

Federal Regulators Agree to Joint Study of Produced Water in New Mexico

BY DAN LARSON

LATEST STEP IN INDUSTRY'S EFFORT TO MODERNIZE PRODUCED-WATER RULES





PHOTO: SHUTTERSTOCK

Following months of discussions with New Mexico state officials and vigorous lobbying by industry, the U.S. Environmental Protection Agency (EPA) this summer signed an agreement to cooperate on an in-depth study of how produced-water recycling and reuse can be expanded.

With oil and natural gas development in Southeast New Mexico increasing, water-treatment technology and techniques have outpaced many federal regulations aimed at protecting water supplies from what was long considered a waste byproduct of oil and gas production.

As a result, producers and their oil-field water-management partners often find themselves handcuffed while operating on thousands of acres of federal lands across the Delaware portion of the prolific Permian Basin.

This summer’s agreement is the latest in the industry’s effort to foster responsible, consistent regulations for the recycling and reuse of produced water.

Three years ago, New Mexico operators succeeded in gaining approval of produced-water rules that were better defined and allowed for reuse without having to secure a permit for each project.

“At the time, industry was just trying to convince the state the previous rules just weren’t going to work,” said James P. Welch, director of development for oil and gas at Veolia Water Technologies, and part of the industry team that helped revise the state’s produced-water regulations. “But we stayed with it and got them approved,” he said.

In the meantime, oil production in Southeast New Mexico has increased. So has produced water disposal. (See chart below.)

New Mexico Oil Production (mm bbl.)	
June 2017	13,323
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Dec. 2017	16,636
Jan. 2018	16,780
Feb. 2018	16,396
March 2018	19,319
April 2018	19,447
May 2018	20,168

Source: US Energy Information Administration

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WATER STUDY

Covering a region with an arid to semi-arid climate and an average annual rainfall of 10 inches, state and federal regulators in Southeast New Mexico increasingly view water as a valuable, scarce resource.

Although operators in New Mexico, particularly those on federal lands, have traditionally disposed of produced water by pumping it into licensed Class II Underground Injection Control (UIC) wells, the rapid increase in oil production, and higher volumes of produced water that come with it, has forced operators to review their produced-water policies. Many are now reported to be using a variety of treatment processes and expanding their reuse and recycling volumes.

Responding to industry requests and recognizing the potential value of treated produced water, the EPA announced in July, it had signed a Memorandum of Understanding (MOU) with New Mexico’s Department of Oil Conservation (OCD) to study existing regulations and technology for treating and reusing produced water.

“The New Mexico Oil and Gas Association [NMOGA] had worked with both agencies on this agreement for over a year,” said Ryan Flynn, the group’s executive director. “It is gratifying to see that effort come to fruition in this MOU.”

The memorandum calls for formation of a collaborative workgroup representing government, industry, water users and environmental groups to “clarify and understand existing regulations and permitting frameworks” as applied to produced water.

The workgroup is tasked with “identifying those existing and potential technologies for increased treatment and possible uses of produced water.”

The MOU document defines produced water as “fluid from a hydrocarbon bearing strata brought up during

(4) Goals of the Workgroup

1. Synthesize existing produced-water regulatory and permitting frameworks
2. Identify gaps in data and policy for use of produced water
3. Identify possible uses of renewable water, reused water and recycled water
4. Identify any process or other improvement opportunities to such uses

Southeast New Mexico Class II Produced Water Injection/Oil Production (thousand barrels)		
	PW	OIL
2009	639	54.6
2010	676	59.9
2011	656	66.2
2012	727	80
2013	747	96.6
2014	777	115.6
2015	809	134.7
2016	743	131.9
2017	763	148.4
2018*	797	184
* Projected volume		

Source: Oil Conservation Division

extraction that may include formation water, injection water and chemicals added downhole.” The document does not differentiate between produced water and well-completion flowback.

According to the MOU, recycled water is generated from an oil and gas well and “significantly treated” for use again in oil and gas operations before disposal in a UIC well. Renewable water is produced from a well and significantly treated, and then “added to the hydrologic cycle” rather than injected in a disposal well. Reuse water is fluid that is minimally treated and used again in an oil and gas well before ultimate disposal in UIC well.

Disposal underground “has its utility and place,” said David P. Ross, an EPA spokesman. “However, alternatives are available that treat oil and gas wastewater for re-introduction into the hydrologic cycle. This is especially important in arid areas suffering from drought like New Mexico.”

Directed to meet quarterly, or on an ad hoc basis, the water workgroup is to produce its report within two years.

