



Geochemical Techniques for Solving Reservoir Management and Field Development Problems - GTS

COURSE

About the Course

During field development and production, numerous problems can be solved through integration of geochemical, geological, and engineering data. Geochemistry and geochemical approaches for solving these problems are appealing for several reasons.

1. They provide an independent line of evidence that can help resolve ambiguous geological or engineering data. Example: geochemical data can reveal whether small differences in reservoir pressure reflect the presence of a barrier between the sampling points.
2. They are far less expensive than engineering alternatives. Example: geochemical allocation of commingled production costs only 1-5% as much as production logging.
3. They have applicability where other approaches do not. Example: geochemical allocation of commingled production can be performed on highly-deviated or horizontal wells and on wells with electrical submersible pumps - well types not amenable to production logging.

This course explains how geochemistry complements other reservoir management tools. Case studies and exercises illustrate key points. Computer-based exercises illustrate the utility of certain key software packages. Sampling pitfalls and sources of contamination are discussed. The course will NOT cover PVT (Pressure-Volume-Temperature) relationships or equation of state calculation. One personal computer is provided, at additional cost, for each two participants.

Target Audience

Development geologists, petroleum engineers, managers, and technical personnel.

You Will Learn

Participants will learn how to:

- Use mud gas isotopes to identify and characterize pay zones
- Use the geochemistry of produced fluids (oil, gas, water) and/or core material to: identify missed pay, assess reservoir compartmentalization, allocate commingled production, identify completion problems (tubing leaks, poor cement jobs, etc.), characterize induced fractures (e.g., fracture height), monitor the progression of floods (water, gas, or steam), predict vertical and lateral variations in fluid viscosity and gravity, and identify the geological processes which control fluid properties in a given field

- Use certain key software packages (including, PeakView, ReserView, OilUnmixer, Excess Pressure calculations, etc.)

Course Content

- Using fluid compositions as natural tracers for tracking fluid movement and compartmentalization
- Understanding processes that cause compositional differences between fluids (e.g., differences in source facies, source maturity, biodegradation, water washing, evaporative fractionation, etc.)
- Integrating geochemical, geological, and engineering data to identify missed pay, characterize reservoir compartmentalization, allocate commingled production, identify well completion problems, predict fluid viscosity/gravity, and monitor floods
- Basics of oil, water, gas, and mud gas compositional analyses

Product Details

Categories: [Upstream](#)

Disciplines: [Geology](#)

Levels: [Intermediate](#)

Product Type: [Course](#)

Formats Available: [In-Classroom](#)

Instructors: [PetroSkills Specialist](#) [Mark McCaffrey](#)