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OIL & NATURAL GAS EXTRACTION PORTAL



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Welcome to the Oil & Natural Gas Extraction Portal

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The Oil & Natural Gas Extraction Portal is intended to help you comply with environmental regulations that affect the exploration, extraction, production and processing of natural gas. The site includes overviews of the regulations and links to more detailed information and other resources that can help this sector continue its expansion in an environmentally responsible manner.

This website was developed and is maintained by the [National Center for Manufacturing Sciences](#). Funding for this project has been provided by EPA under the [National Compliance Assistance Centers](#) program. For more information, or to pass along suggestions, please contact: Lisa Stobierski, Administrative Director, LisaS@ncms.org

Recent Developments

Air Rules for the Oil and Natural Gas Industry - Compliance Assistance. EPA released a compliance guide to assist small businesses in understanding the requirements of the 2016 New Source Performance Standards for the Oil and Natural Gas Industry. The rule became effective August 2, 2016. [Small Business Compliance Guide.](#)

Unconventional Oil and Natural Gas Development. The U.S. EPA is working with states and other key stakeholders to help ensure that the economic prosperity from unconventional oil and natural gas extraction does not come at the expense of public health and the environment. [More information.](#)

Energy and the Environment. Access EPA's Clean Energy Programs, Power Profiler and other energy resources. [More information.](#)

Quick Access



Exploration/Development



Well Production



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CAA: Clean Air Act
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CWA: Clean Water Act
EPCRA: Emergency Planning and Community Right-to-Know Act
FIFRA: Federal Insecticide, Fungicide and Rodenticide Act
NEPA: National Environmental Policy Act
RCRA: Resource Conservation and Recovery Act
SDWA: Safe Drinking Water Act
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Clean Water Act

The [Clean Water Act \(CWA\)](#) regulates both direct and indirect discharges to waters of the U.S under the National Pollutant Discharge Elimination System (NPDES). NPDES state or EPA permits contain industry specific, technology based and water quality based limits and establish pollutant monitoring and reporting requirements.

The Natural Gas Extraction Portal contains information on the following topics related to the CWA:

Applicability of CWA to Land Based Oil and Natural Gas Extraction and Production Sector	Summary	Full Text
NPDES Permit Program	Summary	Full Text
Produced Water Discharges	Summary	Full Text
Stormwater Discharges	Summary	Full Text
Waterbody/Wetlands	Summary	Full Text
Oil Pollution Regulation	Summary	Full Text
State Authorization	Summary	



Applicability of CWA to Land Based Oil and Natural Gas Extraction and Production Sector

It is up to each facility to understand its responsibilities under the CWA in each individual case. For guidance purposes only, a listing has been developed of those CWA statutes, regulations or guidance which could apply to facilities engaged in oil and/or gas exploration, extraction, well completion or workover, production, or transmission. To see the list of applicable statutes, [click here](#).

NPDES Permit Program

As authorized by the Clean Water Act and to implement the national goal of zero discharge, the [National](#) Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to our Nation's water quality.

The CWA prohibits the unauthorized discharge of pollutants into waters of the U.S. Owners and operators of facilities that discharge pollutants into waters of the U.S. may gain authorization by first obtaining an NPDES permit. An NPDES permit contains limits on what you can discharge, monitoring, recordkeeping and reporting requirements, and other provisions to ensure that the discharge does not harm water quality or people's health. In essence, the permit translates general requirements of the Clean Water Act into specific provisions tailored to the operations of each facility's discharging pollutants.

