ROSE
SUBSURFACE ASSESSMENT

Evaluating Shale and Tight Oil & Gas Reservoirs (ESTOGR)

Course Description

This 4- to 5-day course provides an extensive introduction to the exploration, appraisal and development of shale and tight oil & gas reservoirs. It identifies the data that need to be collected, how to analyze and interpret them, and how to integrate and apply this knowledge to the decision-making process. Participants will develop a broad understanding of the practices and pitfalls in assessing them and will reinforce this by analyzing case study posters in teams.

Course Outline

1. Introduction: Definitions, technologies, global potential, commercial aspects
2. Gas Shales and Liquids-Rich Shales
    a. Geology: Origin, composition, deposition, pore types, natural fractures
    b. Geochemistry: TOC, Rock-Eval, thermal maturity, sorption, liquids to gas transition
    c. Geophysics: Geohazards, seismic attributes, microseismic, geomodeling
    d. Petrophysics: Core analyses, log analyses, integration, practices and pitfalls
    e. Geomechanics: Building and using geomechanical models for frac design
    f. Drilling/Completions: Drilling practices, completion types, diagnostics, refracs
    g. Well Performance: Flow regimes, empirical forecasting, analytical/num. modeling
    h. Shale Gas Case Studies: Fayetteville, Haynesville, Utica, Horn River, Barnett
    i. Liquids-Rich Shale Case Studies: Eagle Ford, Marcellus, Woodford, Wolfcamp
3. Tight Sandstones and Carbonates
    a. Geology: Depositional systems, diagenesis, stratigraphy, correlation, res. quality
    b. Geophysics: Resolving geo-bodies, fractures, depletion delineation
    c. Petrophysics: Routine and special core analyses, log analyses, field examples
    d. Drilling and Completions: Stimulation designs, data analytics, diagnostics
    e. Well Performance: Applying DCA, RTA, & numerical simulation to Bakken example
    f. Discrete vs basin-centered accumulations: Characteristics, differentiating them
    g. Tight Sand Case Studies: Jonah, Wamsutter, Wattenberg, Medina Group, Cardium
    h. Tight Carbonate Case Studies: Bakken, Niobrara, Austin Chalk, Jean Marie
4. Applying Course Learnings using a Staged Approach, Success Criteria and Workflows
5. Evaluating Coalseam Gas reservoirs (optional, if desired)

Who Should Attend

This course is intended for geoscientists, engineers, and managers who are seeking a comprehensive introduction to evaluating these reservoirs. It has been delivered over 100 times in the past 20 years in both open-enrollment and internal courses.

Recipients of Training

aramco, CHESAPEAKE ENERGY, OXY, SWN Southwestern Energy, PETRONAS, devon, TOTAL