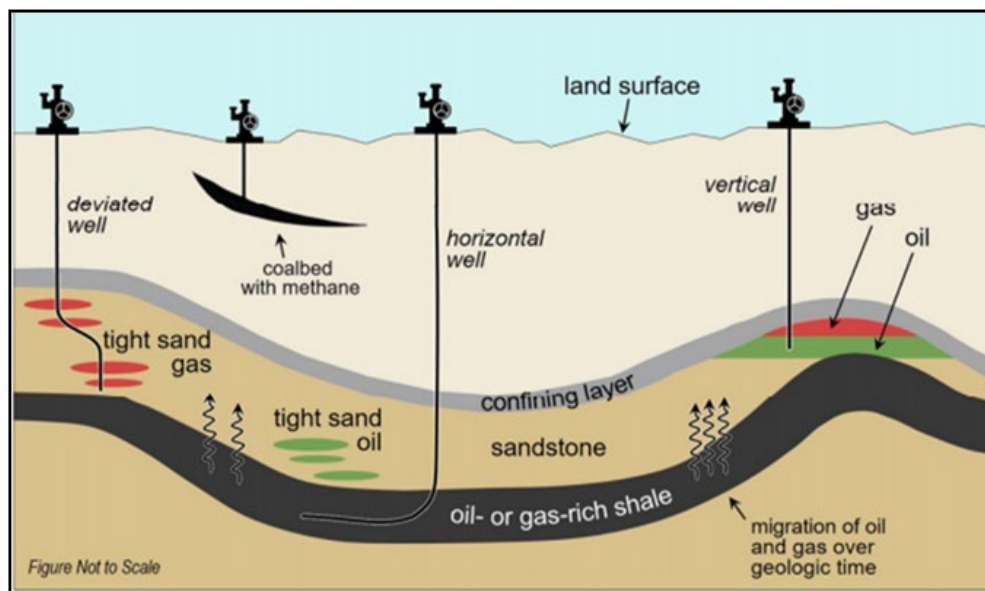


August 2021

ANALYSIS OF THE RELATIONSHIP BETWEEN CURRENT REGULATORY AND LEGAL FRAMEWORKS AND THE “PRODUCED WATER ACT”

NM WRI Technical Completion Report No. 396

Stephanie Russo Baca
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Different Types of Drilling Methods Used to Recover Oil and Gas

Source: EPA, 2019

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in cooperation with the
Utton Transboundary Resources Center
University of New Mexico School of Law

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DISCLAIMER

The purpose of the Water Resources Research Institute (NM WRRI) technical reports is to provide a timely outlet for research results obtained on projects supported in whole or in part by the institute. Through these reports, the NM WRRI promotes the free exchange of information and ideas and hopes to stimulate thoughtful discussions and actions that may lead to the resolution of water problems. The NM WRRI, through peer review of draft reports, attempts to substantiate the accuracy of the information contained within its reports, but the views expressed are those of the authors and do not necessarily reflect those of the NM WRRI or its reviewers. Contents of this publication do not necessarily reflect the view and policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute their endorsement by the United States government.

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ABSTRACT

An overview of the 2019 Produced Water Act is provided with an update on its implementation.

As demand for water in the state of New Mexico continues to rise, produced water reuse or recycling to reduce the impact on freshwater supplies is now encouraged by the Produced Water Act. New Mexico currently has several agencies that regulate produced water: the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), the New Mexico Environment Department (NMED), and federally, the U.S. Environmental Protection Agency (EPA). The Office of the State Engineer (OSE) regulates water rights for all other types of water.

The New Mexico Environment Department held public meetings in October and November 2019, along with representatives from the New Mexico Energy, Minerals, and Natural Resources Department and the Office of the State Engineer, to provide stakeholders with information on produced water and the upcoming rulemaking process. The Produced Water Act provides jurisdictional and legal clarity over produced water use in New Mexico. Furthermore, the new law encourages oil and gas producers to reuse produced water, when possible, rather than to rely on freshwater sources for oil and gas extraction.

Keywords: produced water; recycled produced water; treated produced water; hydraulic fracturing; energy, minerals, and natural resources department; oil conservation division; environment department; environmental protection agency; HB 546; Produced Water Act.

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INTRODUCTION

The Utton Transboundary Resources Center was generously given a grant by the New Mexico Water Resources Research Institute (NM WRRI) to analyze the current legal and regulatory frameworks of the Produced Water Act. The Produced Water Act partially went into effect July 1, 2019, and fully on January 1, 2020. This report provides an overview of the state and federal framework surrounding wastewater produced by the oil and gas industry, and its use.

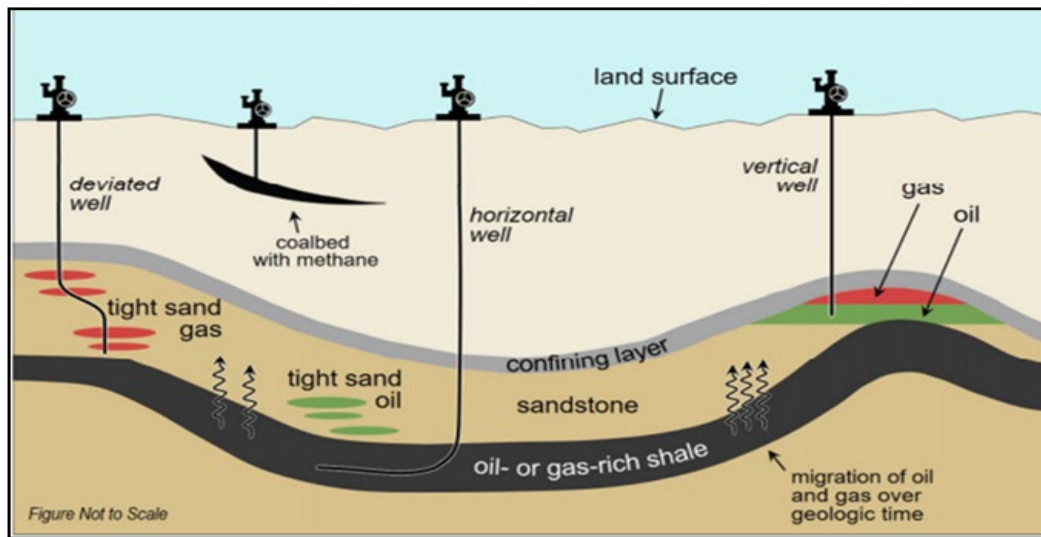


Figure 1: Illustration of the Different Types of Drilling Methods Used to Recover Oil and Gas

Source: EPA, 2019.

https://www.epa.gov/sites/production/files/2019-04/documents/management_of_exploration_development_and_production_wastes_4-23-19.pdf.

In 2018, New Mexico had the third highest level of crude oil production and is 8th in natural gas production in the United States, further underlining the role oil and gas have in the state's economy. Both crude oil, a mixture of hydrocarbons in liquid form, and natural gas, a mixture of hydrocarbon compounds in gas form, can be found in underground geologic formations."¹ Produced water is the fluid brought to the surface by the extraction of oil and natural gas as an incidental by product of oil and gas production. As oil production increases in the state, so does the production of produced water.

¹ "Glossary," U.S. Energy Information Administration, accessed September 15, 2020, <https://www.eia.gov/tools/glossary/index.php?id=H>.