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Applicability of CWA to Land Based Oil and Natural Gas Extraction and Production Sector

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General

- [Office of Water Oil and Gas Study](#)
- [Office of Research and Development Hydraulic Fracturing Study](#)

NPDES Permit Program

- [40 CFR 122](#). EPA Administered Permit Programs: National Pollutant Discharge Elimination System
- [40 CFR 122.28](#). General Permits
- [CWA Section 402](#). Clean Water Act, Section 402, National Pollutant Discharge Elimination System

Wastewater Discharge

Direct Discharge

- [40 CFR 435](#). Oil and Gas Extraction Point Source Category
 - [40 CFR 435 Subpart C](#). Onshore Subcategory (Section 435.30 – 435.34)
 - [40 CFR 435 Subpart D](#). Coastal Subcategory (Sections 435.40 – 435.47)
 - [40 CFR 435 Subpart E](#). Agricultural and Wildlife Use Subcategory (Sections 435.50 – 435.52)
 - [40 CFR 435 Subpart F](#). Stripper Well Subcategory (435.60 – 435.61)
 - [40 CFR 435 Subpart G](#). General Provisions (Section 435.70)

Indirect Discharge

- [40 CFR 435 Subpart D](#)



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Produced Water Discharges

This section provides the following information:

- [Produced Water Management](#)
- [Wastewater Characteristics](#)
- [Direct Discharge](#)
- [Indirect Discharge to Publically Owned Treatment Works \(POTW\)](#)
- [Indirect Discharge to Centralized Waste Treatment \(CWT\)](#)
- [State Authorization](#)
- [More Resources](#)

Produced Water Management

Water is an integral component of the oil and gas extraction process in many geologic basins. With the recent increase in the number of shale oil and gas wells, there has been an increase in the volume of oil and gas extraction wastewater (including flowback and produced water) that requires disposal.

Although other options are being pursued to reduce the amount of water used (e.g., fracturing with nitrogen, re-using wastewater to replace/supplement fresh water in formulating future fracturing fluid), wastewater disposal remains a management concern. The basic options for disposal of oil and gas extraction wastewater operations include:

- Direct discharge is regulated by the National Pollutant Discharge Elimination System permit program.
- Discharge to treatment facilities (either publically owned treatment works or centralized waste treatment operations).
- Disposal in surface impoundments (pits or ponds), regulated by the states.
- Underground Injection in Class II UIC Wells.

Wastewater Characteristics



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Stormwater Discharges

Stormwater runoff is generated when precipitation from rain and snowmelt events flows over land or impervious surfaces and does not percolate into the ground. As the runoff flows over the land or impervious surfaces (e.g., equipment, roads, parking lots, and building rooftops), it accumulates debris, chemicals, sediment or other pollutants that could adversely affect water quality if the runoff is discharged untreated. The primary method to control stormwater discharges is the use of best management practices (BMPs). Activities that take place at industrial facilities, such as material handling and storage, are often exposed to the weather and hence subject to the production of contaminated stormwater. At the federal level, **11 categories of stormwater discharges** associated with industrial activity are required to be covered under an National Pollutant Discharge Elimination System (NPDES) permit (unless otherwise excluded). Two of those 11 categories are applicable to the oil and gas industry:

- Category 3: Coal and mineral mining and oil and gas exploration and processing.
- Category 10: Construction sites that disturb one acre or more.



Oil and Gas Industry Stormwater Rules

Most stormwater discharges from industrial activities require coverage under a **NPDES** permit. However, the **Water Quality Act (WQA) of 1987** added section 402(l)(2) to the **Clean Water Act (CWA)** specifying that NPDES permits are not required for uncontaminated stormwater discharges from "oil and gas exploration, production, processing or treatment operations, or



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Waterbody/Wetlands Protection

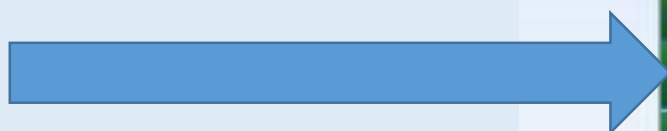
The Clean Water Act's jurisdiction extends to "waters of the United States," including some wetlands. Current implementing regulations define the term wetlands to mean "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Wetlands and all other jurisdictional waters are recognized as important features in the landscape that provide numerous beneficial services for people and for fish and wildlife. Some of these services, or functions, include protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, and maintaining surface water flow during dry periods. These beneficial services, considered valuable to societies worldwide, are the result of the inherent and unique natural characteristics of wetlands.



