WORLD OIL AWARD - BEST EOR TECHNOLOGY

Stratum Reservoir's novel laboratory technique/equipment was built to combine axial flow (fractures) and radial flow (matrix) within the same apparatus in order to be able to evaluate the phenomena that influence Gas-Cycling (GCEOR) in unconventional production. This novel apparatus permits full reservoir conditions with reservoir fluids and with large volumes so that effluent compositions, densities, oil and gas fluxes, gas utilization (both injection gas and consumed gas), differential pressure gradients and recovery factors as a function of primary depletion and Huff and Puff cycle number can be measured. Repeat runs at different conditions with different fluids are used to quantify the relative importance of design parameters.

This is the first equipment to be able to measure GCEOR performance in porous media of any permeability relying on large pore volumes and accounting for rock heterogeneities. This novel set up allows for representation of scaled multiple fractures, and their operation of flow. Thus far tests have been made with in situ oil permeabilities ranging from 10 nD to 2400 nD. Over fifty experimental primary depletions followed by Huff and Puff gas cycling have been conducted with volatile oil and gas condensate fluids. The results are helping the oil and gas industry to better understand the driving mechanism for oil recovery (swelling, vaporization, enrichment, etc.) and to optimize their reservoir simulations. GCEOR laboratory testing allows screening the performance for potential EOR gases, helps defining the parameters for its implementation (lean gas / rich gas, miscibility / partial miscibility), and allows systematic optimization of variables for its implementation (number of cycles, soaking time & other). All of this, before performing costly trial and error field pilots, where the field test are orders of magnitude more expensive than laboratory testing.

WORLD OIL AWARD - LIFETIME ACHIEVEMENT

In a career spanning more than 50 years, David K. Baskin dramatically impacted how petroleum geochemistry is used to resolve key petroleum exploration and field development problems. He was a pioneer in the application of petroleum geochemistry to the assessment of reservoir continuity. David also developed protocols for integrating kerogen microscopy, pyrolysis, and elemental analysis data to evaluate the generative potential and generative history of source-rocks. In addition, he developed geochemistry-based techniques which are now widely used to predict fluid type (gas vs. oil) and quality (API gravity) of petroleum accumulations. David was the 2014 recipient of the AAPG Energy Minerals Division President's Certificate for Excellence in Oral Presentation 2013 AAPG Annual Convention and Exhibition for the talk "Allocating the Contribution of Oil from the Eagle Ford Formation, the Buda Formation, and the Austin Chalk to Commingled Production from Horizontal Wells in South Texas Using Geochemical Fingerprinting Technology". He received a Special Recognition Award from Chevron (1996) for applications of fingerprinting to assessment of reservoir continuity in the Deep Water, Gulf of Mexico. David began his career in 1969 as a well-site geologist for Exploration Logging Inc., and then worked as a petroleum geochemist for nearly 30 years at Chevron's research facility in La Habra, California. Following his years at Chevron, David was Vice President of OilTracers LLC for 8 years. Since 2010, he has been a Senior Petroleum Geochemist for Stratum Reservoir.

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