

About Carbon Sequestration and Class VI Wells



FREQUENTLY ASKED QUESTIONS

What is Carbon Capture and Sequestration?

Carbon Capture and Sequestration (CCS) refers to the process of capturing carbon dioxide, transporting it and storing it permanently underground using Class VI wells to prevent its release into the atmosphere - also known as geologic sequestration. The Railroad Commission of Texas' carbon sequestration regulations are designed to protect the environment and Texas communities. In addition to addressing pollution impacts to historically disadvantaged communities, these projects can offer both short-term and long-term job opportunities.

What is Carbon Dioxide (CO₂)?

Carbon dioxide or CO₂ is a colorless, odorless gas produced when substances containing carbon - such as food, wood or fossil fuels react with oxygen (usually through burning) to release energy. CO₂ is also released by almost all human and animal life during breathing exhalation and used by plants in the process of photosynthesis. Through this process, plants convert CO₂ into food and release pure oxygen (O₂) as a byproduct.

Is CO₂ safe?

In normal conditions, it is safe for humans, however, there can be some complications that arise at higher ranges of exposure. Most people can tolerate up to 5,000 parts per million (ppm) or 0.5% for up to 8 hours with little adverse effects. Typically, humans are exposed to around 400 ppm (0.04%) of CO₂ when outside.

Where can CO₂ be stored underground?

CO₂ can be stored deep underground within the pore space rock formations composed of smaller sediment grains, such as sand or gravel. Additionally, depleted oil and gas reservoirs provide another option for storage due to their well-understood geological properties.

What is a Class VI well?

A Class VI well is a well permitted for the injection of CO₂ into deep underground rock formations for permanent storage, a process known as geologic sequestration under the federal Underground Injection Control (UIC) program. A key benefit of Class VI wells is the safe and permanent sequestration of CO₂ emissions, which helps reduce the amount of CO₂ released into the atmosphere.

Selecting a Class VI well location to inject CO₂ involves extensive geological and engineering studies to identify suitable underground formations that have the necessary depth, porosity, permeability and containment for the safe and permanent storage of CO₂ emissions.



About the Railroad Commission of Texas:

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 the enhanced development and economic vitality for the benefit of Texans. The Commission has a long and proud history of service to both Texas and 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/>.

How is CO₂ transported to Class VI wells?

CO₂ is typically transported safely to Class VI injection sites through pipelines. It is usually captured from “point sources” such as industrial facilities like power plants, petrochemical plants, oil refineries, cement plants or captured directly from the atmosphere.

Who has the enforcement authority over Class VI wells?

In November 2025, the U.S. Environmental Protection Agency (EPA) announced its approval of the State of Texas’ application, granting Class VI Underground Injection Control (UIC) primacy to the RRC.

Since 2021, the RRC has been proactively developing its Class VI program, with RRC staff reviewing permit applications alongside EPA’s Region 6 office.

The duties and responsibilities for the Class VI program are handled by geologists and engineers in the Special Injection Permits Unit with a combined 140 years of industry experience and 50+ years of Texas regulatory experience.

How are Class VI well projects regulated?

Class VI wells are regulated under an existing, rigorous Safe Water Drinking Act framework that manages the permitting process while protecting the environment, supplies of drinking water, public health and safety.

Throughout the duration of a Class VI project, the RRC is responsible for ensuring that:

- Class VI wells are sited and constructed to ensure Underground Sources of Drinking Water are protected in the pre-permitting, pre-construction and pre-operation phases;
- Class VI wells must be constructed, operated, tested and monitored as approved; and
- Post-injection monitoring of the well is conducted until the injection well and all monitoring wells are plugged and the site is closed.

Additionally, RRC rules require operators of Class VI wells to have a safety plan that includes emergency response procedures, CO₂ release detection and prevention measures, instructions and procedures for alerting the public and public safety personnel in the case of an emergency.

Class VI Permitting Process

Submission

Completeness Review est. 30 days

Technical Review est. 6-18 months

Prepare Draft Permit

Public Comment Period est. 30-45 days

Prepare Final Permit Decision

How can the public get involved?

The public has multiple avenues for involvement in the permitting process, such as submitting feedback on the draft permit, participating in public hearings and appealing final permitting decisions.

If you have additional questions, please contact the Railroad Commission of Texas at Publicassist@rrc.texas.gov.