EPA Releases Supplemental Information on the Proposed Requirements for Geologic Sequestration of Carbon Dioxide

The United States Environmental Protection Agency (EPA) is releasing supplemental information through a Notice of Data Availability (NODA) on proposed requirements under the Safe Drinking Water Act (SDWA) for the underground injection of carbon dioxide (CO_2). EPA's proposed regulations under the SDWA would ensure protection of underground sources of drinking water from CO_2 injection activities.

Why is the NODA needed?

This Notice of Data Availability (NODA) presents new information and data related to geologic sequestration (GS) of carbon dioxide, obtained after publication of the July 25, 2008 proposed rule "Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO2) Geologic Sequestration (GS) Wells" (73 FR 43492). The Agency sought comment on a range of topics and received comments, data, and additional information that warrants release prior to finalization of the GS regulation.

What is Geologic Sequestration?

GS is the process of injecting CO_2 captured from an emission source (e.g., a power plant or industrial facility) into deep subsurface rock formations for long-term storage. It is part of a process known as "carbon capture and storage," or CCS.

CO_2 is captured from flue gas produced by fossil-fueled power plants and industrial facilities, typically compressed to convert it from a gaseous state to a supercritical fluid, and transported to the sequestration site, usually by pipeline. The CO_2 is then injected into deep subsurface rock formations through one or more wells, using technologies that have been developed and refined over several decades. CO_2 is expected to be injected at depths greater than approximately 800 meters (2,625 feet), where the pressure and temperature below the earth's surface are sufficient to keep the CO_2 in a supercritical state.

When injected in an appropriate receiving formation, CO_2 is sequestered by a combination of physical and geochemical trapping processes. Physical trapping occurs when the relatively buoyant CO_2 rises in the formation until it reaches a low-permeability layer that inhibits further upward migration, or when residual CO_2 is immobilized in formation pore spaces. Geochemical trapping occurs when chemical reactions between the dissolved CO_2 and minerals in the formation lead to the precipitation of solid carbonate minerals. Similarly, naturally-occurring CO_2 deposits have been physically and geochemically trapped in geologic formations for millions of years.

The United States has CO_2 storage potential in deep saline formations, depleted oil and gas fields, and deep, unmineable coal seams. These formations are present across most of the country and 95 percent of the largest stationary sources in the nation that emit CO_2 are within 50 miles of a candidate CO_2 storage formation.

What information does the NODA contain?
EPA's NODA contains supplemental information previously not available during the initial publishing of the proposed regulations on GS. The NODA expands upon information described in the July 2008 proposed rule related to:

- New data and research received from the Department of Energy's (DOE) National Energy Technology Laboratory (NETL) and Lawrence Berkeley National Laboratory (LBNL) concerning both GS projects and modeling to predict the potential impacts on ground water from GS activities
- Injection depth for GS wells and a discussion of a waiver process to address comments about the proposed regulation's requirement that Class VI wells inject below the lowermost USDW

Who should review and comment on the NODA?
The NODA is for informational purposes and does not require any facilities to capture, sequester, or otherwise comply with requirements related to GS. Owners and operators, states, tribes, and state and tribal co-regulators involved in GS activities may wish to comment on this publication. Additionally, individuals interested in the two primary subject areas of the NODA may wish to review and comment. The Agency seeks comments on the supplemental NODA for 45 days and does not anticipate extending the length of the comment period.

How Can I Get More Information?
The NODA, proposed rule, supporting information, and information on how to comment on the NODA are available on EPA's Web site at http://www.epa.gov/safewater/uic/wells_sequestration.html. For additional information, contact the Safe Drinking Water Hotline toll free Monday through Friday, 10:00 am to 4:00 pm eastern time (except federal holidays) at 1-800-426-4791.