

## What Are the Construction Standards for Class II Oil and Gas Disposal Wells?

A Class II disposal well must be constructed with several layers of protection. The goal is to isolate the injected waste to ensure that groundwater is protected. The first protection layer is surface casing, which consists of a steel pipe encased in cement which reaches from the ground surface to the base of the deepest usable quality groundwater. Surface casing also acts as a protective sleeve through which deeper drilling occurs. The second protection layer is the production casing, which consists of a pipe inside the surface casing and extending to the well's total depth and permanently cemented in place. Wells may also be constructed with an intermediate casing between the surface casing and the production casing. The third protection layer is the injection tubing string and packer that conducts the injected water down through the production casing to perforations at the bottom of the well to inject the water into an underground formation.

A cross-sectional diagram schematic of a typical Class II injection well construction can be found on RRC's webpage, "Class II Oil and Gas Related Injection Wells,"

<https://www.epa.gov/uic/class-ii-oil-and-gas-related-injection-wells> .

For detailed construction requirements or information about alternative casing requirements, please refer to the RRC's *Injection Storage Manual*, referenced below.

### Resources and Useful Links

- RRC *Injection and Disposal Wells Frequently Asked Questions (FAQs)*, <https://www.rrc.texas.gov/about-us/faqs/oil-gas-faq/injection-and-disposal-wells-faqs/>.
- RRC's *Injection Storage Manual*, <https://www.rrc.texas.gov/oil-and-gas/publications-and-notices/manuals/injection-storage-manual/>.
- TCEQ's "Underground Injection Control Permits" webpage, [https://www.tceq.texas.gov/permitting/radmat/uic\\_permits/uic.html](https://www.tceq.texas.gov/permitting/radmat/uic_permits/uic.html).
- TCEQ's webpage, "Oil and Gas Facilities: Additional Information," includes regulations on air, water, and waste related to the oil and gas industry in Texas, [https://www.tceq.texas.gov/assistance/industry/oil-and-gas/oilgas\\_additional.html](https://www.tceq.texas.gov/assistance/industry/oil-and-gas/oilgas_additional.html).
- U.S. Environmental Protection Agency's (EPA's) webpage, "Protecting Underground Sources of Drinking Water from Underground Injection (UIC)," <https://www.epa.gov/uic>.
- EPA's webpage, "General Information About Injection Wells," includes links to individual web pages for each of the UIC well types, Class I – VI, which include comprehensive information on each injection well type as well as cross-sectional diagrams, [https://www.epa.gov/uic/general-information-about-injection-wells#how\\_protect](https://www.epa.gov/uic/general-information-about-injection-wells#how_protect).

- EPA's SDWA website, <https://www.epa.gov/sdwa>.
- The Ground Water Protection Council's website provides information and links relating to wells, underground injection practices, and groundwater protection, <https://www.gwpc.org>.
- The Texas Groundwater Protection Committee (TGPC) Oil, Gas, & Mining webpage has additional information and links on this subject, <https://tgpc.texas.gov/oil-gas-mining>.

### **Other Frequently Asked Questions (FAQs)**

To find additional FAQs visit the Texas Groundwater Protection Committee's FAQ webpage at <https://tgpc.texas.gov/frequently-asked-questions-faqs>.