

PRACTICAL RESERVOIR MANAGEMENT AND SURVEILLANCE TECHNIQUES FOR PRIMARY, SECONDARY, AND TERTIARY RECOVERY PROJECTS

Workshop Description

Primary and secondary production schemes generally result in recoverable reserves in the range of 10 to 45%. Meeting the recovery target forecast at the time of project development requires the implementation of a reservoir management plan that includes project surveillance at all levels (well, pattern, producing horizon, area, and field), both surface and subsurface. Reserves additions via new discoveries have been declining steadily in the last decades, and the increase of recovery factors from mature oilfields in known basins will be critical to meeting growing market demand. An increase in recovery factors above the initial forecasts can be achieved through the use of new tools and techniques in primary and secondary operations, and step increases can be obtained through the implementation of Enhanced Oil Recovery (EOR) techniques. Implementation and continued focus on reservoir management and surveillance is even more important in EOR than in conventional operations. This workshop will provide participants the opportunity to review and learn the elements of comprehensive reservoir surveillance for both conventional and EOR projects.

WORKSHOP CONTENT

- Review of PVT Fundamentals and Retrograde Behavior
- QA/QC of Laboratory PVT Data
- Material Balance analysis using PVTi Software
- Basic Concepts of Equation-of-State (EOS)
 - EOS Modeling
 - The PREOS
- Data Generation for Flow Simulation in EOS Modeling
- Reservoir Modeling and History Matching Practices
- Gas- Condensate Reservoir Modeling
 - EOS Model Fine Tuning
 - Heavy End Splitting (SCT Model)
 - Regression Procedure for Gas-Condensate System
- Grouping
 - Drivers (Run Time, Gas Plant Modeling)
 - Grouping in PVTi
- Creating and Exporting PVT Input Deck to Simulators
- Case Studies
 - PI Reduction in Gas-Condensate Wells
 - Use of Pseudo-Black Oil and Pseudo Compositional Model
 - Grid Block Size Sensitivity in Compositional Model
 - Full Field versus Fine Sector Modeling
 - Sensitivity to Number of Components

In conducting this workshop, the instructors plan to:

- (1) Spend most of the time discussing the practical aspects of project surveillance,
- (2) Discuss the impact of reservoir management and surveillance on the project economics, and
- (3) Provide each course attendee a workbook containing copies of the instructors' PowerPoint presentations and solutions to the class problems.

Duration and Scope

This is a five (5) days high-level workshop, which involves discussion of issues related to reservoir surveillance and management techniques. An entire day is devoted to discuss basics of reservoir surveillance including philosophy and methodology of surveillance, and critical aspects of well and facilities monitoring. This workshop also includes discussion of issues related to primary recovery projects. There is an in-depth discussion of various issues related to monitoring of secondary recovery projects; and different tertiary recovery projects; like chemical/ microbial projects; gas injection, steam injection and air injection projects. Different case histories are included in this workshop to facilitate the understanding of aspects involved in monitoring these projects. This workshop also includes discussion about latest development in surveillance technology; like specialized monitoring techniques, and integration of gathered information in geological and reservoir models. Case studies are included to elaborate on specialized monitoring techniques such as 4D seismic, etc. Several practical and useful classroom problems are included for the workshop attendees to make this a hands-on practical workshop.

Who Should Attend

This five (5) days workshop is custom-designed for petroleum engineers, reservoir engineers, production engineers, facilities engineers, managers, and other professionals involved or interested in practical reservoir surveillance and management techniques for primary, secondary and tertiary oil recovery projects for improving oil recovery.

Workshop Requirements

Each workshop attendee (student) should bring their own notebook computer to work on the class problems. Class room should be equipped with power strips, for students to plug in their notebook computers, and a projector for instructors to project their PowerPoint slides.

Workshop Manual

Each workshop attendee will be provided a workbook containing copies of the instructors' PowerPoint presentations, and solutions to the class problems.

Workshop Instructors

This custom designed workshop will be conducted by our high-level and seasoned consultants, with extensive knowledge and experience in the subject matter as well as in conducting training programs around the world.

Language of Instructions

This workshop will be conducted in the English language. However, if desired by the client, one of our bi-lingual consultants can be present throughout the workshop for the benefit of those attendees who are not fluent in the English language. This workshop can be customized further to meet the needs of the client's professionals and managers.