

# NATIONAL WATER REUSE ACTION PLAN

## COMPLETED ACTION



**Action 2.3** Complete the EPA Study of Oil and Gas Extraction Wastewater Management

## Background

Advances in oil and gas drilling and production techniques have resulted in an increase in the number of oil and gas wells in the United States. This trend has led to the generation of large volumes of produced water that is primarily managed by reuse within the oil field or by disposing of it into deep underground injection wells. States and other stakeholders have questioned produced wastewater management practices and whether additional management practices exist that may enable produced water to be a viable resource.

To better consider these critical questions and ensure safe and responsible produced water management under the Clean Water Act (CWA), EPA led development of the [Study of Oil and Gas Extraction Wastewater Management Under the Clean Water Act](#). EPA's study explored whether increased opportunities for discharge of treated produced water is supported by stakeholders, and if so, what concerns exist around discharge.

Currently, produced water is reused within oil and gas operations for enhanced oil recovery and as a substitute for fresh water in activities such as hydraulic fracturing. Produced water that is not reused within the oil field is typically disposed of in injection disposal wells. Reuse of oil and gas produced water outside of the oil field is limited. West of the 98<sup>th</sup> meridian, produced water that is of good enough quality, and that has a use in agriculture and wildlife propagation and is put to such use during periods of discharge, can be discharged for beneficial reuse. In addition, produced water can be discharged via off-site commercial centralized waste treatment facilities where it is then available for downstream uses.

## Accomplishments

- The [Summary of Input on Oil and Gas Extraction Wastewater Management Practices Under the Clean Water Act Final Report](#) outlines some existing strategies for managing produced water and details how the CWA currently regulates produced water.
- The report also summarizes input received from more than 80 stakeholder organizations including state agencies, tribes, industry, non-governmental organizations (NGOs), academia, environmental groups and other entities on produced water generation, management, and disposal options for both conventional and unconventional<sup>1</sup> onshore oil and gas extraction.
- Representatives from state oil and gas regulatory agencies and the oil and gas industry generally supported increasing opportunities for management of oil and gas produced wastewater to provide additional flexibility for producers and opportunities to address water scarcity concerns.

<sup>1</sup> EPA defines unconventional oil and gas at 40 CFR 435.33(a)(2)(i) 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).”

### Action Team

**Action Leaders**

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**Action Partners**

- **EPA**
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- Representatives from tribes, NGOs, and academia are concerned with increasing opportunities for management of oil and gas produced water, citing limited data on the chemistry of these wastewaters and the performance of treatment technologies; the lack of analytical methods for measuring constituents in produced water, and the impacts to downstream users such as drinking water utilities.

## Action Impact

EPA's effort considered questions such as how existing federal approaches to produced water management under the CWA can interact more effectively with state and tribal regulations, requirements, or policy needs, and whether potential federal regulations that may allow for broader discharge of treated produced water to surface waters are supported. EPA is particularly interested in working with its regulatory partners at the state level, who are at the forefront of the changing industry and often manage complex water allocation programs under state law.

Representatives of some states and stakeholders are asking whether it makes sense to continue to treat produced water as a waste or rather look at the produced water as a potential resource, if treated to meet fit-for-purpose specifications. This may be particularly important as forty out of fifty state water managers expect freshwater shortages to occur in their states within the next 10 years.<sup>2</sup> As described the Ground Water Protection Council's June 2019 [Produced Water Report: Regulations, Current Practices, and Research Needs](#), as water becomes more scarce, the increasing benefits of reusing produced water in some regions may outweigh the costs of managing, treating, storing, and transporting it if health and environmental risks can be understood and appropriately managed.

The final study outlines barriers to enabling large-scale deployment of technologies and practices for managing produced water beyond underground injection that were expressed by water sector stakeholders. The barriers include a lack of available data on water chemistry, treatment performance, and analytical methods, as well as perceived downstream environmental and human health impacts.

## Action Implementation Process

After considering public input, EPA published the [Summary of Input on Oil and Gas Extraction Wastewater Management Practices Under the Clean Water Act Final Report](#) on the [Effluent Guidelines](#) webpage on May 11, 2020. Notification of the study was provided to over 500 stakeholders identified through EPA's outreach efforts.

## Future Activity

The final study is meant to inform EPA's consideration of potential regulatory and nonregulatory approaches for management of oil and gas produced wastewater under the CWA, including the potential for reuse opportunities, while ensuring the protection of public health and environment.

## Additional Resources

- [Oil and Gas Extraction Study - Public Meeting Presentation](#)
- [EPA Effluent Guidelines Webpage – Final Report: Oil and Gas Extraction Wastewater Management](#)
- [Oil and Gas Extraction Effluent Guidelines](#) (40 CFR Part 435)
- [Centralized Waste Treatment Effluent Guidelines](#) (40 CFR Part 437)
- [WRAP Action 4.2](#): Implement New Mexico Produced Water Research Consortium to Identify and Fill Science and Technology Gaps for Off-Field Use of Treated Produced Water
- Ground Water Protection Council. (2019). Produced Water Report: Regulations, Current Practices, and Research Needs

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<sup>2</sup> Government Accountability Office (GAO) 2014. Freshwater: Supply Concerns Continue and Uncertainties Complicate Planning. GAO-14-430.