EPA’s agreement with New Mexico follows an EPA proposal in May to update its rules for centralized wastewater treatment (CWT) services. The agency said it recognizes the increased demand for such services that have come with greater oil and gas production across the country.

The increased burden on CWT services from oil and gas production creates “the potential to contribute to a range of human health and environmental impacts,” the EPA stated.

Produced water treatment “has come a long way,” said Flynn. “Industry can now economically bring what was considered a waste product up to drinking water standards. This MOU can help bring the regulations for water discharge up to date and allow treated water to go where it is needed.”

WATER MILESTONE

In February 2015, during a hearing at the New Mexico Oil Conservation District, commissioners heard from representatives of NMOGA, the Independent Petroleum Association of New Mexico, the Texas Water Recycling Association, and environmental and landowner groups.

Welch was called on to provide expert testimony and inform the commission that what had been considered a major revision of the state’s produced-water rules under Rule 17 and passed three years earlier was, in fact, unfeasible.

“In the three years since Rule 17 was adopted, not a single facility was permitted or built,” Welch said.

At the time, regulators were under political pressure to update the state’s legacy storage-pit rules. Numerous press accounts detailed how unlined produced-water pits went unattended for years. When Rule 17 was adopted, produced water was still considered a waste product and as such, required aboveground tanks or small lined pits that were to be closed within six months.

“Rule 17 was unworkable,” Welch commented.

The existing rules were not clear in differentiating between recycling facilities and water-recycling containment, Welch said.

Pit design, construction, operation and closure were clearly spelled out under the revised Rule 34, he said. Likewise, separating New Mexico’s spill regulations from produced-water rules was necessary because “spill control is aimed at capture, and storage is about containment.”

Approved by OCD in March 2015, the revisions under OCD Title 19.15.34, provided a clear definition of produced water, how it is stored, monitored and how pits are eventually closed.

The government’s intent in widening the rules was to reduce operator reliance on fresh water for well completions, among other goals, according to an analysis of Rule 34 by Christina Sheehan, an attorney at Modrall Sperling, a New Mexico law firm.

Under the revisions, OCD was given authority to regulate “transportation, disposal, recycling, reuse or the direct surface or subsurface disposal” of produced water. The revised rules were “intended to promote water conservation by encouraging the reuse and recycling of produced water.” This would be achieved by regulating the facilities that store, treat and recycle water so it can be used in drilling, completion, production or plugging oil and gas wells, Sheehan said.

Under revised Rule 34, a “recycling facility,” either stationary or portable, exclusively treats, reuses or recycles produced water for use again in oil and gas operations. It does not include oil-field equipment such as separators, heater-treaters, scrubbers or other onsite equipment that may use produced water.

The revisions also define “recycling containment” as a storage container that includes a synthetic liner for primary and secondary containment, and it is used solely for temporary storage of produced water in conjunction with a recycling facility.

Recycling of produced water is now considered a permit-by-rule activity and does not require a permit or registration, provided the recycled water is used for oil and gas operations.

Welch noted that original drafts of Rule 34 revisions were based on similar rules in Texas. However, after many discussions, comments and rewrites, New Mexico’s

produced-water rules were viewed positively and a step forward in Texas and adopted there.

New Mexico’s Rule 34 pit design and operation guidelines were adopted, with some differences in specifications, by University Lands, a Texas land trust established 130 years ago to manage 2.1 million surface and mineral acres in West Texas for the benefit of the University of Texas and Texas A&M. As defined in the state’s constitution, mineral revenue generated through University Lands to the Permanent University Fund (PUF) supports capital projects at the two universities while surface-lease revenues support several other higher education activities.

In May 2018, University Lands reported the PUF was valued at \$21.8 billion, with distributions to eligible institutions of \$888 million, an increase of \$49 million from 2017.

SPILL RULE

The goal of clarifying and finally separating the state’s spill rules from the produced-water rules was realized earlier this year, said NMOGA’s Flynn. It was an important step in modernizing how New Mexico regulates its most important private industry, he added.

“The spill rules were enacted under the [Gov. Bill] Richardson administration and were incredibly vague, lacking clarity or substance,” Flynn recalled. “The oil and gas industry worked with regulators on the new spill rules because we recognize that having responsible regulations is critical to our maintaining a social license to operate.”

The revision to OCD rule Sec. 19.15.29 expands the definition and volume of what qualifies as a spill, clarifies operator responsibilities for spill initial response, site characterization, remediation, closure, reclamation and enforcement.

The industry worked with the OCD to develop a rule that “both sides felt would be stronger and raises the standard by which industry is held,” Flynn reports, adding the revisions were completed and adopted by OCD in April. ■

About the Author

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