

# Core Analysis: Workshop

## AIMS

This industry-leading training course will provide participants with expertise in the acquisition, quality control and implementation of routine (RCA) and special core analysis (SCAL) data in support of integrated petrophysics studies. With extensive reference to field examples worldwide, the course will enable participants to better interpret RCA and SCAL reports, to appreciate the quality and viability of the data and, ultimately, to get enhance the value from core analysis investments.

## BENEFITS

The learner will gain a deep understanding of:

- principal core analysis methods;
- errors involved and data sensitivities;
- make better use of core analysis data in reservoir characterisation

## WHO SHOULD ATTEND?

Geoscientists and petrophysicists who wish to expand their knowledge of the acquisition, quality control, and interpretation of core analysis data and their application to reservoir static models.

The learners should have a basic understanding of core analysis methods (maybe having used core data); want to learn more about data quality control and how best to use the data; and should be familiar with basic petrophysics intervals. Ideally, participants could bring their own core data and core reports as this will provide more immediate and relevant learnings.

## COURSE INSTRUCTOR

Colin McPhee has over 25 years experience in the measurement, quality control, and interpretation of core analysis data, gained with Heriot Watt University, Edinburgh Petroleum Services, Helix RDS and, now, Senenergy.



He has been involved in core data interpretation and integration for over 30 fields worldwide and has reviewed and quality controlled over 20,000 SCAL measurements.

Colin has managed over 40 core analysis programmes for a variety of reservoir types - including shaly sands, thin bedded sands, unconsolidated formations and carbonates – and for both small independent operators and supermajors (including Chevron, BP, ConocoPhillips, Shell, Repsol, Enterprise, Hess, Norsk Hydro, Talisman, PTTEP, Petrofac, Ithaca). Colin has worked closely with geoscientists, petrophysicists and reservoir engineers in ensuring that core data used in integrated studies are reliable, robust and representative.

Colin has also been part of an Expert team tasked to resolve major equity redeterminations on three occasions. This has involved detailed review of SCAL data and innovative solutions in SCAL data interpretation.

In response to the industry's need for a fully independent and wholly impartial course, Colin developed the first training course in 1990. This has been updated and on an annual basis in response to new core analysis methods and an ever increasing database of both good and bad core data.

## COURSE DESCRIPTION

The value which can be gained from core analysis is illustrated through an independent examination of core data in relation to other well and reservoir data sources. During this one day workshop presentation, the instructor will place significant emphasis on measurement quality, recognizing good and bad data, and will provide a critical review of core analysis laboratory reports and standards. Learning sessions are reinforced by practical tutorials and examples.

Topics include:

- Core damage and its impact:
  - wettability alteration
  - clay damage
- Routine core analysis
  - why different porosity methods give different results
  - air and Klinkenberg permeability
- Water Saturations
  - Archie parameters: cementation exponent and resistivity index methods and interpretation;
  - Waxman-Smiths parameters
  - how to identify and correct lab data for experimental artefacts
  - applications of Dean-Stark water saturation measurements
- Capillary pressure
  - capillary pressure tests – what to expect and why the data differ
  - integrating and scaling  $P_c$  data
  - quality control and when to eliminate data
- Core Analysis under Stress
  - porosity compaction
  - permeability at stress,
  - pore volume compressibility