Hydraulic fracturing, commonly known as “fracking,” is the process used to extract oil and gas by applying hydraulic pressure to a geological formation to create fractures through which oil or gas may be extracted.”² Fracturing occurs after a well is drilled and uses materials, carried by fluid at high pressure, to create or expand small fractures in a formation.³ These fractures help to significantly increase the flow of natural gas and oil that can be recovered from the formation.⁴ Water is the most commonly used fluid, but carbon dioxide and nitrogen are sometimes used with a combination of other chemicals and materials to prop open the fissures that allow oil and gas to be released.⁵ The material used in hydraulic fracturing in order to keep the fissures open is known as the proppant. This material is usually sand, but resin-coated sand, ceramics, and sintered bauxite are sometimes also used in the fracturing process.”⁶

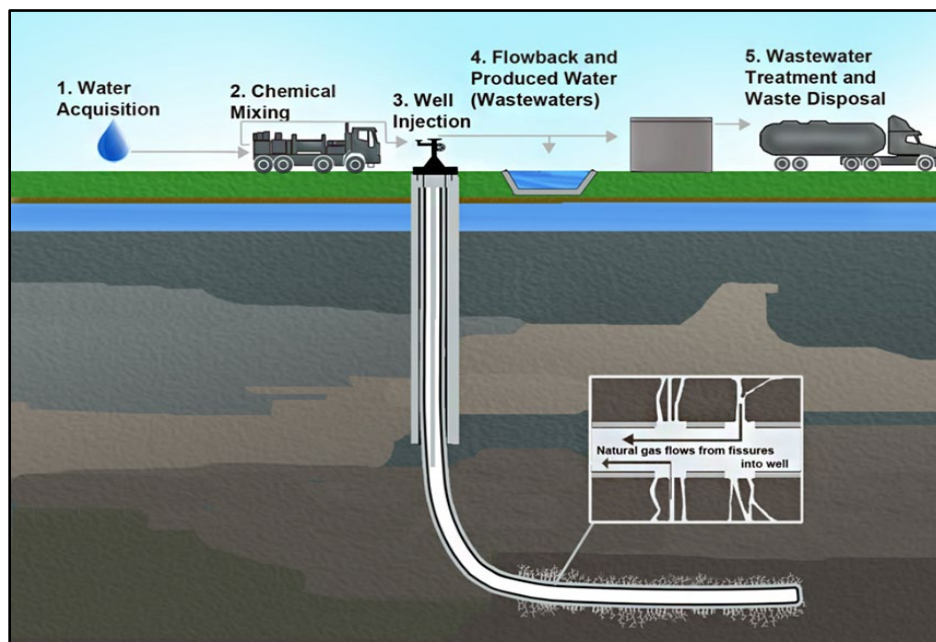


Figure 2: Illustration Showing the Key Points in Hydraulic Fracturing for Oil and Gas Development Where Water is Part of the Process.

Source: United States Geological Survey (illustration by U.S. Environmental Protection Agency)

<https://water.usgs.gov/owq/topics/hydraulic-fracturing/images/4Fraking42412-920.jpg>

² “Glossary,” New Mexico OCD, accessed September 15, 2020, <http://www.emnrd.state.nm.us/OCD/glossary.html>.

³ *Id.*

⁴ “Index”, Frac Focus, accessed September 15, 2020, <https://www.fracfocus.org/index.php?p=learn/hydraulic-fracturing>.

⁵ *Id.*

⁶ “Glossary,” U.S. Energy Information Administration, accessed September 15, 2020, <https://www.eia.gov/tools/glossary/index.php?id=H>.

Typically, produced water contains naturally occurring formation water, injection fluids such as water and chemicals added to the well, and compounds released from the formation. The most common constituents found in produced water are salts, oil residues, sand and mud, metals, acids, and carbon-based compounds such as solvents and surfactants, as well as small amounts of radioactive material and bacteria.⁷

Produced water generally contains high levels of minerals, particularly salts, and cannot be easily reused for most purposes without treatment. Produced water from the Permian Basin may have salt (as chloride and sodium) exceeding 100,000 milligrams per liter. The average salinity for sea water is 34,700 milligrams per liter.⁸ Produced water in New Mexico has naturally occurring high levels of salts and may require additional efforts to remediate.⁹

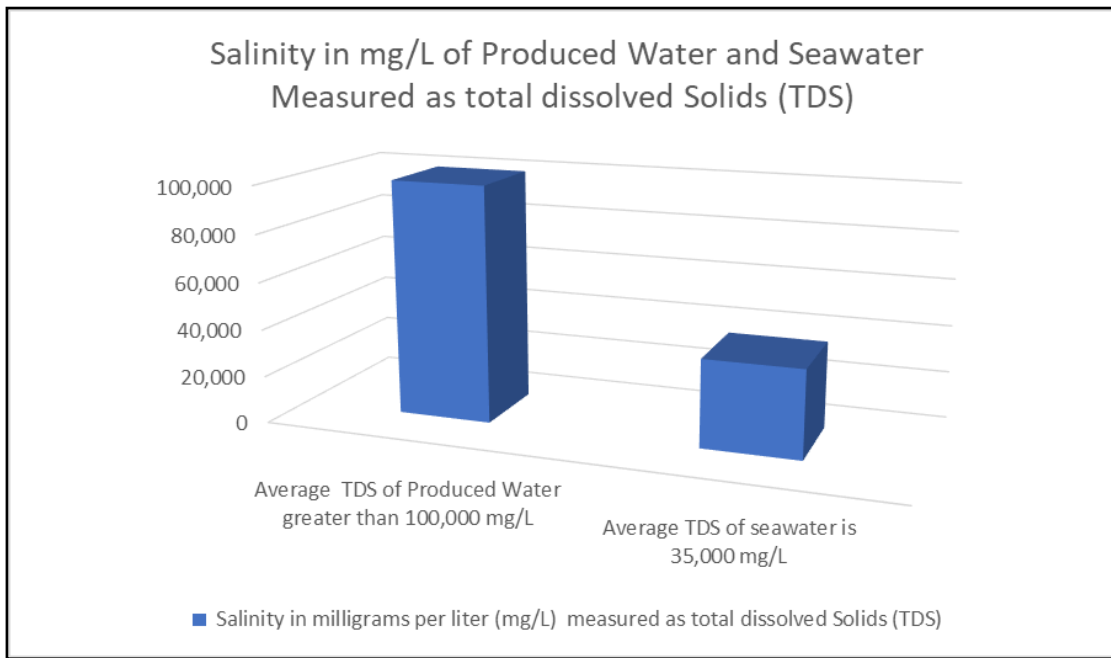


Figure 3: Salinity in mg/L of Produced Water and Seawater Measured as TDS.

Source: Chaudhary et al, 2019

<https://nmwri.nmsu.edu/wp-content/uploads/ProducedWater-Reports/Reports/NM%20WRI%20202016%20-Produced%20Water%20Final%20Report.pdf>

⁷ “Produced Water Management in New Mexico,” NMED, October 30, 2019, https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/10/Produced-Water-Public-Meeting-Presentation_ENGLISH_Final-191030.pdf.

⁸ New Mexico Legislative Finance Committee, Fiscal Impact Report, HJC, prepared 3/11/19, CS/CS/546/HENRCS/HJCS/aSJC/aSF1#1, analyst Hanika-Ortiz/Glenn, accessed September 15, 2020. <https://nmlegis.gov/Sessions/19%20Regular/firs/HB0546.PDF>

⁹ Chaudhary et al, 2019; Chaudhary et al., 2016.

The oil and gas industry measures in units of barrels (bbl) for oil production, and cubic feet (cf) for gas. Any given well generates approximately four to five barrels of produced water for every one barrel of oil. This ratio can vary widely across producing basins and over the life of a well. NM currently averages 4 to 5 bbls/bbl, but a decade ago it was closer to 10 bbls/bbl. This is the result of many new wells coming online. Most other water resources are measured in gallons (gal) or units of acre-feet (AF). One barrel of oil equals 42 U.S. gal. One AF equals to 325,851 U.S. gal. This measurement is simplified to 7,760 bbl to one AF.

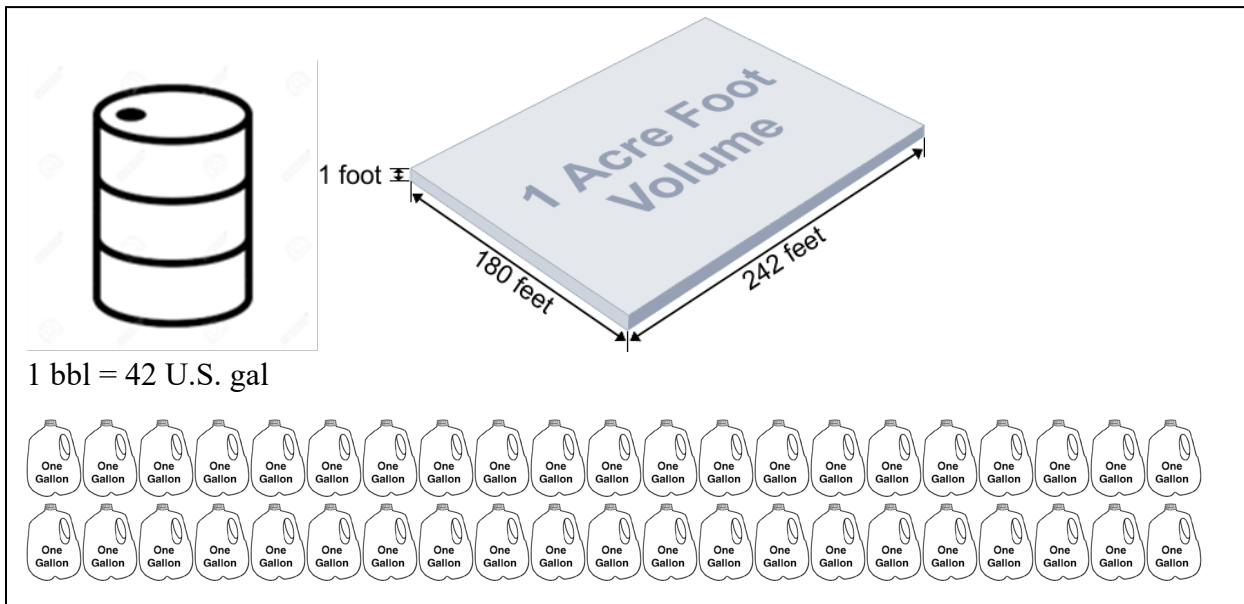


Figure 4: One Barrel of Oil Equals 42 U.S. Gallons. One AF Equals 325,851 U.S. Gallons.

