

## **LONG-TERM PROTECTION OF FRESHWATER RESOURCES**

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### **ABSTRACT**

The subsurface geologic storage of carbon dioxide (CO<sub>2</sub>) represents a primary option for achieving reduced greenhouse gas emissions to the atmosphere. Two factors are important to successful commercial deployment: 1) good site selection and 2) implementation of both conventional and innovative monitoring methods, which will ensure that active carbon capture and storage (CCS) operations are performing properly. Equally important to commercialization is the ability to provide assurances that negative impacts to human health and the environment will not occur in the future.

The Regional Carbon Sequestration Partnerships (RCSPs) Water Working Group (WWG) has been using knowledge and experience gained from the RCSPs to understand how CO<sub>2</sub> containment in the subsurface can be achieved while ensuring protection of freshwater resources. Research conducted by the RCSPs has provided insight both on the types of CO<sub>2</sub>-trapping mechanisms prevalent in CO<sub>2</sub> storage reservoirs as well as strategies to make use of these mechanisms in storage formations across the United States. These mechanisms include structural/stratigraphic, hydrodynamic, mineral, residual-phase, and solubility trapping. The WWG is also identifying best practices for water management during CCS, including the long-term protection of freshwater resources. The WWG has produced a fact sheet that highlights these efforts to aid in making all stakeholders of the CCS industry aware of work that is currently under way. The WWG also is partnering with the IEA Greenhouse Gas R&D Programme to issue a special edition of the International Journal of Greenhouse Gas Control focused on water and CCS issues, to be published in 2016.