SPE DISTINGUISHED LECTURER

Society of Petroleum Engineers

CO2 IN THE SUBSURFACE FROM EOR TO STORAGE

An Extra 45 Minutes Can Provide a World of Knowledge

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Gary Teletzke is Senior Technical Advisor for Enhanced Oil Recovery at ExxonMobil Upstream Research Company. He has led research projects related to gas injection EOR, chemical EOR, and compositional reservoir simulation. He has also led several EOR field studies, integrating laboratory work, reservoir simulation, and pilot testing. For the past ten years, he has provided technical leadership to research efforts on CO2 sequestration. He has published more than 40 technical papers and patents. He has organized numerous SPE conferences over the past two decades and served as Executive Editor of SPEREE from 2015-2017. He was named an SPE Distinguished Member in 2013. He received a BS in chemical engineering from Northwestern University and PhD in chemical engineering from University of Minnesota.

Abstract:
The Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) have issued recent reports suggesting that deployment of carbon dioxide capture and storage (CCS) can significantly reduce the cost of achieving CO2 emission reduction targets. However, several questions remain: Under what circumstances will large-scale deployment take place? Where and when will this occur? How large a role will CCS play in stabilizing atmospheric concentrations of CO2? I will review the current status of CO2-EOR and geologic storage focusing on subsurface lessons learned and their implications for large-scale CCS.

Our industry has a long history with CO2-EOR that provides a strong experience base for CO2 storage. However, CO2-EOR alone will be insufficient to meet emission reduction targets and storage in deep saline aquifers is also being investigated. Experience from operating CCS projects shows that subsurface storage capacity in saline formations can be limited by dynamic injectability factors. Hundreds of years of CO2 storage capacity is potentially available, even after accounting for dynamic limitations, but the areal distribution of potential storage capacity is widely varied. Geologic and reservoir engineering studies will be essential for identifying storage sites having adequate capacity, containment, and injectivity. Petroleum engineers will play a key role in these studies.

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Av. Rovisco Pais, 1049-001, Lisbon
Central Building *(Pavilhão Central)*
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