In 2012, New Mexico’s oil and gas industry produced 100,012 AF of produced water, which is approximately 1.03 billion barrels or 32.6 billion gallons. In 2019, the total Produced water generated in New Mexico from the oil and gas industry was 1,265,677,874 bbls, which is equal to 163,137 AF.¹⁰

¹⁰ “OCD Data and Statistics, Statewide Natural Gas and Oil Production Summary Including Produced Water and Injection by Month,” OCD, accessed September 30, 2020, <https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting//Reporting/Production/ExpandedProductionInjectionSummaryReport.aspx>.

Year	Total Gas Reported in MCF	Total Oil Reported in bbls	Total Produced Water Reported in bbls	Total Produced Water In AF
2015	1,275,099,499	148,095,382	9,053,669,58	116,695
2016	1,264,376,132	146,634,156	856,032,243	110,336
2017	1,305,848,826	172,406,971	888,895,075	114,572
2018	1,510,728,077	248,868,022	1,047,829,177	135,058
2019	1,820,965,260	331,461,078	1,265,677,874	163,137
2020 Jan -Aug	1,132,123,248	206,021,263	676,442,153	87,188

Figure 5: New Mexico Oil Conservation Division Data on Natural Gas and Oil Production from 2015 until 2020.

Source: OCD data

<https://www.wapps.emnrd.state.nm.us/ocd/ocdpermitting//Reporting/Production/ExpandedProductionInjectionSummaryReport.aspx>

Some forecasts predict production in the Permian Basin will continue to grow over the next five years, even with the recent downturn due to the Covid-19 virus. The oil and gas industry has continued to invest in produced water remediation and recycling infrastructure in New Mexico, which may be attributed to the Produced Water Act.¹¹

Most produced water is either disposed of through deep injection wells or used in enhanced oil recovery (EOR) projects. EOR methods include any activity that increases oil production and increases the recovery factor in tertiary or secondary recovery projects. These methods include waterflooding and injection to maintain or restore reservoir pressure.¹² The term “secondary recovery” has been defined by a subcommittee of the American Petroleum Institute as “the oil, gas, or oil and gas recovered by any method (artificial flowing or pumping) that may be employed to produce them through the joint use of two or more well bores. Secondary recovery is generally recognized as being that recovery which may be obtained by the injection

¹¹ New Mexico Legislature, The First Special Session of the 54th Legislature, Water and Natural Resources Committee, Produced Water Rules In and out of the Oil Field. Presentation, Jennifer Bradfute, Senior Attorney, Marathon Oil Corporation.

¹² “Schlumberger Oilfield Glossary,” Schlumberger, accessed September 30, 2020, https://www.glossary.oilfield.slb.com/Terms/i/improved_oil_recovery.aspx.

of liquids or gases into the reservoir for the purpose of augmenting reservoir energy; usually, but not necessarily, this is done after the primary-recovery phase has passed.”¹³ A small but increasing portion of produced water is recycled and reused in oil and gas operations. No produced water in New Mexico is currently being reused outside of the oil industry and cannot be until additional rules are promulgated.

The Produced Water Act received bipartisan support after it was widely debated in the New Mexico Legislature and was scrutinized by a variety of entities including the oil and gas industry, state agencies, non-governmental entities, and private citizens.

This research identified the current regulatory and legal framework and provides an impartial analysis of the Produced Water Act. The principal beneficiary audience includes regulatory agencies and legislators. However, this information is also intended to be useful for the general public. The objective of this research and analysis is to stimulate discussion about the legal and regulatory aspects of produced water reuse, such as ownership, water rights, liability, standard practices, freshwater conservation and protection, and how the Produced Water Act requires changes to the current regulations.

¹³American Petroleum Institute, *Secondary Recovery of Oil in the United States* 255 (1942). *See also* 8 Williams & Meyers, *Oil and Gas Law Scope* (2020). *See also* “Schlumberger Oilfield Glossary,” Schlumberger, accessed September 30, 2020, https://www.glossary.oilfield.slb.com/Terms/i/improved_oil_recovery.aspx.

METHODS AND PROCEDURES

This project consists of three components: 1) legal research, 2) analysis and interpretation, and 3) final report preparation.

The legal research included identifying the scope of the legal review, then developing an outline, with a review of federal and New Mexico statutes and regulation. Interviews and discussions were completed with cooperative federal, state, and local entities. Research was performed within databases for secondary sources of information on produced water. Once the legal research was complete, there was a preliminary integration of research and analysis of the laws, rules, and regulations. Finally, that research and analysis were synthesized in the preparation of this final report.

STATE REGULATORY FRAMEWORK

New Mexico has three agencies that oversee the management of water, including produced water, within the state oil and gas (O&G) industry. The New Mexico Environment Department (NMED); the Oil Conservation Division (OCD) within the Energy, Minerals, and Natural Resources Department (EMNRD); and the Office of the State Engineer (OSE). Each agency plays a specific role; these responsibilities are explained below.

New Mexico Environment Department

The NMED is the agency tasked with protecting New Mexico's environment, resources, and public health and safety.¹⁴ In adherence to this goal, the NMED has established water quality programs and regulatory information on drinking water, groundwater, surface water, water and wastewater infrastructure, cleanups, and monitoring for water resources protection.¹⁵

The New Mexico Water Quality Act established the Water Quality Control Commission (WQCC). The WQCC is the primary authority for water quality management in New Mexico. The WQCC implements parts of the federal Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA). The WQCC is required to assign responsibilities of carrying out its regulations to other agencies.¹⁶ The WQCC adopts water quality standards and then assigns the responsibility for administering its regulations to constituent agencies. This ensures adequate enforcement coverage and prevents duplication of enforcement by agencies.¹⁷ Constituent state agencies include the NMED, the OCD, and the OSE.¹⁸ For example, the WQCC has delegated the authority to enforce its regulations that govern Underground Injection Control (UIC) Class II injection wells and the transportation and spilling of produced water to the OCD.¹⁹ Wells used for injecting produced water both for disposal and EOR are defined as Class II wells.²⁰

¹⁴ "About NMED," NMED, accessed June 3, 2020, <https://www.env.nm.gov/about-us/>.

¹⁵ "Water Resources & Management," NMED, accessed June 3, 2020, <https://www.env.nm.gov/water/>.

¹⁶ N.M. STAT. ANN. § 74-6-4 (F) (1978).

¹⁷ *Id.*

¹⁸ N.M. STAT. ANN. § 74-6-2 (K) (1978).

¹⁹ "Delegation of Responsibilities to Environmental Improvement Division and Oil Conservation Division," Water Quality Control Commission, accessed June 3, 2020, <http://www.emnrd.state.nm.us/OCD/tab2att2.html>.

²⁰ "Protecting underground sources of drinking water and public health," EPA, April 2020, https://www.epa.gov/sites/production/files/2020-04/documents/uic_fact_sheet.pdf.

The Produced Water Act mandates the WQCC require a permit for the use of produced water outside of the oil and gas industry, and also requires the Commission to adopt regulations to be administered by the NMED for the discharge, handling, transport, storage, recycling or treatment for the disposition of treated produced water outside of the oil and gas industry.²¹

New Mexico Oil Conservation Division

The OCD is the division of the EMNRD that regulates oil and gas activity in the state of New Mexico. The OCD gathers well production data, permits new wells, enforces the division's rules and the state's oil and gas statutes, certifies that abandoned wells are correctly plugged, and ensures that the impacted land is reasonably restored.²² The Oil and Gas Act establishes the OCD as the primary regulatory body to oversee the use and disposal of produced water in the oil and gas industry.²³

The OCD has oversight authority of New Mexico's UIC program as it relates to the oil and gas industry under the SDWA.²⁴ Through the authority granted to it under the Oil and Gas Act, the OCD has the power to "to regulate the disposition, handling, transport, storage, recycling, treatment and disposal of produced water during, or for reuse in, the exploration, drilling, production, treatment or refinement of oil or gas, including disposal by injection pursuant to authority delegated under the federal Safe Drinking Water Act, in a manner that protects public health, the environment and fresh water resources."²⁵

²¹ N.M. STAT. ANN. § 74-6-1 (1978).

