

Produced Water in the New Mexico Oil and Gas Industry

NEW MEXICO OIL CONSERVATION DIVISION (OCD) OF THE ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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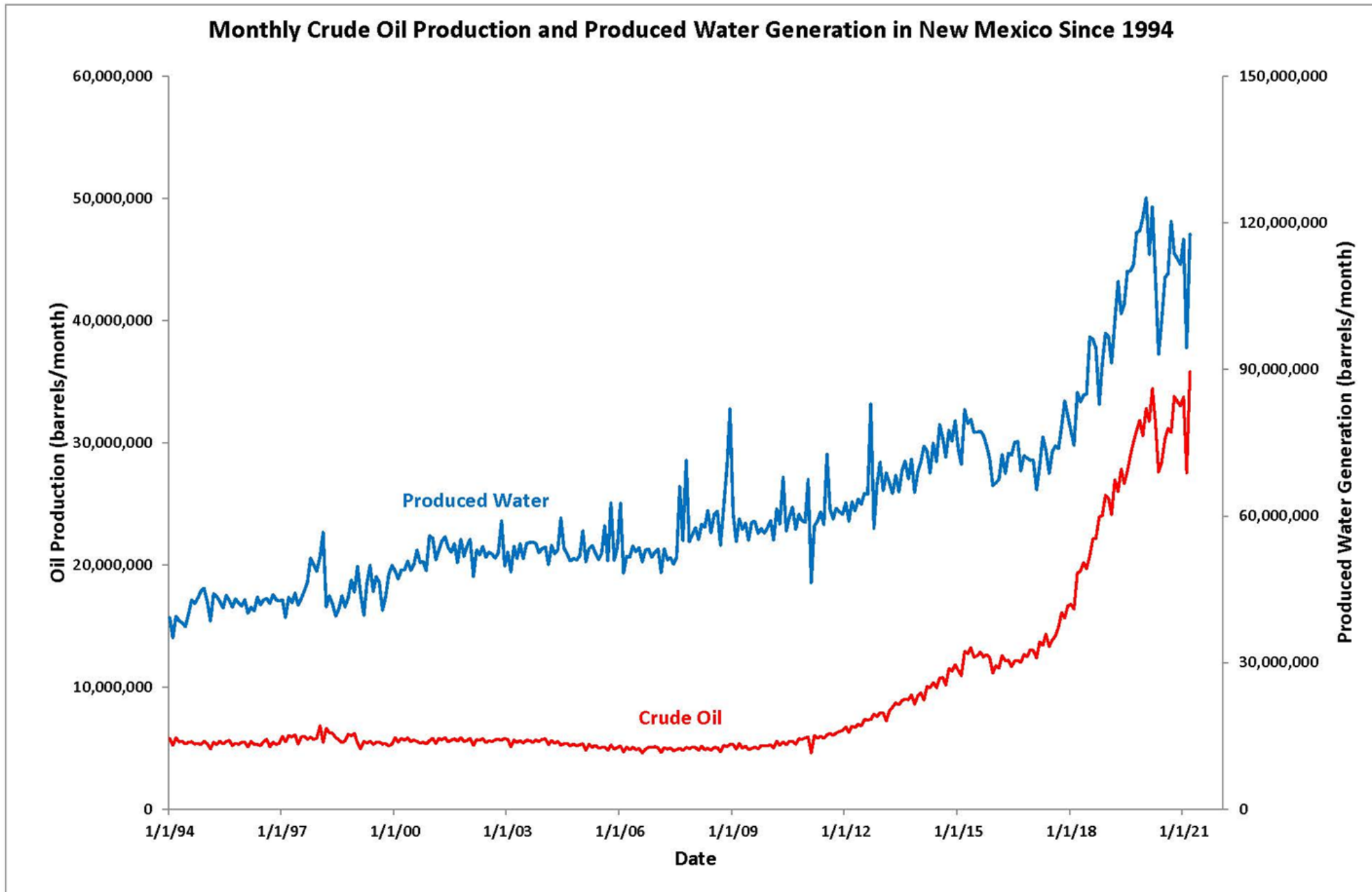
Produced Water

- Definition: "produced water" means a fluid that is an incidental byproduct from drilling for or the production of oil and gas
 - Primarily 'formation water' and can also include 'flowback water'
 - Often highly saline and can also contain drilling and completion chemicals
- Produced Water Act:
 - Passed in 2019 legislative session
 - Clarifies administrative authority over the reuse of produced water
 - Oil Conservation Division (OCD) within the Energy Minerals and Natural Resources Department (EMNRD) is limited to regulating reuse and disposal within oil and gas industry
 - New Mexico Environment Department (NMED) will regulate all uses of produced water outside of oil and gas industry

How Much Produced Water is There?

- Produced water generation is primarily a function of the amount of oil and natural gas produced.
- 3.5 million barrels of produced water are currently generated from New Mexico wells each day (147 million gallons/day), compared to 1 million barrels of oil and over 5 billion cubic feet of natural gas.
- Historically, the water to oil ratio (known as the “water cut”) has been as high as 11 to 1 however it is now closer to a 4 to 1 ratio

Monthly Crude Oil Production and Produced Water Generation in New Mexico Since 1994



Where Does the Produced Water Go?

- Reinjected into Reservoirs for Enhanced Oil Recovery and Pressure Maintenance
 - **49.7%**
- Injected into Deep Wells for Permanent Disposal
 - **40.7%**
- Recycled Within the Industry for Drilling and Completions
 - **9.6%**
- Reported as Spilled and Not Recovered
 - **0.0007%**

Oil and Gas Reuse of Produced Water

Wells Fracked since October 13, 2020 408

Average Volume of Water Used per Frac 377,290 bbls

Types of Water Used in Completions Operations

- Recycled Produced Water 54.5%
- Brackish Water 36.0%
- Saline Water 3.4%
- Fresh Water 6.1%

68% of all fracked wells incorporated produced water in their mixture

15% of all wells used only produced water to frac

OCD Regulations Managing Produced Water

Volume Reporting

- 19.15.16.20 NMAC: reporting of water used in completions operations (added 2020)

Storage

- 19.15.17 NMAC: impoundments (revised 2013)
- 19.15.34 NMAC: recycling containments and transportation (revised 2020)

Injection wells

- 19.15.26 NMAC: injection for disposal and enhanced recovery (revised 2018)
- 40 CFR 144: Safe Drinking Water Act

Spills, cleanup

- 19.15.29 NMAC: releases (revised 2021)
- 19.15.30 NMAC: remediation

Recent Rulemaking

In July of 2020 OCD held a rulemaking hearing in order to align existing OCD rules with the Produced Water Act and add additional water reporting requirements

- 19.15.34 NMAC: change language to comply with revisions to agency jurisdiction in Produced Water Act
- 19.15.16.20 NMAC: Add new requirement for disclosure of volumes and sources of water for completion (hydraulic fracturing) of well
- Rule went into effect on October 13, 2020
 - Operators must report within 45 days of drilling and completing a well using the OCD Water Use Report tool within OCD Permitting Online system

In June of 2021 OCD held a rulemaking hearing on proposed changes to the release rule 19.15.29 NMAC

- Changes prohibit major and minor spills from oil and gas industry operations, while giving OCD increased authority to take enforcement actions against operators who spill
- Under the previous rule, releases were not explicitly prohibited and the OCD was limited to penalizing operators who failed to report the spill or did not undertake corrective action
- OCC voted unanimously to adopt the changes on July 8, 2020
- Will go into effect upon publication in the New Mexico Register

Questions?
