

Geologic Sequestration of Carbon Dioxide

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Construction and pressure testing of the geo-sequestration laboratory flow-through column has been completed (Figure 1). The geo-sequestration simulator will allow us to examine interactions between injected CO₂ with natural and added conservative tracers, with native subsurface media, and with representative brine or hydrocarbon-containing solutions. We have recently completed a series of preliminary experiments including injection of a single perfluorocarbon tracer within the flow-through column filled with Ottawa sand.



Figure 1: Geo-sequestration simulator housed at Oak Ridge National Laboratory

The resulting concentration of 0.1pg approached the instrument detection limit, but was approximately 10 above the baseline. Further experiments utilizing PFT concentrations 100 times our preliminary experiments are planned in addition to helium porosimetry measurements for the determination of substrate porosity. Our plans include a series of runs using brine and hydrocarbons under a variety of experimental pressures and temperatures. Upon completion of these experiments, the current Ottawa sand column will be replaced with a column containing material from the Frio Formation.

[More about this work.](#)