²² "Welcome to the New Mexico Mining & Minerals Division," Oil Conservation Division, accessed June 4, 2020, <http://www.emnrd.state.nm.us/OCD/>.

²³ N.M. STAT. ANN. § 70-2-12(B)(15) (1978).

²⁴ N.M. STAT. ANN. § 70-2-1 (1978).; *see also* N.M. STAT. ANN. § 74-6-1 (1978).

²⁵ N.M. STAT. ANN. § 70-2-12(B)(15) (1978).

The OCD has enacted rules for the disposal and reuse of produced water. It collects oil and gas well production data, enforces rules made by the division and the NM Oil and Gas statutes, makes certain abandoned wells are properly plugged, and ensures the land is responsibly restored. The OCD governs the injection of produced water into disposal wells or enhanced recovery wells, pits, closed-loop systems, below-grade tanks and sumps, recycling facilities, and surface waste management facilities.²⁶

The OCD has issued orders to clarify permitting requirements under the Oil and Gas Act. Specifically, if produced water is disposed of following rules promulgated under the act, no permit is required from the State Engineer.²⁷ Since 2004, the Oil and Gas Act states that no permit shall be required from the State Engineer for the disposition of produced water pursuant to the enumeration of powers by the OCD. In 2017, State Engineer at the time, Tom Blaine, issued a letter regarding permitting requirements for produced water. The letter states that water rights cannot be established with the use of produced water, and therefore no permit for use of produced water is required from the Office of the State Engineer.²⁸ Additionally, in 2013 the OCD Director issued a notice that no permit is required for the reuse of produced water in the oil and gas industry. The statement reads:

“No OCD permit or authorization is required for the reuse of produced water, drilling fluids or other oil field liquids as a drilling or completion fluid or other type of oil field fluid, including makeup water, fracturing fluid or drilling mud, at a permitted drilling, production or plugging operation. However, the reuse of produced water is NOT permitted for any use which involves contact with fresh water zones. No permit is required for the delivery of produced water to permitted saltwater disposal facilities, secondary recovery, pressure maintenance or EOR projects, surface waste management facilities, or to well sites for use in drilling, completion, or plugging operations. Produced water must be stored and reused in a

²⁶ N.M. ADMIN. CODE 19.15.17 (2013).; N.M. ADMIN. CODE 19.15.26 (2018).; N.M. ADMIN. CODE 19.15.34 (2015).; N.M. ADMIN. CODE 19.15.36 (2008).

²⁷ N.M. STAT. ANN. § 70-2-12.1 (1978). ; *see also* N.M. STAT. ANN. § 70-2-12 (1978). 2004 New Mexico Laws Ch. 87 (S.B. 313).

²⁸ Tom Blaine, Letter to Mr. Tonander (August 22, 2017).

manner that protects fresh water, public health, and the environment. Produced water, brine makeup water, or frac flowback water can be stored in permanent pits or in temporary multi-well fluid management pits when used only on wells identified in the multi-well fluid management pit permit.”²⁹

New Mexico Office of the State Engineer

The OSE administers the state’s freshwater resources. It has the authority of supervision, measurement, appropriation, and distribution of groundwater in New Mexico, under NMSA 1978, Section 72-2-1.³⁰ However, the Oil and Gas Act has clarified that the permitting authority over produced water is assigned to the OCD, and therefore the OSE cannot grant a water right based on the use of produced water.

²⁹ Sullivan Graham, E., Sarpong, K. *The Regulatory Framework Surrounding Produced Water in New Mexico and Impact on Potential Use*, (June 2016).

³⁰ N.M. STAT. ANN. § 70-2-1 (1978).

CURRENT FEDERAL REGULATORY FRAMEWORK AND GOVERNANCE OF PRODUCED WATER

The federal system for regulating produced water in the United States consists of three tiers.³¹ Federal law is the first tier. Tier 1 consists of the federal Water Pollution Control Act, also known as the Clean Water Act, which established the National Pollutant Discharge Elimination System (NPDES) program. This program regulates any discharge of wastewater to water bodies that are waters of the United States.³² The agency regulations comprise Tier 2.³³ The EPA has established comprehensive rules for implementing the NPDES program.³⁴ Tier 3 consists of the NPDES water quality permits. Some states issue NPDES permits themselves; however, in New Mexico, the EPA issues NPDES permits directly. New Mexico is similar to the District of Columbia, and U.S. territories, as well as on federal and some tribal trust lands, in that the EPA issues their permits, including for produced water discharges.³⁵

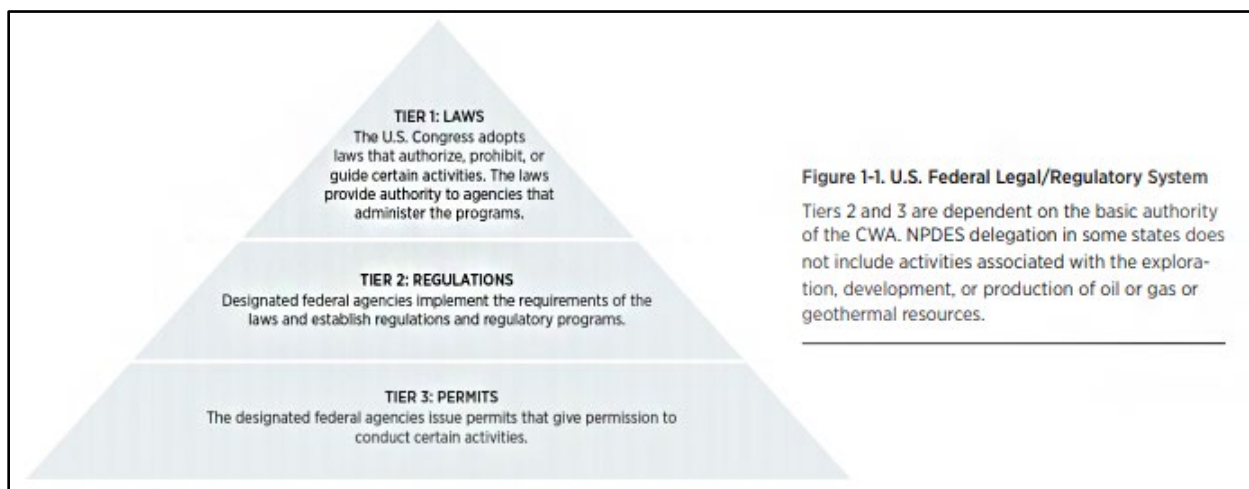


Figure 6: U.S. Regulatory Tier System

Source: *Produced Water Report: Regulations, Current Practices, and Research Needs*
www.gwpc.org/sites/default/files/files/Module%201.pdf.

³¹ “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, (June 2019).

³² 33 U.S.C. §1251 (1972).

³³ “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, (June 2019).

³⁴ See 33 U.S.C. § 1251(d)-(e) (1972); see also 40 C.F.R. §. 122 (2019).; 48 C.F.R. § 14153 (1983).; 40 C.F.R. § 435 (2016).; 44 C.F.R. § 22075 (1979).

³⁵ See 33 U.S.C. § 1342 (1987).

Regulatory Agencies

Two federal regulatory programs are historically associated with the management of produced water: the NPDES program and the Underground Injection Control (UIC) program. Through the Clean Water Act,³⁶ Congress directed the EPA to create the NPDES permitting, compliance, and enforcement program that regulates discharges of produced water to rivers, lakes, and streams.³⁷ The Clean Water Act also allows the EPA to delegate this authority to states and tribes that demonstrate financial, managerial, and technical competency.³⁸ Those states and tribes customize the NPDES program based on their specific laws, hydrology, weather conditions, and other factors.³⁹ When states are authorized to operate the program, it is typically renamed to identify the state and include any state-specific requirements. For example, the NPDES program in Oklahoma is the Oklahoma Pollutant Discharge Elimination System program.⁴⁰ In New Mexico, the EPA issues NPDES permits directly.

