other Commonwealth agencies and municipalities that also have trustee duties under Article I, Section 27 of the Pennsylvania Constitution, as well as federal agencies. To meet these constitutional and statutory obligations, Sections 78.15 and 78a.15 establish a process for the Department to identify, consider and protect public resources from the potential impacts of a proposed well and to coordinate with applicable public resource agencies.

Additionally, the public resources enjoyed by millions of Pennsylvanians and out of state visitors are considered precious to everyone who visits them. Public resources are also a major economic contributor (>\$1 billion per year) to Pennsylvania through tourism, outdoor fish and game sports, and recreation.

Sections 78.15 and 78a.15 establish a streamlined process for addressing potential impacts to public resources during the well permitting process. An applicant for a well permit will be required to identify a potentially impacted public resource and notify the appropriate public resource agency (such as the Department of Conservation and Natural Resources or Pennsylvania Game Commission) if a well site is within:

- 200 feet of a publicly owned park, forest, game land or wild life area;
- In or within the corridor of a state or national scenic river;
- Within 200 feet of a national natural landmark;
- In a location that will impact other critical communities (species of special concern);
- Within 200 feet of a historical or archaeological site listed on the Federal or State list of historic places;
- Within 200 feet of common areas on a school's property or a playground;
- Within zones 1 or 2 of a wellhead protection area; or
- Within 1,000 feet of a water well, surface water intake, reservoir or other water supply extraction point used by a water purveyor (unconventional wells only).

The resource agency may provide comments on the functions and uses of the resource and provide recommendations to DEP and the operator on how to eliminate or mitigate probable harmful impacts to the resource. DEP will make the final determination on the permit and has the ability to add conditions to a well permit to ensure operators mitigate any potential impacts.

Area of Review

Since the first commercial oil well was drilled in Pennsylvania in 1859, it is estimated that over 325,000 oil and gas wells have been drilled in the state. Pennsylvania began permitting new drilling operations in 1956, and in 1985 began requiring operators to register old wells. In the early years of the oil and gas industry in Pennsylvania, many wells were not properly plugged once they stopped producing and were abandoned. There are estimates of upwards of 300,000 wells that were not properly plugged, leaving them as “orphaned or abandoned.”

A serious risk to waters of the Commonwealth is posed when an operator inadvertently alters an abandoned well by inducing hydraulic or pressure communication during the hydraulic fracturing process. Altering an abandoned well by subjecting it to pressures and reservoir sections it was not necessarily built to isolate can and has led to a number of issues, including methane migration and water supply impacts. Even in instances when no water supplies are affected, communication with any adjacent oil or gas well has the potential to lead to well control incidents that may pose serious safety hazards.

Sections 78.52a and 78a.52a of the final rulemaking require operators to identify abandoned, orphan, active and inactive wells within 1,000 feet of the vertical and horizontal wellbore prior to hydraulic fracturing. The review distance is set at 500 feet for vertical oil wells in Section 78.52a. The identification process requires operators to review the Department’s orphan and abandoned well database, review farm line maps, and submit a questionnaire to landowners whose property lies within the prescribed area of review prior to drilling in cases where hydraulic fracturing activities are anticipated at the well site. Other available databases and historical sources must also be consulted.

Containment Practices

Based on DEP’s experience, the primary cause of pollution to the environment by oil and gas operations is due to unauthorized releases of regulated substances onto the ground. Secondary containment of all regulated substances is necessary to minimize the potential for pollution on well sites. Act 13 of 2012 requires secondary containment at unconventional well sites during any phase of drilling, casing, cementing, hydraulic fracturing, or flowback operations when regulated substances are brought onto or generated at the well site. This rulemaking implements that requirement, that all regulated substances, except fuel in equipment or vehicles, must be managed with secondary containment that is compatible with the regulated substance. Operators will also be required to inspect the secondary containment weekly to ensure its integrity.

Existing regulations require secondary containment to meet federal statute 40 CFR Part 112 (relating to oil pollution prevention) to be constructed around oil tanks to prevent the discharge of oil into Waters of the Commonwealth. The Department has expanded this requirement in §§ 78.64 and 78a.64 to include tanks that contain condensate (light liquid hydrocarbons) because the United States Environmental Protection Agency considers condensate that is liquid at atmospheric pressures and temperatures to be “oil.” Operators will have a maximum of two years to comply with this requirement.

To be consistent with Federal Spill Prevention, Control and Countermeasure Plan regulation, the final-form rulemaking requires secondary containment to be constructed for a tank or tanks with a combined capacity of at least 1,320 gallons, instead of the current 660-gallon threshold. Act 13 of 2012 requires that

permanent aboveground and underground tanks employ corrosion control measures and be inspected regularly. As these tanks can be in place for decades, these requirements will help to maintain the integrity of the tank, so that leaks and failures are avoided.

When initially proposed, the rule included provisions to codify the Department's construction and operation of centralized waste storage impoundments. The final rulemaking requires all centralized impoundments to comply with permitting requirements of the Waste Program in Subpart D, Article IX, or close within three years of the effective date of the regulation.

Protection of Water Resources

Pennsylvania has more water resources than any other state except Alaska. One focus of this regulation is to protect the vast water resources throughout Pennsylvania. These water resources are the primary drinking water sources for millions of people. Nearly half of all Pennsylvanians obtain their drinking water from private water wells that are not regulated by the state.

The final-form rulemaking bans the use of temporary waste storage pits at unconventional well sites. The typical size and length of use by unconventional operators is generally incompatible with the technical standards for temporary pits.

The use of temporary pits at conventional well sites is retained in the final-form rulemaking, with appropriate environmental standards. Conventional operators can construct pits with steep inside slopes, provided that the pit has an aerial extent of less than 3,000ft² and volumetric capacity of less than 125,000 gallons. For larger pits, the conventional operator must obtain a site-specific approval from DEP prior to constructing the pit. In order to ensure adequate protection of Pennsylvania's vast groundwater resources, the final regulation requires conventional operators to use pit liners with a thickness of at least 30 mils, but allows for a liner manufacturer to demonstrate that a thinner liner is equally protective. In the current regulations, 30 mil liners are required for disposal of cuttings through pit encapsulation – a very common practice for conventional operators.

Since 1989, the bottom of a temporary pit must be at least 20 inches above the seasonal high groundwater table to protect groundwater resources. To ensure compliance with this existing requirement, operators will be required to determine and document that the pit meets this requirement through a soil scientist or other similarly trained person.

This regulation also outlines rules for operator response to spills and releases, and requires remediation to Act 2 standards. It also will require pipeline construction companies to develop Preparedness, Prevention, and Contingency Plans when performing Horizontal Directional Drilling under a waterway to minimize impacts on waters in the event of an inadvertent return.

Operators will be required to restore a well site, including filling pits and removing drilling supplies and equipment within nine months of completion of drilling.