EPA United States Environmental Protection Agency

Fact Sheet

EPA Seeks Comments on Injection Well Permit

Applicant: **Carbon Storage Solutions, LLC** Site Location: **Weld County, CO**

Permit Number(s):
CO52455-12770

How to Comment:
The public notice and comments due date is posted at EPA Region 8 UIC program's website: https://www.epa.gov/uic/underground-injection-control-epa-region-8-co-mt-nd-sd-ut-and-wy#public-notices. The public will have 30 days from the start of the public notice to provide comments on the proposed permit action.

Submit your comments in writing or by phone to the EPA contact listed below during the comment period. Please reference the applicant's name and permit number(s). You may also comment during a public hearing if one is held.

EPA Contact:
Zac Moore
Email: moore.zac@epa.gov
Phone: (303) 312-7075

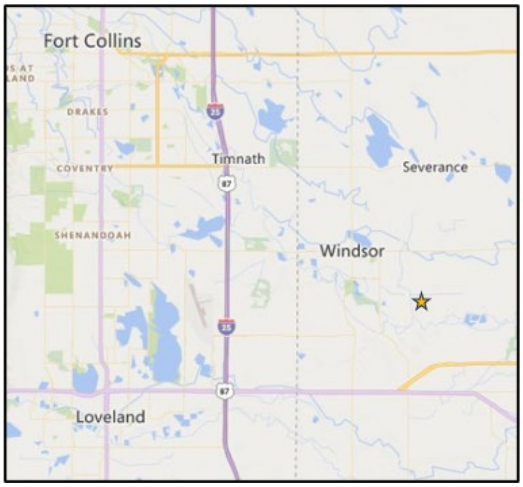
Public Hearing
No public hearing is planned currently. During the comment period, you may ask EPA, using the methods described in the "How to Comment" section of this fact sheet, to hold a formal public hearing. Your request must identify issues to be raised. When there is significant public interest, EPA will hold a hearing to receive public comments and will publish a notice at least 30 days prior.

Additional Information
For additional information, please consult the EPA contact listed above. To learn more about EPA's Underground Injection Control program, or to join our mailing list, visit https://www.epa.gov/uic/underground-injection-control-epa-region-8-co-mt-nd-sd-ut-and-wy.

Summary
EPA proposes to approve Carbon Storage Solutions, LLC's (CSS's) request to construct and operate a Class V Well under an individual permit. The purpose of the proposed Permit is to conduct well tests (e.g. step-rate test, injectivity test, etc.) to determine formation properties to support a Class VI application CSS has submitted to EPA. Once well testing is complete, CSS intends to operate the well under a future Class VI permit for geologic sequestration of carbon dioxide. Injection will occur into the Lyons formation at depths between 8861' and 8943' true vertical depth (TVD) below ground surface. The proposed approval is for a Class V permit using freshwater treated with biocides and corrosion inhibitors with a permit duration limited to two years. EPA's proposed approval for this Class V permit does not convey any determination regarding CSS's pending Class VI permit application.

Basis for Draft Permit Conditions
The proposed permit conditions are based on the applicable regulatory provisions of 40 CFR parts 2, 124, 144, 146 and 147, which are designed to protect public health and drinking water from unsafe underground injection practices. Well specific restrictions are derived, in accordance with these provisions, from an evaluation of data gathered from pertinent sources. This information is outlined in the administrative record, which includes data that the applicant was required to submit as part of the permit application process. EPA considered the adequacy of the minimum or standard monitoring and testing requirements in the draft permit. These requirements are important for detecting potential endangerment given the well construction, local geology, identification of available Underground Sources of Drinking Water (USDWs) water quality data, characterizations of the injected fluid, and operator compliance history.

Site Map



Final Decision and Right to Appeal
EPA will consider all comments received during the comment period and any hearing held, and then issue a final decision. You have the right to appeal the decision if you make an official comment during the comment period or participate in a public hearing. If you have this right to appeal, the first appeal must be made to the Environmental Appeals Board within 30 days after the final permit decision has been issued. The final decision can be appealed in federal court only after all agency review procedures have been exhausted. Please refer to 40 CFR §124.19, which outlines the appeal process.

Principal Facts Considered

Area of Review (AOR) Analysis: The AOR is 0.25 miles distance circumscribing the surface hole location, deviated wellbore, and bottom hole location. EPA considered the injection volume, hydrogeology, population, groundwater uses and dependence, and historical practices to determine the appropriateness of the size of the AOR. Within the AOR, there are no abandoned or active wells to serve as conduits for fluid migration and endanger USDWs. Therefore, no corrective action is needed as described in the draft permit.

Site Geology: The Lyons Formation is the injection zone, between the depths of 8861' and 8943' TVD below ground surface. The confining zone immediately above the injection zone is the Lykins Formation from a depth of 8268' to 8876' TVD, and it is free of known transmissive faults or fractures within the AOR. The base of the lowermost USDW, which is the Entrada Formation, is found at a depth between 8175 – 8268' TVD. EPA considered the geologic characteristics of and relationships between the injection zone, confining zone, and lowermost USDW within the AOR to determine the suitability of the geologic setting for injection, long term containment, and isolation of injected fluids from USDWs.

Injection Pressure: The injection pressure is limited to a maximum of 1642 psi to prevent injection pressures from initiating new or propagating existing fractures in the injection zone, and from causing movement of injection or formation fluids into USDWs. EPA calculated a protective limit using the formula included in the permit along with site-specific values of 8876 foot depth to the top of the uppermost perforation, an injection fluid specific gravity of 1.0, and 90% of the injection zone fracture gradient of 0.66 psi/ft, derived from formation testing. By setting a maximum pressure based on 90% of the fracture gradient in the injection zone as a protective limit, this will ensure that the integrity of the overlying confining zone is maintained.

Injection Well Construction: The well was designed and is constructed so that injection occurs through tubing set within the innermost casing in a manner that is protective of USDWs. The well is designed to be mechanically sound, to provide adequate zonal isolation, and to be monitored for mechanical integrity during operations. Well components include layers consisting of tubing, casing, and cement where tubing size, tubing type, cement quality, cement placement, and cement quantity were also considered. EPA considered the suitability of construction materials and well design for the injection activity, including the prevention of corrosion from injected fluids. The well is drilled to a true vertical depth of 9041' below kelly bushing. The Front Range 1-1 well meets the regulatory requirements to protect USDWs for conducting formation tests using freshwater.

Financial Assurance: The applicant has utilized a well surety bond to demonstrate their ability to cover plugging costs. EPA considered the well construction and site geology in determining the sufficiency of the plugging and abandonment plan(s) in protecting USDWs. EPA also considered the adequacy of the surety of resources provided to plug the well in a manner that is protective of USDWs.

Seismic Activity (Earthquakes): EPA considered the potential for hazards regarding seismic activity within the vicinity of the site and found no concerns of fault and fractures to transmit injectate out of the injection zone.

Historical Property: EPA considered its obligations under the National Historic Preservation Act and found its proposed permit action will have no impacts on or related to historical properties within the area of potential effect.

Endangered Species: EPA considered its obligations under Endangered Species Act and found its proposed permit action will not affect any listed species or critical habitat.