Through the Safe Drinking Water Act, Congress directed the EPA to develop the UIC program to regulate disposal in injection wells. This program can also be delegated to states and tribes under agreements with the EPA.⁴¹ Most oil and gas producing states have received the authority to implement UIC Class II programs.⁴² The EPA administers the plans in the few states where the agencies have not received the authority to run these programs themselves.⁴³ These delegated programs operate independently but are subject to federal oversight.⁴⁴ The EPA delegated primacy for the administration of the UIC program to New Mexico in 1982. OCD is vested with authority to administer the program for UIC Class II injection wells.⁴⁵

³⁶ 33 U.S.C. §1251 (1972).

³⁷ *See* 33 U.S.C. § 1342 (1972).

³⁸ *See* 33 U.S.C. § 1342(b) (2019).

³⁹ “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, (June 2019).

⁴⁰ “Stormwater Permitting,” Oklahoma Department of Environmental Quality, accessed May 20, 2020, <https://www.deq.ok.gov/water-quality-division/wastewater-stormwater/stormwater-permitting/>.

⁴¹ 42 U.S.C. §§ 300f et seq. (2016).

⁴² “Primary Enforcement Authority for the Underground Injection Control Program,” EPA, accessed September 30, 2020, https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program#what_states.

⁴³ *See id.*

⁴⁴ “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, (June 2019).

⁴⁵ “Underground Injection Control Program Manual,” EMNRD, OCD, February 26, 2004, <http://www.emnrd.state.nm.us/OCD/documents/UICManual.pdf>.

Overview of the National Pollutant Discharge Elimination System Program

The NPDES program requires that a permit be issued to authorize any discharge of wastewater to waters of the United States.⁴⁶ On April 21, 2020, the EPA and the Department of the Army published the Navigable Waters Protection Rule in the Federal Register to finalize a revised definition of waters of the United States under the Clean Water Act.⁴⁷ Permits can either be individual permits that establish regulatory controls for a single facility or general permits for multiple facilities with similar operations and discharges.⁴⁸ The permit specifies both “narrative and numerical limits on one or more constituents in the discharged wastewater to protect the designated beneficial uses of the receiving water body.”⁴⁹ Permit limits are determined using technology-based standards and water quality-based standards.⁵⁰

In the case of permit renewals, the anti-degradation provision of Water Quality Standards may apply. Anti-degradation in these situations means that no permit will be issued for any activity or pollutants that may cause surface waters already meeting water quality standards to fall below those standards. The permit writer calculates technology-based limits, considering such factors as the constituents in the discharge, the types of treatment commonly used for the kind of wastewater, and the cost of treatment.⁵¹

For many major industrial categories, the EPA has already done much of this work and has published national minimum discharge standards. These standards must be met at a minimum unless more restrictive state or tribal water quality standards exist.⁵² These national discharge standards are known as effluent limitations guidelines. The Code of Federal Regulations sets forth the guidelines for the oil and gas extraction industry.⁵³

⁴⁶ “NPDES Permit Basics,” EPA, accessed May 21, 2020, <https://www.epa.gov/npdes/npdes-permit-basics>.

⁴⁷ 85 C.F.R. § 22250 (2020).

⁴⁸ *See id.*

⁴⁹ “Produced Water Report: Regulations, Current Practices, and Research Needs,” Groundwater Protection Council, (June 2019).

⁵⁰ “NPDES Permit Basics,” EPA, accessed May 21, 2020, <https://www.epa.gov/npdes/npdes-permit-basics>.

⁵¹ *Id.*

⁵² 40 C.F.R. §. 122 (2019).; 48 C.F.R. § 14153 (1983).

⁵³ *See* 40 C.F.R. § 435 (2016).; 44 C.F.R. § 22075 (1979); *see also* “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, (June 2019).

Onshore wells are subject to a national zero discharge requirement for produced water, but there are several exceptions to this regulation.⁵⁴ The national zero discharge requirement prohibits the direct discharge of pollutants from oil and gas extraction facilities and prohibits the indirect discharge of pollutants from unconventional wells to publicly owned treatment works.⁵⁵ For example, the EPA did not establish a national discharge standard for economically marginal wells, so that permit writers in states or EPA regional offices have the discretion to allow these discharges in each state.⁵⁶ EPA also has a key exception to wells located west of the 98th meridian that are located in the arid western states.⁵⁷ The EPA exception applies to produced water that “is of good enough quality to be used for wildlife or livestock watering or other agricultural uses and that the produced water is actually put to such use during periods of discharge.”⁵⁸

⁵⁴ *Id.*

⁵⁵ “Study of Oil and Gas Extraction Wastewater Management Under the Clean Water Act,” EPA, May 2019, https://www.epa.gov/sites/production/files/2019-05/documents/oil-and-gas-study_draft_05-2019.pdf.

⁵⁶ “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, 18, (June 2019).

⁵⁷ *Id.* at p.119.

⁵⁸ *Id.* See 40 C.F.R. § 435.51(c) (2016).

Overview of the Underground Injection Control Program

The UIC program protects underground sources of drinking water. The Code of Federal Regulations defines underground sources of drinking water as “an aquifer or part of an aquifer which supplies any public water system or contains a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contains fewer than 10,000 milligrams/liter of Total Dissolved Solids.”⁵⁹ The regulation of injection wells protects underground sources of drinking water. An injection well is used to “place fluid underground into porous geologic formations.”⁶⁰ These underground formations may range from deep sandstone or limestone to a shallow soil layer.⁶¹ Injected fluids may include “water, wastewater, brine (saltwater), or water mixed with chemicals.”⁶²

An injection well is defined as a “bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.”⁶³ Widespread use of injection wells began in the 1930s to dispose of produced water generated during oil production.⁶⁴ Injection was used to dispose of unwanted produced water, to preserve surface waters, and, in some cases, even enhance the recovery of oil.⁶⁵ In the 1950s, chemical companies began injecting industrial waste into deep wells, and as chemical manufacturing increased, so did the use of deep injection.⁶⁶ Injection proved to be a safe and inexpensive option for the disposal of unwanted and often hazardous industrial byproducts.⁶⁷

There are six classes of underground injection wells. This grouping provides consistent technical requirements for these well classes.⁶⁸ Wells used for injecting produced water are

⁵⁹ 40 C.F.R. § 144.3 (2011).

⁶⁰ “Definition of injection well,” EPA, accessed May, 21, 2020, <https://www.epa.gov/uic/general-information-about-injection-wells>.

⁶¹ 40 C.F.R. § 144.3 (2011).

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *See id.*

⁶⁵ *See id.*

⁶⁶ *See id.*

⁶⁷ *See id.*

⁶⁸ *Id.*

defined as Class II wells.⁶⁹ Class II-R, or “enhanced recovery wells,” are classified when fluids are injected into a hydrocarbon-bearing formation to help produce additional oil.⁷⁰ Produced water can also be injected solely for disposal.⁷¹ When produced water is simply disposed of, the water is typically “injected into a formation below the underground sources of drinking water other than the producing formation.”⁷² These wells are known as Class II-D disposal wells. Class II-S is a third group of Class II wells that are used to inject fluids associated with hydrocarbon storage.⁷³ Hydrocarbon storage is generally part of the U.S. Strategic Petroleum Reserve, where liquid hydrocarbons are injected into underground formations (such as salt caverns) where they are stored.⁷⁴

⁶⁹ “Protecting underground sources of drinking water and public health,” EPA, April 2020, https://www.epa.gov/sites/production/files/2020-04/documents/uic_fact_sheet.pdf.

⁷⁰ “Underground Injection Control (UIC): Class II Oil and Gas Related Injection Wells,” EPA, accessed Sept. 29, 2020, <https://www.epa.gov/uic/class-ii-oil-and-gas-related-injection-wells>.

⁷¹ See “Protecting underground sources of drinking water and public health,” EPA, April 2020, https://www.epa.gov/sites/production/files/2020-04/documents/uic_fact_sheet.pdf.

⁷² “Produced Water Report: Regulations, Current Practices, and Research Needs” Groundwater Protection Council, 19, (June 2019).

⁷³ See *id.*

⁷⁴ “Underground Injection Control (UIC): Class II Oil and Gas Related Injection Wells,” EPA, accessed Sept. 29, 2020, <https://www.epa.gov/uic/class-ii-oil-and-gas-related-injection-wells>.

