INVESTIGATIONS

A toxic geyser blew sky-high in West Texas. New rules that followed wouldn't stop the next one.

00:16 / 00:16

A geyser of salty water and oil gushes out of the ground in Reeve's County in West Texas.
Video: Elizabeth Conley Staff photographer

By **Amanda Drane**, *Staff Writer*
Nov 13, 2025

Gift Article

Last year, a 100-foot-high tower of oily saltwater exploded from the West Texas desert like Old Faithful. Poisonous hydrogen sulfide gas billowed from the geyser in plumes so powerful that workers trying to fix the malfunctioning oil well had to evacuate multiple times before they fetched air tanks.

It surged that way for weeks, contaminating acres of ranch land and a nearby creek. It was also noxious — a threat to breathable air, drinkable groundwater and tillable soil.

A geyser of salty water and oil spews out near a dry hole on Wednesday, Oct. 2, 2024, in Toyah, Texas.
Elizabeth Conley/Staff Photographer

But the oilfield operations that triggered it were nothing out of the ordinary. In fact, they were compliant with standards set by the Texas Railroad Commission, which regulates oil and gas exploration.

The eruption in Reeves County in October 2024 helped usher in a new wave of reform at the Railroad Commission. The revised permitting guidelines for underground wastewater injection, which took effect June 1, aim to prevent the oil industry's wastewater from leaking into old wells and causing more saltwater blowouts in the future.

ZOMBIE WELLS: Hundreds of 'zombie' wells likely plague a single Texas county, University of Houston study finds

Yet even the new, more-stringent requirements would not have prevented the conditions that caused the October geyser, according to Railroad Commission documents reviewed by the Houston Chronicle.

The commission's scientists traced the primary source of the pressure that caused the eruption to a wastewater disposal well operated by Apache Corp. It was 3.3 miles away from the blowout — well beyond the 2-mile radius of review now mandated by the commission.

Unplugged and poorly plugged wells can provide a pathway for the industry's wastewater to rise to the surface, as happened in Reeves County when Apache's disposal well put pressure on a 64-year-old well. Before granting new permits for wastewater disposal wells, the newly established 2-mile radius forces companies to locate vulnerable wells that could similarly carry their water to the surface.

The reforms are the commission's latest effort to address what has become a sticky issue for the state's oil and gas regulator. The growing number of leaking wells forced the commission to request an unprecedented $100 million in funds from Texas taxpayers to fix leaks springing from oil and gas wells whose owners had gone bankrupt.

Hundreds of thousands of decades-old wells dot the Texas landscape, and just

how many of them could be leaking is unknown. In Reeves County alone, the site of last year's geyser, a new study identified roughly 600 orphaned, idle and poorly plugged wells that are at high risk of leaking.

A curious driver gets a closer look at a geyser of salty water and oil on Wednesday, Oct. 2, 2024, in Toyah, Texas.
Elizabeth Conley/Staff Photographer

But the issue plaguing Texas oil fields has no easy fix. Oil companies are running out of safe places to put their wastewater. The Permian Basin is one of the most productive oil regions in the world, but it actually yields far more water than oil. That's because the fracking process frees up vast amounts of salty, benzene-laced water trapped for thousands of years alongside oil and natural gas in shale rock.

Disposing of the water in deep-seated formations causes earthquakes. Injecting it instead in shallow formations is pushing toxic water into old wells and other leak points.

A spokesman for the commission said in a statement that “it is not realistically possible to develop a single scheme … that can fully assure risk-free operations.”

He said the reforms focus on the two primary modes of containment failure: identifying nearby wells that could allow the fluids to leak, and preventing operators from fracturing the reservoir’s upper and lower “confining” intervals — the non-porous formations that hold the water in place.

“These changes help ensure injected fluids remain confined to the disposal formations to safeguard ground and surface fresh water, all part of our enduring mission to safeguard natural resources,” he said.

Apache did not answer questions from the Chronicle.

Under pressure

The Railroad Commission's primary functions are to regulate the industry in ways that enable the development of the state's natural resources while also protecting the environment. Limiting wastewater disposal any more than it already has could rankle the industry that funds state budgets and campaign coffers, analysts said.

The industry paid $27.3 billion in state taxes and royalties in 2024. And Apache and its executives have donated $90,600 to Railroad Commission campaigns since 2012, when the current commission's longest-running member, Christi Craddick, was first elected.

