

Enhanced Oil Recovery Fundamentals Training Course

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Overview

Enhanced Oil Recovery Fundamentals Training Course is a one-week foundation course for graduate reservoir and petroleum engineers, junior production staff, geoscientists, laboratory personnel, and asset teams who leave with an EOR Fundamentals Method Selection Workbook. Participants connect enhanced oil recovery method families, residual oil and recovery mechanisms, displacement and sweep efficiency, miscible and immiscible gas injection, and chemical flooding fundamentals with thermal methods, screening data, risks, monitoring, and decisions. Agile Leaders Training Center presents foundation enhanced oil recovery.

Who Should Attend

- Early-career reservoir engineering functions responsible for recovery concepts and reservoir evidence
- Petroleum and production functions responsible for injection, well response, and field performance
- Geoscience functions responsible for reservoir architecture, heterogeneity, and fluid distribution
- Laboratory functions responsible for fluid, rock, compatibility, and displacement observations
- Asset and planning functions responsible for comparing recovery options and data needs

The course assumes participants can read basic reservoir and production data, and it leaves out detailed pilot design, full-field simulation, advanced laboratory design, project economics, and scale-up assurance.

Departments and Industries

The course supports departments and industries that compare methods for improving recovery from subsurface fluid systems.

- Oil and gas reservoir development and production
- Geothermal and subsurface fluid-injection projects
- Reservoir laboratories and chemical-service organizations
- Field development, production technology, and asset planning
- Engineering consulting, applied research, and technical training functions

Learning Objectives

By the end of this course, participants will be able to:

- Compare primary, secondary, and enhanced recovery
- Analyze residual oil, mobility, displacement, and sweep
- Apply basic thermal, gas, and chemical screening criteria
- Use reservoir, fluid, laboratory, and field evidence
- Evaluate injectivity, conformance, monitoring, and risks
- Prioritize methods and further data requirements

Course Agenda

Day 1: Frame Enhanced Recovery

- Primary, Secondary, and Enhanced Recovery Comparison Map
- Residual Oil and Remaining-Oil Evidence Diagram
- Displacement and Volumetric Sweep Efficiency Worksheet
- Mobility Ratio and Fractional-Flow Concept Sheet
- Capillary, Viscous, and Gravity Force Balance Map

Day 2: Compare Thermal and Gas Methods

- Steamflood and In-Situ Combustion Mechanism Chart
- Viscosity Reduction and Heat-Loss Screening Table
- Miscible and Immiscible Gas Injection Comparison
- Minimum Miscibility Pressure Evidence Register
- Gas Availability, Injectivity, and Containment Checklist

Day 3: Compare Chemical Methods

- Polymer Mobility-Control Selection Sheet
- Surfactant Interfacial-Tension Reduction Map
- Alkaline Reaction and Emulsion Risk Register
- Alkaline-Surfactant-Polymer Sequence Diagram
- Chemical Compatibility, Adsorption, and Retention Checklist

Day 4: Screen Evidence and Decisions

- Reservoir and Fluid EOR Screening Data Table
- Coreflood, Slim-Tube, and Compatibility Evidence Map
- Injectivity, Conformance, and Surveillance Indicator Board
- Technical Risk and Uncertainty Comparison Matrix
- EOR Method Ranking and Data-Gap Register

Day 5: Practice EOR Method Comparison

- Suggested Exercise: Diagnose Residual Oil and Recovery Limits
- Suggested Exercise: Compare Thermal and Gas Applicability
- Suggested Exercise: Compare Polymer and Surfactant Options
- Suggested Exercise: Rank Monitoring, Risk, and Data Needs
- Capstone Exercise: Complete the EOR Fundamentals Method Selection Workbook

Practical Exercises

The course uses suggested activities to turn reservoir and fluid evidence into a traceable first comparison of enhanced-recovery methods.

- Suggested activity: map residual oil, mobility ratio, displacement efficiency, and sweep limitations for a mature reservoir.
- Suggested activity: compare steam, miscible gas, immiscible gas, polymer, surfactant, and alkaline mechanisms against basic conditions.
- Suggested activity: organize laboratory, simulation, injectivity, conformance, and surveillance evidence with uncertainty notes.
- Suggested activity: rank method families and identify the next data, test, or study required.

FAQs

Who suits enhanced oil recovery fundamentals training, and what does it assume?

Enhanced oil recovery fundamentals training suits graduate reservoir and petroleum engineers, junior production staff, geoscientists, laboratory personnel, and asset teams. It assumes participants can read basic reservoir and production data.

How do EOR fundamentals differ from advanced pilot design and project screening?

EOR fundamentals explain mechanisms, method families, basic applicability, evidence, and risks. Advanced pilot design defines patterns, volumes, measurements, success criteria, economics, contingencies, decision gates, and scale-up assurance.

What are the main enhanced oil recovery method families?

The main enhanced oil recovery method families are thermal recovery, miscible or immiscible gas injection, and chemical flooding using polymers, surfactants, alkaline agents, or combined sequences.

How do displacement efficiency and sweep efficiency affect EOR?

Displacement efficiency describes how effectively injected fluid mobilizes oil where it contacts the reservoir. Sweep efficiency describes how much of the reservoir volume the injected fluid reaches.

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What evidence is needed before comparing EOR methods?

Method comparison uses reservoir depth, temperature, pressure, rock and fluid properties, residual oil, heterogeneity, prior flood response, injectivity, laboratory evidence, operational constraints, monitoring capability, and uncertainty.

Conclusion

Participants take back an EOR Fundamentals Method Selection Workbook containing recovery mechanisms, method comparisons, screening inputs, evidence, risks, monitoring indicators, and data gaps. The workbook changes separate concepts and measurements into a traceable first selection discussion. It supports technical orientation, multidisciplinary reviews, study planning, and decisions about laboratory tests, simulation, or pilot work.

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