

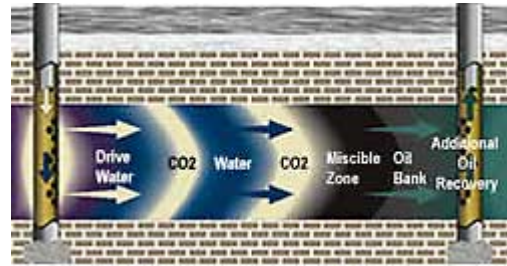
CO2 Injection Offers Considerable Potential Benefits

The EOR technique that is attracting the most new market interest is carbon dioxide (CO₂)-EOR. First tried in 1972 in Scurry County, Texas, CO₂ injection has been used successfully throughout the Permian Basin of West Texas and eastern New Mexico, and is now being pursued to a limited extent in Kansas, Mississippi, Wyoming, Oklahoma, Colorado, Utah, Montana, Alaska, and Pennsylvania.

Until recently, most of the CO₂ used for EOR has come from naturally-occurring reservoirs. But new technologies are being developed to produce CO₂ from industrial applications such as natural gas processing, fertilizer, ethanol, and hydrogen plants in locations where naturally occurring reservoirs are not available. One demonstration at the Dakota Gasification Company's plant in Beulah, North Dakota is producing CO₂ and delivering it by a new 204-mile pipeline to the Weyburn oil field in Saskatchewan, Canada. Encana, the field's operator, is injecting the CO₂ to extend the field's productive life, hoping to add another 25 years and as much as 130 million barrels of oil that might otherwise have been abandoned.

A turning-point in CO₂-EOR advances is a project funded by DOE in the Hall-Gurney field in Kansas that seeks to demonstrate this technology's time has come - providing energy, economic and environmental benefits. A companion project underway in the Hall-Gurney field involves testing the feasibility of 4-D high resolution seismic monitoring of CO₂ injection in thin, relatively shallow mature carbonate reservoirs. Incorporating such time-lapsed monitoring data into CO₂-EOR programs could dramatically improve the efficiency and economics of using the technology in many Midcontinent fields.

New breakthroughs in CO₂-EOR recovery technology could further enhance oil recovery in Texas and other oil producing states. One DOE-industry partnership project is investigating gravity-stable CO₂ injection in the Permian Basin in West Texas, where the goal is to increase oil recovery in the Scurry Canyon Reef field.



Graphic of CO₂ enhanced oil recovery.

Courtesy of Occidental Petroleum Corp.