Managing Produced Water

Record Amounts of Texas Oil & Gas Production

Texas has consistently been a leader in U.S. oil and gas production and achieved record output levels in 2024, emphasizing its pivotal role in the national and global energy sector. Advances in drilling technology, particularly horizontal drilling, have unlocked previously inaccessible reserves in areas like the Permian Basin.

However, with increased production comes challenges such as addressing the growing volume of produced water – approximately 24 million barrels a day. Produced water is a byproduct of oil and gas extraction and increases over the lifespan of a well, even as the amount of oil and gas produced from the well decreases over time. Effective management of this water is essential for maintaining both sustainable energy production and environmental protection.

Texas' oil and gas industry plays a crucial role in driving economic growth, job creation and global energy security.

Managing an Essential Resource

Severe drought conditions in the western United States have dramatically worsened, impacting water supplies, agriculture and ecosystems. As a result, managing produced water from oil and gas production to help address those issues has become a top priority for the RRC, industry and legislative and regulatory partners.

Recognizing this challenge, the Texas Legislature enacted Senate Bill 601 in 2021, which established the Texas Produced Water Consortium (TXPWC) to study the economic and technological aspects of beneficial uses of produced water.

Additionally, in 2023 voters approved the creation of the Texas Water Fund to pay for new water supply projects, including desalination and produced water treatment.

TXPWC

Reliable and affordable energy provided by the Texas oil and gas industry underpins the state's economic stability, powering industries, transportation and everyday life.

- Texas is the leader in U.S. oil and natural gas production
- More than 240,000 active oil and gas wells
- Supports two million well-paying jobs
- Supports 35% of the state's economy

"The abundance of produced water generated during the process of extracting oil and natural gas is plentiful and potentially could relieve the water shortage needs especially for those areas west of the 98th meridian."

– Jim Wright, Railroad Commission Chairman

What Currently Happens with Produced Water?

To support responsible energy production while prioritizing environmental safeguards, the RRC's Class II Well UIC Program manages wells that are used to inject fluids, such as produced water, from oil and gas production. Currently, through this program, the vast majority of produced water is disposed into non-productive geographic layers. Oil and gas production would be significantly impacted without the ability to manage produced water this way.

Did You Know?

The use of recycled produced water as a well completion fluid in the Permian Basin has grown rapidly, significantly reducing reliance on groundwater resources. By repurposing produced water, operators are minimizing the need to draw from groundwater aquifers, which is a critical step in addressing water scarcity in this arid region. This shift not only helps address water scarcity issues but also reduces costs associated with sourcing and transporting brackish (produced) groundwater.

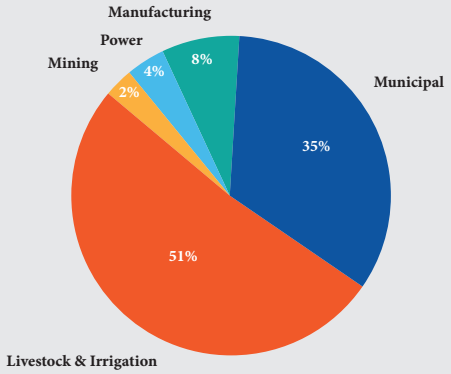
Collaborative efforts between operators and water management companies have contributed to increased adoption of recycled produced water across the basin. Increased use of recycled produced water also provides an alternative to injecting the water into disposal wells.

Source: B3 Insight

Implementing Innovative Solutions

The RRC is committed to addressing the challenges of produced water through innovative solutions. These include enacting new rules to support water resource development and creating frameworks for pilot programs to study and develop the recycling of produced water for beneficial use. Additionally, the Commission and state legislators continue to help the industry identify ways, including the adoption of new technologies, to safely treat and repurpose large volumes of produced water that is currently injected underground.

TOTAL ESTIMATED WATER USE



According to 2023 Texas Water Development Board data, more than half (51%) of all water usage in Texas is for livestock and irrigation, with just over a third (35%) used by municipalities. The remaining 14% is used by manufacturing (8%), power (4%) and mining (2%), which includes the oil and gas industry (among other mining industries in Texas).

The RRC's rigorous oversight of the Class II wells program ensures the protection of underground sources of drinking water.

In a letter dated June 13, 2023, the Environmental Protection Agency (EPA) commended the Commission's efforts to address the potential for seismic activity related to disposal injection.

"We wish to thank you and your staff for your work in protecting underground sources of drinking water from underground injection activities under your authority. We appreciate the continued attention to issues related to permitting disposal wells in seismically active areas of the Permian Basin and the continued attention on problematic areas in East Texas resulting in a consistent system for evaluating seismic hazards near disposal wells and application of appropriate permitting conditions."

About the Railroad Commission

Our mission is to serve Texas by our stewardship of natural resources and the environment, our concern for personal and community safety, and our support of enhanced development and economic vitality for the benefit of Texans. The Commission has a long and proud history of service to both Texas and to the nation, including more than 100 years regulating the oil and gas industry. The Commission also has jurisdiction over alternative fuels safety, natural gas utilities, surface mining and intrastate pipelines. Established in 1891, the Railroad Commission of Texas is the oldest regulatory agency in the state. To learn more, please visit **https://www.rrc.texas.gov/about-us/.**