Contemporary Topics for Liquid-Rich-Shale (LRS) Reservoirs: Sampling, Characterization and Gas-Injection EOR

This two-day course begins with reservoir fluid properties starting with the most fundamental definitions and then expanding to how fluid properties are measured and reported. Common problems, encountered in sampling and characterization, are discussed by using multiple field examples. A thorough presentation of methods to achieve the best characterization for bubble-point fluids and retrograde gases is included; recent developments (2017) are elucidated. The roles of confinement and fracture intensity on apparent phase behavior are also discussed. The impact on measured fluid properties is quantified. QA/QC techniques of lab data sets are presented and discussed. Finally, the science of Lean-Gas cycling for EOR in shales is introduced and analyzed.

Course Outline:

1. Definitions of Fluid Types and Parameters Used to Describe Fluid Quality
2. Sampling Reservoir Fluids – oils, gas condensates and gases
3. Common errors in sampling and characterization
4. Tests Used to Describe Reservoir Fluid Parameters
    i. CCE
    ii. DL
    iii. CVD
    iv. Properties Measurements
5. Equation of State Constructs
6. Impact of sampling and characterization errors on PVT properties
7. Computation of fluid properties in confined conditions
8. Quality Control Checks for Lab experiments (Oils and Retrograde Gases)
9. Introduction to Gas-Cycling EOR in Liquid-Rich-Shales:
    i. Phase Behavior
    ii. IFT Effects
    iii. Mobility Ratios
    iv. Rock Properties
    v. Wettability
    vi. Gravity
10. Lab Tour to view relevant equipment and techniques for characterization and optimization

Instructor

Dr. F. Brent Thomas, P. Eng. was with Hycal Energy Research from 1981 until 2004 and has world-wide experience in reservoir performance and EOR. From 2004 until 2014 Brent was employed with Weatherford Laboratories as Director of Phase Behavior and EOR Research. Brent has taught courses on a variety of EOR topics, world-wide, over the last twenty-nine years. He was a distinguished lecturer for SPE International (2003-2004) on the topic of Retrograde Reservoir Optimization. He has authored co-authored almost one hundred papers, two of which received the JCPT Best Paper Award. Brent was also a Distinguished Author for the JCPT. Currently, Brent is a consultant, working in the field of reservoir optimization including significant emphasis on LRS reservoir optimization.

Please register with Dr. Thomas at fbt@resopstrategies.com or on 403-669-7034.