The following topics are covered in this section of the Natural Gas Extraction Portal:

- [CWA Section 401 - Water Quality Standards](#)
- [CWA Section 404 - Dredge and Fill Regulations](#)
- [Application of Sections 401 and 404 to Natural Gas Extraction, Production and Processing](#)
- [CWA Section 401 State Authorization](#)



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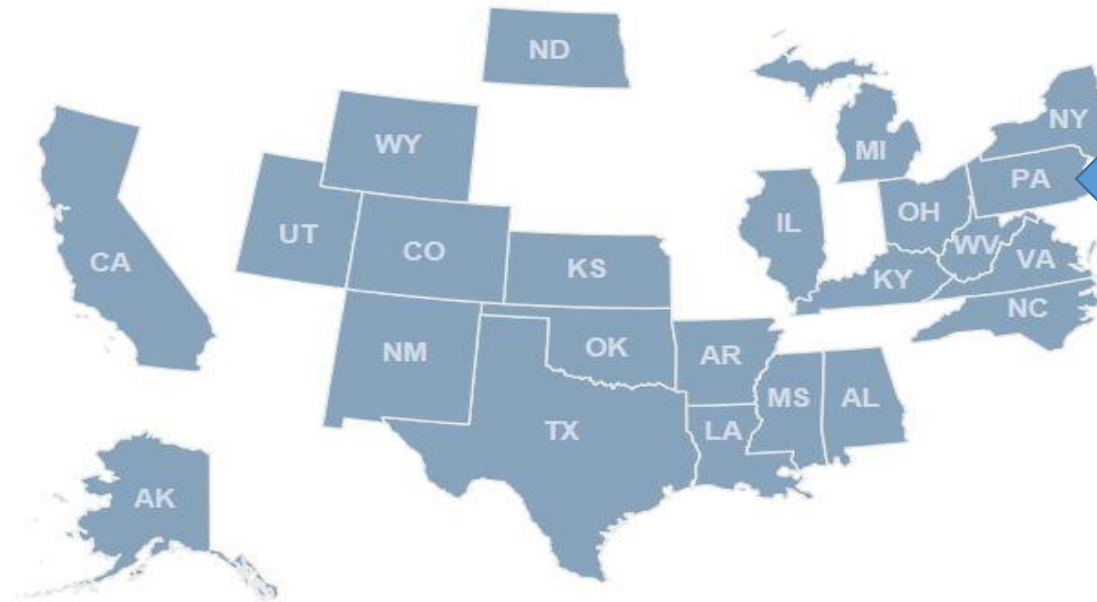
NATURAL GAS & OIL STATE RESOURCE LOCATOR



Oil & Natural Gas Exploration

This page provides an overview of state regulations that apply to oil and gas exploration and production for each state. To be sure that you have the most comprehensive and current information, please contact the appropriate state agency.

Click on your states initials.





NATURAL GAS & OIL STATE RESOURCE LOCATOR

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Oil & Natural Gas Exploration

Pennsylvania Regulations for Oil and Gas Exploration and Production

This page provides an overview of state regulations that apply to oil and gas exploration and production in Pennsylvania. To be sure that you have the most comprehensive and current information, please contact the appropriate state agency.

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- [Underground Injection Wells](#)
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Oil and Gas Regulation

- State Environmental Agency: [Pennsylvania Department of Environmental Protection \(DEP\)](#)
- Oil and Gas Regulatory Agency: [DEP, Office of Oil and Gas Management](#)
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Oil and Gas Surface Regulations

On October 8, 2016, Pennsylvania's [Environmental Quality Board \(EQB\)](#) published a final-form rulemaking in the Pennsylvania Bulletin regarding surface activities related to unconventional gas well development. The Pennsylvania Bulletin publication includes the final-form rulemaking language in plain text (Annex A) and an Order describing the regulations. The publication document is available as an html document [here](#) and as a pdf document [here](#) . A minor correction to the rulemaking was made in the Pennsylvania Bulletin on October 29 and is available as an html document [here](#) and as part of a pdf document [here](#) . The official Pennsylvania Code published version of the rulemaking is available as

[Abandoned and Orphan Well Program](#)[Advisory Committees](#)[Annual Report](#)[Conservation Law](#)



INJECTION WELLS FOR ENHANCED RECOVERY AND DISPOSAL

Two types of injection wells are used in oil and gas operations in Pennsylvania – enhanced recovery and disposal injection wells. Each type is used for a particular purpose and both types of wells are considered Class II injection wells by the United States Environmental Protection Agency (EPA), the environmental agency primarily responsible for regulating these sites. Enhanced recovery wells are designated Class IIR wells, whereas disposal injection wells are considered Class IID wells.