Underground Injection Control Well Classification Chart		
Well Class	Purpose	Active Wells*
I	Injection of hazardous, non-hazardous, and municipal wastes below the lowermost USDW	817
II	Injection of fluids associated with the production of oil and natural gas resources for disposal or enhanced oil and gas recovery	180,344
III	Injection of fluids for the extraction of minerals	29,617
IV	Injection of hazardous or radioactive wastes into or above a USDW**	127
V	Injection into wells not included in the other well classes but generally used to inject non-hazardous waste	650,000 to 1.5 Mil.
VI	Injection of supercritical carbon dioxide for storage	2***

* All numbers estimated from state agency surveys and a USEPA inventory published for Federal Fiscal Year 2017.
** Class IV wells are banned except where used for remediation of USDWs
*** Existing commercial wells with permits issued under the Class VI program

Figure 7. Underground Injection Control Well Classification Chart

Source: *Produced Water Report: Regulations, Current Practices, and Research Needs*

www.gwpc.org/sites/default/files/files/Module%201.pdf. * Please note the number of active wells in this table is nationwide and is from 2017. OCD maintains New Mexico’s data and has received an increase in the number of applications for Class II disposal wells.

There are many elements of Class II UIC permits, such as well location, construction requirements, area of review, operations, monitoring, and closure requirements. These permits can include conditions such as “depth, wellhead location, and setback distances.”⁷⁵ Construction requirements can consist of details like the size and setting depths for different layers of casing, cementing requirements, and other well hardware.⁷⁶ The area of review element consists of an “evaluation of the area surrounding the proposed injection well to identify any pathways for the injected fluids to migrate from the targeted injection zone.”⁷⁷ Operations typically include restrictions on parameters like “pressure, flow rate, and daily injected volume.”⁷⁸ Monitoring includes “routine and periodic logging and mechanical integrity testing to ensure that wells are not leaking,” and closure requirements include requirements for plugging and abandonment.⁷⁹

Over “90 percent of produced water generated in the United States is injected into underground geologic formations through injection wells permitted under the UIC Class II program.”⁸⁰ As with the Clean Water Act, under the Safe Drinking Water Act the EPA “may

⁷⁵ See *id.* at 20; see also “Underground Injection Control (UIC): UIC Program Guidance,” EPA, accessed Sept. 29, 2020, <https://www.epa.gov/uic/uic-program-guidance>.

⁷⁶ See *id.*

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

delegate primary enforcement authority (primacy) to states, territories, and tribes.”⁸¹ Forty-three states, territories, and tribes have obtained enforcement authority from the EPA.⁸² Of these, 24 states and two tribes have obtained primacy over the Class II UIC program in areas where oil and gas exploration and production occur.⁸³ EPA directly implements the Class II program for all tribes except for the Navajo Nation and Fort Peck Tribes. EPA has approved New Mexico’s primacy over UIC programs for well classes I, II, III, IV, and V in New Mexico.

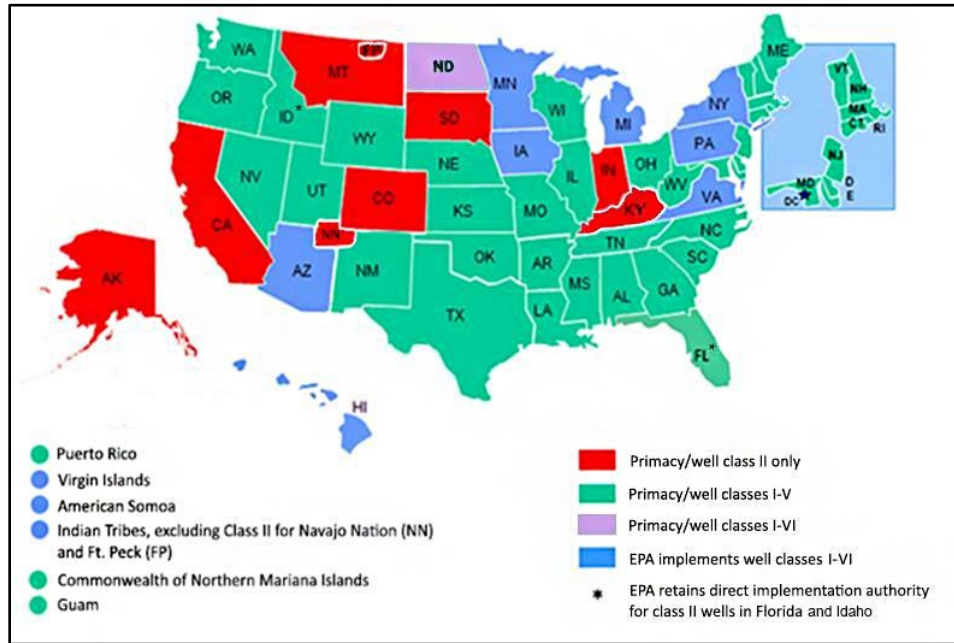


Figure 8: Illustration Showing Map of EPA of Approved UIC Primacy Programs for Well Classes I, II, III, IV, V, VI by State, Territory, and Tribal Lands.

Source: EPA

https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program#what_states.

⁸¹ *Id.* See 42 U.S.C. §1422 and §1425 (1974) of the Safe Drinking Water Act.

⁸² *See id.*

⁸³ *See id.*

KEY PROVISIONS OF THE PRODUCED WATER ACT

The Produced Water Act provides key definitions, defines New Mexico state agency roles, and encourages reuse, recycling, and treatment of produced water in the oil and gas industry. The major provisions of the Produced Water Act went into effect on July 1, 2019 and the remaining sections went into effect on January 1, 2020.⁸⁴ The rulemaking process by state agencies has already begun. The Produced Water Act reduces legal vulnerabilities to New Mexico's surface and groundwaters that existed before July 1, 2019 through affirmative state permitting requirements, affirmative requirements for financial assurance, and clarified ownership status, permitted uses, and liability for spills.⁸⁵ The Produced Water Act clarifies New Mexico state agencies' roles and regulatory authorities.

The Energy Minerals and Natural Resources Department (EMNRD) regulates produced water disposal and reuse within the oil and gas industry. The ENMNRD was granted penalty authority in the Produced Water Act. The Oil Conservation Division (OCD) of the Energy Minerals and Natural Resources Department previously had the jurisdiction to regulate produced water as provided in the Oil and Gas Act.⁸⁶ However there was a specific change of the enumerated powers of the OCD under the Produced Water Act.

Prior to the passage of the Produced Water Act, the OCD had the power “to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas or both and to direct surface or subsurface disposal of the water, including disposition by use in drilling for or production of oil or gas, in road construction or maintenance or other construction, in the generation of electricity or in other industrial processes, in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the state engineer.”⁸⁷

The OCD's power is now limited “to regulate the disposition, handling, transport, storage, recycling, treatment and disposal of produced water during, or for reuse in, the

⁸⁴ HB 546 Fluid Oil & Gas Waste Act 2019 (NM).

⁸⁵ *Id.*

⁸⁶ Chapter 70, Article 2 NMSA 1978 may be cited as the “Oil and Gas Act”. *See* N.M. Stat. Ann. § 72-2-1 (1978).

⁸⁷ N.M. STAT. ANN. § 70-2-12 (1978). Enumeration of Powers. Effective: May 16, 2018 to June 30, 2019.

exploration, drilling, production, treatment or refinement of oil or gas, including disposal by injection pursuant to authority delegated under the federal Safe Drinking Water Act, in a manner that protects public health, the environment and fresh water resources”⁸⁸

Historically, the OCD was not able to issue administrative penalties for rule violations.⁸⁹ Now, the OCD has broad authority to collect data, investigate and inspect properties, including all operators’ books and records, hold hearings, and make rules and orders related to produced water.⁹⁰ On January 1, 2020, when the Produced Water Act went into effect, the OCD was granted new authority to assess civil penalties to operators for violations of New Mexico’s Oil and Gas Act as soon as the rulemaking process was complete.⁹¹ On February 25, 2020, the Energy Minerals and Natural Resource Department’s OCD completed its rulemaking process. It is now able to assess the penalties for violations of the New Mexico’s Oil and Gas Act.⁹² The OCD can assess penalties to operators of up to \$2,500 per day for noncompliance with each violation.⁹³ However, if the offense presents a high risk either to the health or safety of the public or would cause significant environmental harm, the penalty can be of up to \$10,000 per day of noncompliance for each violation.⁹⁴ Assessments issued by the OCD cannot exceed a total of \$200,000 per violation.⁹⁵ However, a court can issue penalties that accrue above \$200,000.⁹⁶ The OCD Director stated in a February 2020 press release, “This rule is another example of the great strides EMNRD and the State of New Mexico are making towards a more sustainable future.”⁹⁷

This penalty authority is a significant change to the regulation of violations of the Oil and Gas Act. Although there were many changes made by the Produced Water Act to the penalty

⁸⁸ N.M. Stat. Ann. § 70-2-12 (1978). Enumeration of Powers. Enacted Legislation L. 2019, Ch. 197, § 6, eff. July 1, 2019.

