Clean Water Act Regulation of Oil and Gas Wastewater Discharges

A Call for Improved Oversight and Transparency

The Oil and Gas Wastewater Problem

The dramatic increase in US oil and gas production in the first two decades of the 21st century has led to an increase in wastewater (also known as produced water) that threatens public health and the environment. Studies show that dangerous contaminants like benzene and radioactive materials have been found downstream of produced water discharges,[1] and adequate analytical methods are lacking for many of the chemicals found in produced water,[2] making it impossible for regulators to ensure water is adequately protected. Yet, in an attempt to create a fast and cheap disposal option, oil and gas industry groups are asking the US Environmental Protection Agency (EPA) and states to relax protections and streamline permitting for surface water discharge under the Clean Water Act.

Clean Water Act Programs and Produced Water

Produced water discharges to *Waters of the United States (40 CFR 230.3(s))* are regulated by the **Clean Water Act's National Pollutant Discharge Elimination System (NPDES)**, which requires a permit for industrial pollution discharges. **Effluent guidelines** are standards incorporated into NPDES permits that cap the amount of pollutants allowed in receiving waters from specific industrial categories. EPA has delegated permitting authority to state environmental agencies in most states, except in some top producing oil and gas states — Texas, New Mexico and Oklahoma — where state regulators are currently seeking to obtain authority. Permit transparency and availability varies widely from state to state, making independent oversight of permitting activities a challenge for the public.

How do oil companies dispose of produced water?

- Underground injection for disposal.
- Underground injection for enhanced recovery.
- Discharge to pits for evaporation or percolation.
- Discharge to surface water.
- Treatment at an industrial centralized waste treatment (CWT) facility or a municipal treatment plant (aka publicly owned treatment works or POTW).
- Reuse outside the oil and gas industry for road spreading, dust control, crop irrigation, watering of livestock and wildlife propagation.

All of these management practices present environmental and health challenges.

1 Warner, Nathaniel & A Christie, Cidney & B Jackson, Robert & Vengosh, Avner. Impacts of Shale Gas Wastewater Disposal on Water Quality in Western Pennsylvania, Environmental Science & Technology. (Oct 2013).

2 EPA (2018) Detailed Study of the Centralized Waste Treatment Point Source Category for Facilities Managing Oil and Gas Extraction Wastes EPA-821-R-18-004 https://www.epa.gov/sites/production/files/2018-05/documents/cwt-study_may-2018.pdf

Discharges of oil and gas wastewater to surface water are prohibited onshore, except in the following cases:

- Areas of the U.S. **west of the 98th meridian** for agricultural use — watering of livestock and crop irrigation — and wildlife propagation (regulated by 40 CFR part 435 subcategory E)
- Oil and gas wells **producing less than 10 barrels of crude oil per day** (subcategory F)
- Facilities producing **coalbed methane** (subcategory H)
- Produced water **treated at an industrial waste treatment plant (centralized waste treatment or CWT facility)** and discharged under CWT regulations (40 CFR part 437) that lack effluent limitations for pollutants common in produced water.
- **Wastewater from conventional sources treated at a municipal sewage plant (publicly owned treatment works or POTW).** EPA prohibits POTWs from accepting unconventional oil and gas wastewater (40 CFR 435.33).[3] Yet, despite evidence that produced water from unconventional and conventional sources may contain similar constituents of concern, there are **no existing pretreatment standards for wastewater from conventional oil and gas** activities.

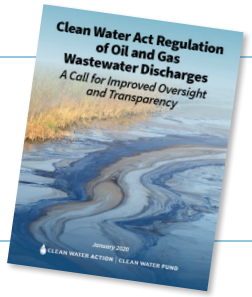
All of these exceptions pose risks to human health and the environment.

Recommendations

EPA should reject oil and gas industry requests to weaken existing protections, and act to strengthen Clean Water Act regulations to better protect the public:

1. EPA should improve its understanding of the chemical characteristics of produced water by requiring transparency and reporting of chemical use in the industry, and by working to improve analytical methods and toxicity measures of chemicals found in produced water.
2. EPA should revise effluent limitation guidelines for oil and gas extraction including:
    a. Direct discharges to surface water (subcategories E, F, and H)
    b. Indirect discharges to POTWs for conventional discharges
    c. CWTs guidelines by adding limitations for produced water pollutants
3. EPA and states with oil and gas NPDES primacy should improve permitting oversight, transparency, and data management to make permits available and more easily understood to the public.

For more information read our report, *Clean Water Act Regulation of Oil and Gas Wastewater Discharges, A Call for Improved Oversight and Transparency,* available at: **www.cleanwater.org/producedwaterELG**



3 EPA defines "unconventional oil and gas wastewater" as "crude oil and natural gas produced by a well drilled into a shale and/or tight formation (including, but not limited to, shale gas, shale oil, tight gas, tight oil)"