Enhanced Recovery Injection Wells (Class IIR)

The first, and most common, is an injection well used to enhance production or stimulate oil production from other wells. An enhanced recovery injection well may be a formerly productive well whose production has decreased over time or a well specifically drilled as an injection well. This type of injection well is used to inject fluid into the oil producing rock, displacing oil towards a second well where the oil is extracted. When the fluid injected into the well is water, the practice is commonly referred to as "water flooding."

In Pennsylvania, water flooding is thought to have first occurred by accident in the late 1870s. Fresh water entered an oil producing sand on the Columbia Oil Company property along Oil Creek in Venango County as a result of pulling pipe during well abandonment or deterioration of the seal bags placed around the tubing to keep fresh water from entering the oil sand. The flooding of the oil sand was first noticed on adjoining lands when wells there began producing more oil. By the early 1890s, some intentional water flooding was occurring in the Bradford Oil Field.

Because Pennsylvania law at that time required plugging of abandoned and dry holes to prevent water from entering the oil and gas sands, the flooding was done secretly. In 1921, a special act was passed legalizing the flooding practice in the Bradford Oil Field and certain other specifically named sands. The act was amended in 1923 and again in 1929 to add other sands to the list. Over the years, several thousand enhanced recovery injection wells have been drilled in Pennsylvania. Only approximately two thousand remain listed as active throughout the state.

Disposal Injection Wells (Class IID)

The second type of injection well is for disposal of fluids produced along with oil or gas. Although the Pennsylvania Department of Environmental Protection (DEP) promotes recycling as a first option when it is technically and economically feasible, some liquid waste must ultimately be disposed of and deep



State Review of Oil and Natural Gas Environmental Regulations

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Meeting the environmental challenges of U.S. oil and gas development with diverse perspectives and consensus solutions.

News

STRONGER Seeks Comment on Air Quality Guidelines

January 2, 2019

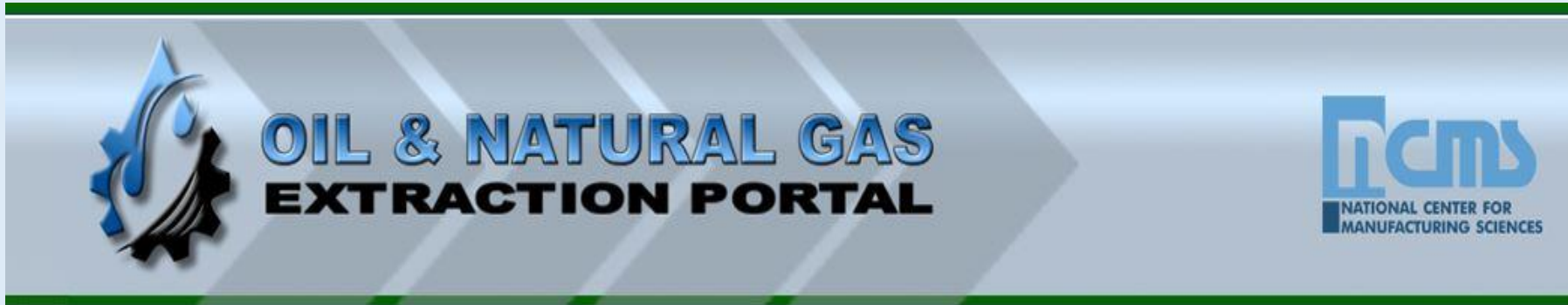
A multi-stakeholder workgroup convened by the STRONGER Board of Directors has developed updates to STRONGER's Air Quality Guidelines. The Air Quality Guidelines were initially developed in 2014 with ...

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