

What are the Permitting Processes for a Class II Oil and Gas Disposal Well ?

The permitting process for a Class II oil and gas disposal well involves numerous requirements and safeguards including: public notice; hearing opportunities; a review of area geology; and a review of the area around the proposed oil and gas waste disposal well in order to determine the existence and completion of other wells penetrating the same geologic formation(s) proposed for disposal.

A Class II disposal well operator must file a permit application and other required information with the Railroad Commission of Texas (RRC). The information must provide sufficient data to demonstrate that Underground Sources of Drinking Water (USDWs) will be protected, and include hydrogeological considerations used in the well siting and design, especially information on all USDWs penetrated by the injection well; the structural integrity of the well; the specific operational considerations used in well design; information on the status of wells in the area of review that penetrate the injection zone; and the proposed monitoring of the facility. The area of review for newly permitted injection wells is a minimum of 1/4 mile radius. This review radius will be greater if the radius of influence from injection is determined to extend beyond the minimum radius.

Disposal well operators must submit data on all known existing and abandoned oil and gas wells that penetrate the injection zone within the area of review of all newly drilled or converted injection wells. The operator must submit information that would allow calculation of the injection pressure curve and information that provides details on the casing and cementing for all abandoned oil and gas wells in the area of review. The RRC uses this information to determine if oil and gas wells in the area of review require corrective action prior to commencement of injection.

Effective September 1, 2011, the RRC is responsible for determining that a proposed injection zone for a Class II injection well is not freshwater-bearing, and that injection into that interval will not endanger freshwater or a USDW in the area of the proposed Class II injection well (Texas Water Code, §27.033, <http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.27.htm#27.033>). RRC staff reviews each Class II injection well permit application to determine the base of usable-quality water (groundwater with 3,000 milligrams per liter or less total dissolved solids), and to determine if sufficient impermeable strata (layers of rock such as shale) are present between the base of usable-quality water and the top of the proposed injection zone in order to isolate usable-quality water from the injection zone. RRC guidance requires at least 250 feet of clay or shale between the base of usable-quality water and the top of the proposed injection zone (<http://www.rrc.texas.gov/oil-gas/publications-and-notices/manuals/injectiondisposal-well-manual/chapter-iii/>).

All permits include a number of requirements: to demonstrate that casing and cementing are adequate to prevent movement of fluid into or between USDWs; a maximum operating pressure calculated to avoid initiating and/or propagating fractures that would allow fluid movement into a USDW; monitoring and reporting; and that the operator of a permitted

injection well that fails mechanical integrity must cease injection immediately, and either repair and retest or properly plug the well within 90 days.

References:

- For RRC Injection and Disposal Wells Frequently Asked Questions (FAQs), go to <http://www.rrc.texas.gov/about-us/resource-center/faqs/oil-gas-faqs/faq-injection-and-disposal-wells/>.
- The RRC's Injection/Disposal Well Permitting, Testing, and Monitoring Manual can be found at <http://www.rrc.texas.gov/oil-gas/publications-and-notices/manuals/injectiondisposal-well-manual/chapter-iii/>.
- Information regarding the Texas Commission on Environmental Quality (TCEQ) Underground Injection Control Permits and Registrations can be found at https://www.tceq.texas.gov/permitting/waste_permits/uic_permits/uic.html.
- TCEQ's Oil & Gas Facilities: Compliance Resources webpage (<http://www.tceq.texas.gov/assistance/industry/oilgas.html>) covers regulations on air, water, and waste related to the oil and gas industry in Texas. This webpage also includes links to other resources such as TCEQ publication RG-482, *Common Environmental Requirements for Regulated Oil and Gas Operations*, which discusses TCEQ regulations for upstream oil and gas sites, as well as the appropriate regulatory contacts for various oil and gas activities in Texas.
- The U.S. Environmental Protection Agency (EPA) Protecting Underground Sources of Drinking Water from Underground Injection (UIC) website is <https://www.epa.gov/uic>.
- Drawings of the different UIC well types can be found on each of their individual webpages (Class I – VI) at https://www.epa.gov/uic/general-information-about-injection-wells#how_protect.
- The U.S. EPA Safe Drinking Water Act website is <http://www.epa.gov/lawsregs/laws/sdwa.html>.
- The Ground Water Protection Council website providing information and links relating to wells, underground injection practices, and groundwater protection is <http://www.gwpc.org>.
- The Texas Groundwater Protection Committee (TGPC) Oil, Gas, and Mining webpage (<http://tgpc.state.tx.us/oil-gas-mining/>) has additional information and links on this subject.

For additional Frequently Asked Questions (FAQs) related to groundwater quantity, groundwater quality, septic systems, water wells, administrative entities, and publications, visit the Texas Groundwater Protection Committee's FAQ webpage at <http://tgpc.state.tx.us/frequently-asked-questions-faqs/>.