⁸⁹ Vol. 31. Issue 4. N.M. Reg., page 1-6. (February 25, 2020). Amendment to Oil and Gas Act NMAC 19.15.5 amending §§ 3, 8, 9, and 10.

⁹⁰ HB 546 Fluid Oil & Gas Waste Act 2019 (NM).

⁹¹ *Id.*

⁹² Vol. 31. Issue 4. N.M. Reg., page 1-6. (February 25, 2020). Amendment to Oil and Gas Act NMAC 19.15.5 amending §§ 3, 8, 9, and 10.

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ HB 546 Fluid Oil & Gas Waste Act 2019 (NM).

⁹⁶ *Id.*

⁹⁷ “Rule Authorizing Oil Conservation Division to assess civil penalties for Oil and Gas Act violations is now in effect.” State of New Mexico Energy, Minerals and Natural Resources. June 3, 2020.

http://www.emnrd.state.nm.us/OCD/documents/OCDPenaltiesRuleFinalizedFebruary252020_000

authority of the OCD for violations of the Oil and Gas Act, there is likely to be a call for further changes to the Oil and Gas Act. Under the Oil and Gas Act, there is no violation of unintentional spills of produced water occurring outside of the oil and gas field, only if the spill is not reported or remediated.⁹⁸ This rule does not apply to intentional releases of produced water, nor does it preclude a private party from filing a separate suit in the appropriate court of jurisdiction against an oil and gas operator for certain personal injuries or property damages incurred.⁹⁹

On May 6, 2020, the OCD filed an application to the Oil Conservation Commission to amend rules to implement statutory additions and amendments to the Act related to the regulation of produced water.¹⁰⁰

These changes included amendments to the definitions in the existing oil and gas regulations. Specifically, the definition of “produced water” means “a fluid that is an incidental byproduct from drilling for or the production of oil and gas.”¹⁰¹ The amended sections added new requirements for disclosure and reporting of all sources of water used to hydraulic fracture a well.¹⁰² This would require the producer to include a breakdown of the amount of each type of water. The categories of water are: fresh – TDS<1,000 mg/l, brackish – TDS>1,000 mg/l but less than 10,000 mg/l, saline – TDS>10,000 mg/l, and produced water. Under the Oil and Gas Act, “producer” means the owner of a well capable of producing oil or natural gas or both in paying quantities.¹⁰³ The Oil Conservation Commission no longer has authority over non-oilfield uses of produced water.¹⁰⁴ This section now explicitly states the use of produced water outside of the oil and gas industry is regulated by the Water Quality Control Commission (WQCC).

⁹⁸ New Mexico Legislature, Second Meeting of the Water and Natural Resources Committee, September 3, 2020.

⁹⁹ N.M. STAT. ANN. § 70-2-29 (1978). *See also* Chamberlain, Kendra (2020, August 19) “‘Dereliction of duty’: 1.6 million gallons of produced water spilled so far in 2020” The NM Political Report. Accessed September 30, 2020. <https://nmpoliticalreport.com/2020/08/19/dereliction-of-duty-1-6-million-gallons-of-produced-water-spilled-so-far-in-2020/>.

¹⁰⁰ N.M. ADMIN. CODE. 19.15.2 (2018).

¹⁰¹ State of New Mexico Oil Conservation division. (2020). OCD Rules. *State of New Mexico Department of Energy, Minerals and Natural Resources Oil Conservation Commission, In the Matter of Proposed Amendments to the Commission’s Rules on Produced Water 19.15.2, 19.15.16, and 19.15.34 NMAC. Case No. 21281, Order No. R-21343-A.* Sept. 11 2020. Retrieved from <http://www.emnrd.state.nm.us/OCD/rules.html>. *See also* N.M. STAT. ANN. § 70-2-33(K) (1978).

¹⁰² *Id.*

¹⁰³ N.M. STAT. ANN. § 70-2-33 (1978).

¹⁰⁴ State of New Mexico Oil Conservation division. (2020). OCD Rules. *State of New Mexico Department of Energy, Minerals and Natural Resources Oil Conservation Commission, In the Matter of Proposed Amendments to the commission’s Rules on Produced Water 19.15.2, 19.15.16, and 19.15.34 NMAC. Case No. 21281, Order No. R-21343-A.* Sept. 11 2020. Retrieved from <http://www.emnrd.state.nm.us/OCD/rules.html>.

The WQCC has the authority to regulate treated produced water as provided in the Water Quality Act.¹⁰⁵ The Produced Water Act now requires that the New Mexico Environment Department regulates any use of treated produced water outside the oil and gas industry.¹⁰⁶ To engage in uses regulated by the WQCC under the Water Quality Act, a person shall obtain a permit from the New Mexico Environment Department before using the treated produced water, or treated water, or treated product or any byproduct of the produced water.¹⁰⁷

The New Mexico WQCC, under the umbrella of the New Mexico Environment Department, is directed by the Produced Water Act to adopt regulations for the “discharge, handling, transport, storage, and recycling or treatment for the disposition of treated produced water” or byproduct outside the oilfield.¹⁰⁸ The Produced Water Act authorizes the WQCC to adopt these water quality standards for surface and groundwaters based on scientific data based on specific criteria.¹⁰⁹ The Produced Water Act directs the WQCC when making standards, to give appropriate weight to all facts and circumstances.¹¹⁰ These circumstances include a broad array of uses, such as the use of water in water supplies, propagation of fish and wildlife, recreational purposes, agricultural, and industrial purposes.¹¹¹ Therefore NMED must first issue regulations that govern the approval of any of these uses. The permitting process will necessarily be driven by the factors that must be considered by the WQCC when issuing rules and will be science based after research to support a rulemaking has occurred.

The Produced Water Act does not specify what these regulations shall be or what standards the WQCC should determine will be protective of water quality. However, under the Water Quality Act, the WQCC must consider specific parameters when adopting regulations in addition to the uses listed above.¹¹² The WQCC must consider the character and degree of injury to or interference with health, welfare, environment, and property; public interest, including the social and economic value of the sources of water contaminants; technical practicability and

¹⁰⁵ N.M. STAT. ANN. § 74-6-1 (1978).

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ HB 546 Fluid Oil & Gas Waste Act 2019 (NM), *See* N.M. STAT. ANN. § 74-6-1 (1978).

¹⁰⁹ HB 546 Fluid Oil & Gas Waste Act 2019 (NM).

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² N.M. STAT. ANN. § 74-6-1 (1978).

economic reasonableness of reducing or eliminating water contaminants from the sources involved; and previous experience with equipment and methods available to control the water contaminants involved.¹¹³ The WQCC must also look at how the produced water will affect successive uses, including domestic, commercial, industrial, pastoral, agricultural, wildlife, and recreational uses.¹¹⁴ They must look at the feasibility of a user or a subsequent user treating the water before a subsequent use. They must also consider property rights, accustomed uses, and federal water quality requirements.¹¹⁵ It is important to note that the Commission shall deem what weight it gives to any of these facts and circumstances in its rulemaking.

The Produced Water Act changed the language of the Oil and Gas Act regarding produced water, recycled water, and treated water. The Produced Water Act clarifies that “produced water” means a fluid that is an incidental byproduct from drilling for the production of oil and gas. “Recycled water” or “recycled produced water” means produced water that is reconditioned by a recycling facility permitted by the Oil Conservation Division of the Energy, Minerals and Natural Resources Department. The stricter standard of “Treated water” or “treated produced water” means produced water that is reconditioned by mechanical or chemical processes into a reusable form.”¹¹⁶

No water right shall be established by the disposition of produced water, recycled water, or treated water.¹¹⁷ One of the basis of water law in New Mexico is that there must be a beneficial use to establish a right: “All water within the state, whether above or beneath the surface of the ground belongs to the state, which authorizes its use, and there is no ownership in corpus of the water but the use thereof may be acquired and the basis of such acquisition is beneficial use.”¹¹⁸ The use of produced water is considered “disposition by use,” not a “beneficial use.”¹¹⁹ Therefore the Produced Water Act does not create a new category of water

¹¹³ N.M. STAT. ANN. § 74-6-4 (E)1-6 (1978).

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ N.M. STAT. ANN. § 70-13-2 (1978).

¹¹⁷ HB 546 Fluid Oil & Gas Waste Act 2019 (NM). *See* N.M. STAT. ANN. §70-13-4 (C).

