

Primacy Glossary

Primacy - when the U.S. Environmental Protection Agency (EPA) gives a state, territory, or tribe sole permitting and regulatory authority over a regulated activity. In this case, it is the power to oversee injection well permits and enforcement under the EPA's Underground Injection Control (UIC) program. According to the EPA, "The Safe Drinking Water Act requires the EPA to develop UIC program requirements that protect underground sources of drinking water from endangerment." You can learn more about primacy on the [EPA's website](#).

Injection wells - wells that are drilled deep underground into rock formations where companies can dispose of or store waste fluids, like radioactive saltwater from oil and gas wells or carbon dioxide (CO₂). EPA has created six distinct classes of underground injection wells based on the types of fluid injected into the ground.

- **Class II injection wells** - can be used for disposal of "produced water" (see definition below) or for enhanced oil recovery. Sinkholes and surface uplift across Texas have been linked to Class II injection wells and earthquakes caused by Class II injection wells are occurring in every major oil and gas region in Texas. The Railroad Commission oversees Class II injection wells already.
- **Class VI injection wells** - a new type of injection well used for long-term geologic sequestration (storage) of CO₂. The EPA issued the first three Class VI well permits in Texas in April 2025, but there are many new proposals that are seeking fast approval if the Railroad Commission is granted primacy.

Produced water - Water that is naturally occurring in oil and gas formations that is brought up as a byproduct with oil and gas. This water is typically very salty, and often contains naturally occurring radioactive material, or "NORM." In Texas, produced water is typically disposed of in Class II injection wells.

Enhanced Oil Recovery - when pressurized water, and sometimes pressurized CO₂, is used to recover more oil from a spent oil well, extending the life of a well. This undermines the climate benefits of capturing and injecting CO₂ underground. Currently 73% of captured CO₂ is used for enhanced oil recovery.

Railroad Commission of Texas (RRC) - the state oil and gas oversight agency in Texas. The RRC is requesting primacy (permission/authority) from the EPA to inject carbon dioxide (CO₂) underground for long-term storage.

Carbon Dioxide (CO₂) - A greenhouse gas that is the byproduct of industrial processes. Increasing emissions of CO₂ from human activities are responsible for trapping heat in the Earth's atmosphere, leading to climate change and global warming. In high concentrations, CO₂ that leaks from a pipeline or industrial facility can cause asphyxiation, and even death. CO₂, when mixed with water, forms carbonic acid which is a highly corrosive chemical that can eat through metal and cement, acidifying groundwater.

Acronyms

EPA - Environmental Protection Agency

RRC -Railroad Commission of Texas

CCS - Carbon Capture and Storage, or Carbon Capture and Sequestration

CCUS - Carbon Capture Use and Storage, or Carbon Capture Utilization and Sequestration

CO₂ - Carbon Dioxide

UIC - Underground Injection Control

Giving Public Input to the EPA

We are requesting the EPA **DENY** the RRC's application for primacy over Class VI carbon dioxide injection wells. For this rulemaking, the EPA will not consider comments related to pipelines, climate change, capture facilities, or tax credits and subsidies. Below are some points you can make in your comments that are likely within the scope of what EPA will consider in this rulemaking. Comments about the RRC's ability to protect underground sources of drinking water are the most relevant.

Comments you can make pertaining to:

Water

- If CO₂ leaks from its storage area, nearby groundwater sources can permanently become highly acidic and corrosive, and/or cause heavy metals like arsenic, manganese, cobalt, nickel, and iron to leach out of sand and rock and into drinking water sources. Pressure at the site of injection may cause salty water, or brine, to enter drinking water sources through pathways like unplugged wells.
- The companies' CO₂ plume models can be wrong, leading to leakage of CO₂ in places they didn't expect. This can result in potent acidification of groundwater.
- Repeated problems with leaks from unplugged wells seem to be related to overpressuring of the subsurface by Class II wells. The EPA has not investigated this trend.

