



Chemical Enhanced Oil Recovery Fundamentals - EORC

COURSE

About the Course

This course gives an overview of oil recovery processes that involve the use of polymer, surfactant, alkali, gel, and a combination of them. Furthermore, it reviews reservoir engineering fundamentals and describes the principles for a variety of chemical enhanced oil recovery processes. The current status of these technologies is discussed and guidelines are presented for initial screening for each process corresponding to particular field conditions. Examples of laboratory and field performances are presented. Simulation exercises are used for each process.

This course covers conventional reservoirs.

Target Audience

Engineers, geoscientists, management personnel or other technical personnel with at least a B.S. degree and some experience in reservoir engineering. The course benefits individuals who are responsible for the design, implementation and management of chemical EOR projects. However, the contents of this course are also beneficial for other technical personnel involved in numerical simulation studies, screening, and planning of EOR applications. This course may interest new recruits as well as experienced professionals who want to gain a better understanding of the concepts, practices, benefits, and limitations of chemical EOR methods.

You Will Learn

Participants will learn how to:

- Evaluate benefits and limitations of different chemical EOR processes
- Select laboratory tests and perform scoping simulations for pilot and field designs
- Screen these techniques for particular fields
- Set expectations on incremental oil recoveries and the economics
- Determine impact of these recovery techniques on production facilities and personnel training

Course Content

- Review of areal and vertical sweep efficiencies
- Heterogeneity and vertical sweep efficiency
- Residual oil saturation

- Enhanced Oil Recovery (EOR) methods
- Chemical EOR methods
- Polymer flooding - polymers and their properties
- Laboratory screening
- Polymer flood field design and example field results
- Overview of reservoir simulators for polymer flooding
- Example simulations
- Surfactant/polymer (SP) methods
- Surfactant-brine-oil phase behavior
- Microemulsion properties
- Capillary desaturation and oil mobilization
- Laboratory screening
- Field examples and designs
- Reservoir simulators for SP
- Example simulations
- Alkaline/Surfactant/Polymer (ASP) methods
- Effect of alkali on phase behavior
- Laboratory screening
- Field examples and designs
- Reservoir simulators for ASP
- Example simulations
- Performance Control/Water Shutoff Methods
- Overview of conformance control options (i.e. bulk gel, CDG, PPG, Bright Water)
- Gel properties
- Laboratory screening
- Field examples and designs
- Reservoir simulators for conformance control methods

Product Details

Categories: Upstream

Disciplines: Reservoir Engineering

Levels: Specialized

Product Type: Course

Formats Available: In-Classroom

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