¹¹⁸ State ex rel. Erickson v. McLean, 1957-NMSC-012, ¶23 62 N.M. 264, 308 P.2d 983. The underlying issue in Erickson was if an appropriate right could be lost via non-beneficial use. To reach the conclusion the Court first had to establish the limit of the user’s rights.

¹¹⁹ Roose, Rebecca. Sandoval, Adrienne. Brancard, Bill. “Produced Water Management in New Mexico.” Produced Water Meeting, National Hispanic Cultural Center, Albuquerque, NM, October 15,2020.

https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/11/Produced-Water-Public-Meeting-Presentation_ENGLISH_FINAL-191114.pdf. *See* p. 32.

right that is perfected when water is treated, recycled, or reused. The question of ownership rights of produced water is not discussed in length in this paper, but as the laws around produced water develop, and the potential for positive economic value in parts of the state, the ownership question may become significant. Nonetheless, the law does create a possessory interest in the water, allowing it be used and encourages the oil and gas industry to treat, recycle, or reuse produced water and discourages the use of New Mexico's limited water resources.

The Produced Water Act encourages the oil and natural gas industry to favor reuse, recycling, and treatment options within the oil field instead of using limited freshwater resources.¹²⁰ Any contract entered into on or after July 1, 2019 is against public policy and void if it requires freshwater resources to be purchased for oil and gas operations when produced water, treated water, or recycled water is available and able to be used.¹²¹ The operator who is able now must use available produced water, treated water, or recycled water for the oil and gas operations.¹²²

The Produced Water Act removes obstacles to the recycling of produced water within the oil and gas industry as allowed under the regulations of the OCD. Produced water is now the responsibility of, and must be under the control of, the owner or operator of that well but liability is then transferred to the transportation entities, disposal and midstream companies once they take possession of the water. This was a key component to the Act and properly incentivizes everyone to be careful when they have the water in their possession. Now, the owner has a possessory interest in the produced water, including the right to sell it or to use it, including recycling, reusing, or treatment of the produced water. These new rules are an incentive for oil and gas companies to invest in infrastructure to promote recycling within the oil field while following the strict parameters of reuse or recycling mandated by the OCD.

Significantly, any use of produced water outside the oil and gas field is regulated by the WQCC under the Water Quality Act and must first have a permit from the New Mexico Environment Department (NMED). Therefore, recycling, reuse, or treatment of produced water is now only encouraged within the oil and gas industry.

¹²⁰ N.M. Stat. Ann. § 70-13-5 (1978).

¹²¹ *Id.*

¹²² *Id.*

There is the potential for the use of produced water outside of the industry, but there is still a lot of scientific research that needs to be done in this respect. Only after the development of scientifically backed treatment methods of produced water will the NMED authorize the discharge of treated produced water for any other purpose. The NMED stated it “will never authorize untreated produced water to be used outside of oil and gas industry for any purpose.”¹²³ The NMED is in the process of making rules and regulations for use of produced water outside of the oil and gas industry during the ongoing process of implementing the Produced Water Act.

The process of implementing the Produced Water Act is multi-phase. The first phase of the implementation process has included public engagement and research. The NMED, in coordination with the EMNRD and the OSE, has hosted public engagement meetings throughout New Mexico. Five public meetings occurred between October to November 2019 in Albuquerque, Santa Fe, Carlsbad, Farmington, and Las Cruces, New Mexico.¹²⁴ The NMED engaged with a variety of stakeholders, including state, local, tribal, and government entities.

Moreover, the NMED is collaborating in research into treatments and uses of produced water.¹²⁵ On September 9, 2019, the NMED and New Mexico State University agreed to identify and fill science and technology gaps associated with using treated produced water.¹²⁶ This agreement created the Produced Water Research Consortium, which is led by New Mexico State University.

The second phase of the implementation process includes developing standards and a formal rulemaking process. During the second phase, the NMED will rely on public input and research findings from the Produced Water Research Consortium to develop science-based

¹²³ Roose, Rebecca. Sandoval, Adrienne. Brancard, Bill. “Produced Water Management in New Mexico.” Produced Water Meeting, National Hispanic Cultural Center, Albuquerque, NM, October 15,2020.

https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/11/Produced-Water-Public-Meeting-Presentation_ENGLISH_FINAL-191114.pdf. See p. 16

¹²⁴ Roose, Rebecca. Sandoval, Adrienne. Brancard, Bill. “Produced Water Management in New Mexico.” Produced Water Meeting, National Hispanic Cultural Center, Albuquerque, NM, October 15,2020.

https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/11/Produced-Water-Public-Meeting-Presentation_ENGLISH_FINAL-191114.pdf.

¹²⁵ *Id.*

¹²⁶ “Produced Water Factsheet,” NMED, 2019, https://www.env.nm.gov/wp-content/uploads/sites/16/2019/10/Produced-Water-Factsheet_ENGLISH_-FINAL-191010.pdf

standards for the treatment and use of produced water outside of the oil and gas industry.¹²⁷ In the formal rulemaking process, the NMED will submit draft regulations to the WQCC.¹²⁸ This process will include a public comment period and a hearing. The NMED’s goal is to create regulations that protect human health and the environment, reduce reliance on limited freshwater, and leverage science-based and innovative solutions.”

The NMED has emphasized that it will not allow the use of produced water outside of the oil and gas industry until key research questions related to filling the science and technology gaps are answered.¹²⁹ The NMED will have to know what constituents and potential contaminants are in the produced water generated in New Mexico before allowing the use of produced water outside of the oil and gas industry. The true question is, can the produced water be treated to be safe for use outside the oil and gas industry? Further, there could be changes to New Mexico water quality standards by the WQCC to address the potential use of produced water outside of the oil and gas industry, depending on what constituents and potential contaminants are in the produced water generated.¹³⁰ One law that could be amended to include produced water is the Hazardous Waste Act.¹³¹ These are just a few of the issues that the NMED is addressing during the second phase of rulemaking.¹³² The NMED is actively soliciting input from a diverse group of interested parties.¹³³

¹²⁷ Roose, Rebecca. Sandoval, Adrienne. Brancard, Bill. “Produced Water Management in New Mexico.” Produced Water Meeting, National Hispanic Cultural Center, Albuquerque, NM, October 15,2020.

¹²⁸ *Id.*

¹²⁹ Roose, Rebecca. Sandoval, Adrienne. Brancard, Bill. “Produced Water Management in New Mexico.” Produced Water Meeting, National Hispanic Cultural Center, Albuquerque, NM, October 15,2020, at 16, 17,19.

https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/11/Produced-Water-Public-Meeting-Presentation_ENGLISH_FINAL-191114.pdf.

¹³⁰ N.M. ADMIN. CODE 20.6.4.1 (2007).

¹³¹ N.M. Stat. Ann. § 74-4-3.1 (1978). *See also* N.M. Stat. Ann. § 74-4-3 (K)(2)(a) (1978).

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CONCLUSION

The passing of the Produced Water Act has acted as a catalyst for change in how New Mexico regulates produced water. The Energy, Minerals, and Natural Resources Department has been tasked with implementing the Produced Water Act in collaboration with the New Mexico Environment Department, the Office of the State Engineer, and the Produced Water Research Consortium, led by New Mexico State University. These entities are working diligently to implement the changes required by the Produced Water Act.

The Produced Water Act clarifies agencies' jurisdictions over produced water. It prioritizes safe reuse, recycling, and treatment options for reuse of produced water within the oil and gas industry. There may be potential to use produced water outside of the oil and gas industry, but only with research, regulation, and scientific determination of appropriate treatment levels. The oil & gas industry in NM is already reducing its usage of fresh water and once the New Mexico Environment Department completes all phases of the implementation process, including rulemaking as outlined in the Produced Water Act, New Mexico's oil and gas industry will be enabled to further reduce reliance on limited freshwater through science-based innovative solutions. These state agencies will need the continued support of the New Mexico Legislature to continue the implementation process.

SUMMARY

New Mexico regulators have struggled with how to manage the oil and gas industry byproduct known as produced water for a long time. However, since the passage of the Produced Water Act, the New Mexico state agencies implementing the rules and regulations around produced water have been given jurisdictional and legal clarity. The agencies can now develop standards and complete formal rulemaking with an expanded toolkit. New standards regulating produced water are intended to protect citizens and the environment, while leveraging science-based innovative solutions for the reuse of produced water, potentially even outside of the oil and gas industry. The Produced Water Act makes it clear that the use of freshwater when avoidable in oil and gas operations is against public policy.

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