"Campaign contributions to individual commissioners have no bearing on the regulatory actions of the commission," the commission's spokesman said.

Still, extending the study area for new disposal wells by even one additional mile could become quite costly for the industry. The geoscience and engineering involved in mapping potential leak points could tack scores of billable hours onto the cost of disposal wells on the front end, plus the expense for fixing any leaky old wells companies might find in the expanded radius.

“You probably would see pretty significant pushback from industry,” said Ryan Hassler, vice president of oil field service research at Rystad. “If those wells haven't been properly abandoned and plugged and looked at, then expanding this kind of analysis for essentially all of those wells and beyond, I think you'd have operators really pushing back on that.”

Disposal sites operated by oil companies like Apache have been shown to influence wells as far as 10 miles away, said Katie Smye, principal investigator at the Bureau of Economic Geology’s Center for Injection and Seismicity Research at the University of Texas at Austin.

“However, it's usually not that the injected fluid itself travels to great distances, but that the pressure plume associated with injection extends much further,” Smye said.

Increased pressure from this injection is often more than decades-old cement well plugs can handle. The geyser well was plugged in 1961 by El Paso Natural Gas under standards that were outdated even for that time, the commission’s geoscientists found. Kinder Morgan later acquired the company.

“Kinder Morgan has taken full responsibility for the plugging and abandonment of

the well and subsequent remediation of the site," the Houston-based pipeline giant said in a statement. "We will spend what is necessary to complete the cleanup of the impacted area."

Reeves County Emergency Manager Jerry Bullard checks his phone near a geyser of salty water and oil spewing out on Wednesday, Oct. 2, 2024, in Toyah, Texas.
Elizabeth Conley/Staff Photographer

The commission's geoscientists concluded Apache injected the water with such force that it likely fractured the formation it was injecting into — a common occurrence for disposal operations. These fractures likely allowed for water and pressure to travel underground, records show.

Injecting at pressures beyond the formation's fracture threshold is not against the rules, and Apache was injecting within the limits of its permit. So once Kinder

Morgan successfully re-plugged the decommissioned well, the commission's staff authorized Apache to resume operations at the nearby disposal well.

It is not clear from Apache's filings with the commission whether it has resumed use of the well.

Existential struggle

Without a technological breakthrough that would enable oil and gas companies to recycle or reuse more of the massive volumes of super-salty water that pour from the ground with every barrel of oil — instead of injecting it underground — they face an existential crisis.

The problem of produced water leaching through porous formations and migrating underground poses more than an environmental threat. The water is also flooding active oil wells and hindering oil and gas production, said Hassler of Rystad.

"I would say it's probably at the forefront of most discussions that operators are having as one of the major threats to production," he said.

Wade Caldwell, whose family owns the land and minerals beneath the surface of the geyser, is just happy that it seems like his ranch's groundwater wasn't contaminated by the incident — thanks to a clay barrier — and that Kinder Morgan is working to remediate his contaminated land. He said the main focus is stabilizing the site so that contaminated soil cannot spread with the wind or rain.

Caldwell said he met with Kinder Morgan last month and was expecting a detailed proposal for an upcoming soil remediation project.

The remediation project is likely to be costly. The Railroad Commission spent $6.95 million last year to plug one water blowout in Barstow, incurring millions in water management costs alone.

In the case of the Barstow blowout, there was no responsible operator left to plug the well, leaving the state to pick up the tab.

Nov 13, 2025

Amanda Drane

INVESTIGATIVE REPORTER, ENERGY

Amanda Drane is an investigative reporter for the Houston Chronicle.

Her work covering leaking oil and gas wells has won national recognition, including a first-place award for excellence in science reporting from the Online News Association in 2025.

Amanda's work on so-called "zombie wells" — long-dead oil and gas wells bursting with toxic water — received top honors in the Texas Managing Editors awards and helped inform a growing movement to reform how Houston's oil and gas industry is regulated.

Coverage that Amanda contributed to won national and local awards in 2025. A project highlighting lax enforcement of poisonous gas leaking from oil and gas wells won top honors from the Society for Advancing Business Editing and Writing and was a semifinalist for the 2025 Goldsmith Prize for Investigative Reporting. "Powerless," the Chronicle's package of stories that dug into how CenterPoint kept millions in the dark in the wake of Hurricane Beryl, was also a Goldsmith semifinalist and was recognized by The Headliners Foundation.

She enjoys yoga, strength training and eating well, thanks to her chef-husband.

Investigation Videos