

Bank, G.C., Riestenberg, D. and Koperna, G.J.: “CO₂-Enhanced Oil Recovery Potential of the Appalachian Basin”, SPE 111282-MS presented at the 2007 Eastern Regional Meeting, Lexington, 17-19 October.

Abstract

The Appalachian Basin states of New York, Pennsylvania, Ohio, West Virginia and Kentucky have a long, rich history of oil production, with current estimates of cumulative oil production at approximately 3.5 billion barrels of oil. However, estimates of the original oil in-place (OOIP) in the region’s mature oil fields suggest that nearly 14 billion barrels were in-place prior to the beginning of production more than a century ago. Although early production data are often “best guesses”, the remaining oil in place in this Basin appears to be on the order of 10 billion barrels. Without new efforts, this oil may remain permanently “stranded” following secondary recovery efforts and field closure.

One manner by which a portion of this stranded resource can be recovered is through the use of carbon dioxide enhanced oil recovery (CO₂-EOR). The merits of CO₂ miscible flooding are well documented and have been demonstrated for more than 30 years in Texas’ Permian Basin, with CO₂-EOR efforts currently increasing in the Gulf Coast and the Rocky Mountain Basins. With the current strong oil price situation, the oil producers in the Appalachian Basin may be interested in the CO₂-EOR potential in the Basin.

This paper follows a series of reports entitled “Basin-Oriented CO₂-EOR Assessment” of the United States with an assessment of the Appalachian Basin oil producing states of New York, Pennsylvania, Ohio, West Virginia, and Kentucky. Reservoir simulation using detailed, representative data from major oilfields throughout the region indicate that 1,230 million barrels may become technically recoverable if advanced CO₂-EOR technology is utilized. The economically recoverable resource will depend on future oil prices and CO₂ costs.