TETRA TECH RPS ENERGY | TRAINING

N935: Core Properties

Instructor(s): Mehran Sohrabi

Format and Duration
Classroom - 4 Days

Summary

This course addresses the fundamental core properties of interest to reservoir engineers, including: core characterisation; coring requirements for reservoir engineering purposes; measuring / assessing the effect of variations in porosity, fluid saturation, relative permeability, interfacial tension and capillary pressure and applying the resultant data reservoir analysis. There is some flexibility in the subjects covered during the course, based on participant experiences and interests.

Learning Outcomes

Participants will learn to:

1. Charaterising the fundamentals of taking, analysing and assessing reservoir core material.
2. Validating and synthesising the results of core analysis.
3. Applications of core analysis data, production and injection estimates, reserve estimation using core data.
4. Integrating the results of core analysis and other data into reservoir models.

Training Method

Four-day, classroom course with worked examples, hands-on exercises, and practical discussion. Participants will have an opportunity to discuss their own data. Includes a visit to the 'state of the art' Heriot Watt core analysis laboratories.

Who Should Attend

The course is designed for Petroleum Engineers and Geoscientists who need to understand what core analysis techniques are available and how analysis results can be used.

Course Content

There is some flexibility in the subjects covered during the course, based on participant experiences and interests, but some of the key areas that will be covered include:

• Core properties and characterisation
– including understanding the effect of rock mineralogy and depositional environment on the absolute value and lateral variations in porosity, fluid saturation and permeability.

• Core properties measurement techniques, corrections and laboratory artefacts.

• Coring requirements and techniques, core sampling and preservation.

• Initial reservoir conditions including the effects of surface kinetics, interfacial tension, wettability and capillary rise.

• Special core analysis techniques, capillary pressure theory and impacts on static multiphase fluid

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distribution and multiphase flow and displacement, two-phase and three-phase relative permeability measurements and correlations.• Understanding options for core relative permeability measurements, such as X-rays, steady and unsteady state flow experiments.

• Validating results, correcting for such factors as hysterisis and end effects; and combining data from several sources for application in two and three phase reservoir models.

• Relationship of core analysis and special core analysis. Dynamic reservoir conditions, including initial fluid saturations and the eff ect of relative permeability and residual saturations.