

Demonstrating Carbon Storage Options in Kentucky

D.C. Harris, J.R. Bowersox, D.A. Williams, S.F. Greb, T.M. Parris, B.C. Nuttall, J.A. Drahovzal, K.G. Takacs, Kentucky Geological Survey

Anticipating requirements to mitigate CO₂ emissions resulting from the use of coal, the Kentucky Legislature passed House Bill 1 in 2007. This bill authorizes funding for research by the Kentucky Geological Survey (KGS) in the areas of CO₂ enhanced oil and gas recovery, and permanent geologic storage of CO₂. To carry out these mandates, KGS partnered with energy companies and other agencies, and formed the **Kentucky Consortium for Carbon Storage** (www.kyccs.org). KYCCS projects will include deep CO₂ storage tests in eastern and western Kentucky, and CO₂ enhanced oil and gas recovery pilots. The Cambrian Mt. Simon Sandstone is an attractive sequestration target over much of the Midwest but its depth, questionable reservoir quality, and limited extent in western Kentucky will restrict its use for CO₂ storage. Cambrian sandstones in the Rome Trough of eastern Kentucky have excellent reservoir properties, but were deposited in fault-bounded grabens, where CO₂ containment may be a concern. Knox dolostones in Kentucky have variable porosity and permeability, and contain both reservoir and seal. In early 2009 KYCCS will drill and test an 8,000 ft basement well in Hancock County, Ky., where the Knox will be the primary injection target. KYCCS will also demonstrate the effectiveness of CO₂ in miscible and immiscible EOR projects, and test the feasibility of using CO₂ to displace methane in the organic-rich Devonian Ohio and New Albany Shales. KYCCS will partner with the Midwest Geological Sequestration Consortium to conduct an immiscible CO₂ flood in the Euterpe field in Henderson County, Ky.