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Presents

The Intersection of Environment and EOR: How Carbon Capture is Changing Tertiary Recovery

Dr. Robert Balch, New Mexico Tech

Thursday, March 30, 2016, 10:00 – 11:00 am, HED 116

Increasing interest by governments worldwide on reducing CO2 released into the atmosphere form a nexus of of opportunity with enhanced oil recovery which could benefit mature oil fields in nearly every country. Overall approximately two-thirds of original oil in place (OOIP) in mature conventional oil fields remains after primary or primary/secondary recovery efforts have taken place. CO2 enhanced oil recovery (CO2 EOR) has an excellent record of revitalizing these mature plays and can dramatically increase ultimate recovery. Since the first CO2 EOR project was initiated in 1972, more than 154 additional projects have been put into operation around the world and about two-thirds are located in the Permian basin and Gulf coast regions of the United States. While these regions have favorable geologic and reservoir conditions for CO2 EOR, they are also located near large natural sources of CO2.

In recent years an increasing number of projects have been developed in areas without natural supplies, and have instead utilized captured CO2 from a variety of anthropogenic sources including gas processing plants, ethanol plants, cement plants, and fertilizer plants. Today approximately 36% of active CO2 EOR projects utilize gas that would otherwise be vented to the atmosphere. Interest world-wide has increased, including projects in Canada, Brazil, Norway, Turkey, Trinidad, and more recently, and perhaps most significantly, in Saudi Arabia and Qatar. About 80% of all energy used in the world comes from fossil fuels, and many industrial and manufacturing processes generate CO2 that can be captured and used for EOR. In this 30 minute presentation a brief history of CO2 EOR is provided, implications for utilizing captured carbon are discussed, and a demonstration project is introduced with an overview of characterization, modeling, simulation, and monitoring actvities taking place during injection of more than a million metric tons (~19 Bcf) of anthropogenic CO2 into a mature waterflood.

BIO:

Dr. Robert Balch is the Director of the Petroleum Recovery Research Center located on the campus of New Mexico Tech. At the university he also holds Adjunct Professor positions in Petroleum Engineering and Geophysics and has been research advisor to more than 40 graduate students. During his 20 years at the PRRC he has been principal Investigator on a range of enhanced oil recovery projects focused on developing and applying solutions to problems at many scales using geological, geophysical, and engineering data. Dr. Balch is the Principal Investigator of the Southwest Partnerships Phase III demonstration project where 1,000,000 metric tonnes of anthropogenic CO2 is being injected for combined storage and EOR into a mature waterflood in North Texas. During the course of his work he has published more than 45 papers, is a frequent invited speaker, and has presented his research at more than 100 meetings or events. Dr. Balch has held an appointment as an Oil Conservation Commissioner for the State of New Mexico since June of 2011.

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