Why Texas is different:

- We are likely to see more carbon storage development in Texas than in any other state. EPA should evaluate Texas' primacy application considering the outsized impact primacy will have in Texas.
- Acidification of groundwater is permanent. We don't trust the Railroad Commission to prioritize water quality as they consider carbon storage permits.

- Texas' growing population is currently facing its second extreme drought in the past two years and the failure of our existing water infrastructure. Carbon storage presents risks of groundwater contamination to freshwater resources that Texas can't afford right now.

Public participation and language access

- The EPA is charged with creating meaningful public input opportunities during rulemakings and public hearings. For this primacy public comment period, the EPA only scheduled one virtual public hearing and has ignored requests for in-person hearings in the communities that will be most directly impacted by new CCS facilities.
- The EPA's Spanish landing page on the primacy hearings was also not linked or readily available when they posted the virtual event.
- Despite requests for in-person public hearings throughout the state, the RRC only held public hearings on carbon dioxide injection in Austin or virtually at times of day when most people are at work. Austin is several hours away from most communities that will be impacted by CCS infrastructure, making the public hearing sessions the agency held inaccessible to relevant stakeholders. Furthermore, these public hearings failed to comply with Title VI of the Civil Rights Act of 1964.

Railroad Commission Track Record

- Landowners and neighbors of oil and gas infrastructure have complained about the RRC's slow and ineffective response to incidents with Class II injection wells, waste pits, well plugging, and pipelines for years. We have no reason to expect the RRC to do better with carbon storage.
- RRC staff typically approve permits quickly without fully considering neighbors' concerns.
- The commissioners regularly go against the recommendations of their technical examiners and approve permits of companies who have donated to their campaigns.
- Giving the RRC authority over new types of injection wells is signing Texans up for a dangerous future. The agency has not proven their capability of improving the execution of their existing programs, and that they can reach the public's expected standard of care for the environment and public safety.
- Examples of failed Railroad Commission oversight:
 - Boehmer Lake is a 60-acre saltwater lake in Pecos County. A failed plug from a well originally drilled for oil and gas in the San Andres formation has resulted in a 200 gallon-per-minute leak that has been flowing for decades. The RRC continues to approve injection wells in the San Andres formation.
 - A sinkhole the diameter of five football fields has formed along Farm-to-Market Road 1053 in Pecos County. The Texas Department of Transportation plans to

spend \$27 million to reroute the road, but the RRC has refused to address the well causing the problem.

- Unplugged inactive wells and orphaned wells are a growing problem, numbering 150,000 and 8,900, respectively, statewide. Aging and degrading oil and gas wells can become conduits for groundwater contamination.

Additional regional impacts

West Texas

- The Permian basin is a mature oil field in West Texas with thousands of unplugged wells, improperly plugged wells, and undocumented wells that can be conduits for groundwater contamination.
- This region has experienced repeated geyser-like well blowouts, earthquakes, sinkholes, and leaks from unplugged wells in recent years. The RRC has not done enough to prevent these incidents.

East Texas

- The RRC has continued to allow a Class II disposal well to operate one-tenth of a mile from the edge of a sinkhole that formed in Daisetta, TX in 2008 and grew larger in 2023. The sinkhole caused groundwater contamination that the RRC is still monitoring.

Coastal Bend/Harris County

- Salt water is corroding cement in offshore wells and infiltrating unplugged or improperly plugged oil wells, which are also now impacted by rising sea levels.
- The RRC repeatedly ignored a landowner's request to plug decades-old orphaned oil and gas wells on their property until a geyser-like well blowout occurred on their property in 2019. A nearby operator was conducting waterflood EOR operations into a Class II well permitted by the RRC.
- If CO₂ leaks from offshore carbon storage wells, it can cause localized acidification, harming marine life.
- The gulf coast has also experienced geyser-like well blowouts related to Class II injection, showing that RRC's poor oversight isn't limited to the Permian Basin.