

Assessing the Potential for CO₂-Enhanced Oil Recovery in the MRCSP Region, Ronald A. Riley, Ohio Division of Geological Survey, Columbus, OH 43229, ron.riley@dnr.state.oh.us; Brandon Nuttall, Kentucky Geological Survey, University of Kentucky, Lexington, KY 40506, bnuttall@uky.edu; John A. Harper, Pennsylvania Geological Survey, Pittsburgh, PA 15222, jharper@state.pa.us; Lee Avary, West Virginia Geological and Economic Survey, Morgantown, WV 26508, avary@geosrv.wvnet.edu; John A. Rupp, Indiana Geological Survey, Indiana University, Bloomington, IN 47405, rupp@indiana.edu; and David A. Barnes and G. Michael Grammer, Department of Geosciences, Western Michigan University, Kalamazoo, MI 49008, barnes@wmich.edu, michael.grammer@wmich.edu

The Midwest Regional Carbon Sequestration Partnership (MRCSP) is investigating the potential for CO₂ sequestration for enhanced oil recovery (EOR) in the Appalachian and Michigan Basins, and the Cincinnati and Findlay Arches region. This phase II regional partnership project is funded, in part, by the U.S. DOE and includes the states of Indiana, Kentucky, Michigan, Ohio, Pennsylvania, West Virginia, and Maryland. The primary objective of this task is to create an initial screening of those oil fields in the MRCSP region that are the best candidates for CO₂ miscible-flooding for EOR. As part of the EOR evaluation, detailed data are being collected on selected historical and ongoing secondary recovery operations to report as case histories.

Important screening criteria in evaluating potential candidates for CO₂ miscible floods include depth, API gravity, cumulative production, net pay, and minimum miscibility pressure. A minimum reservoir depth of 2,500 feet was established as screening criteria, based on an estimated depth at which CO₂ will be in the supercritical phase. Data collected on selected EOR projects and case histories will document reasons for success or failure on attempted secondary recovery operations. Within the project area, ongoing CO₂ injection projects include the Niagaran reef reservoirs (Silurian) in the Dover Field in Michigan and the Keefer Sandstone reservoir (Silurian) in the Big Andy Field in Kentucky. Pilot CO₂ floods in the Big Injun and Berea Sandstone (Mississippian and Devonian) were conducted in the late 1970's and early 1980's in West Virginia. This investigation will provide industry with digital maps, databases, and case histories to better assess potential areas for CO₂-EOR projects throughout the region.