

# Science-based permitting of geological sequestration of CO<sub>2</sub> in brine reservoirs in the U.S.

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**Abstract:**

We present a science-based approach to the regulation and permitting of CO<sub>2</sub> sequestration activities. Any such regulatory scheme should address both operational (or short-term) issues and the long-term goals of geological sequestration of CO<sub>2</sub>. In the United States many of the key operational issues, such as permitting injection wells and CO<sub>2</sub> pipelines, are reasonably well addressed in current Federal- and State-based rules and legislation. The long-term, overarching goal of sequestration projects of decreasing the rate of increase in atmospheric concentrations of CO<sub>2</sub> is not addressed by current regulations. We propose a hierarchical approach, in which the State/Federal government is responsible for developing regional assessments that result in broad regions of brine reservoirs being rated as “sequestration ready” (and designated in this paper as general permits). The burden faced by an applicant in permitting an injection site should be considerably less if the general area of the chosen site has been ranked favorably. Such a phased, hierarchical permitting process would be helpful in addressing public and stakeholder concerns related to the impact and safety of geological sequestration operations. It will also build in coordination between neighboring injection sites, where interferences are likely because of the large amount of CO<sub>2</sub> to be injected.

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