

NEW OPPORTUNITIES IN OLD FIELDS

RSE033

COURSE OVERVIEW

There is nearly always upside in mature oil and gas fields that may be particularly profitable because of existing wells and infrastructure. The keys to successful exploitation of new opportunities includes Recognition of the new opportunities, Quantification of the reserves, Evaluation of alternative methods of exploitation, and Economic analysis of depletion scenarios

Case studies and class problems address each of these key items and illustrate how new opportunities can be recognized and evaluated for many different types of oil and gas reservoirs. The computer-based problems will provide the delegate with utility programs and solution templates that can be used in the real world. Appendix Topics: additional information for student reference or class review as appropriate, including decline curve analysis, rock and fluid properties, material balance, fluid displacement and coning, and reservoir simulation.

COURSE OBJECTIVES

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

- Recognize and evaluate new opportunities in mature oil and gas fields.
- Quantify reserves and assess value potential.
- Analyze alternative exploitation methods and redevelopment strategies.
- Perform economic analysis of depletion scenarios.
- Apply computer-based tools and templates for real-world applications.
- Understand additional topics such as decline curve analysis, rock and fluid properties, material balance, fluid displacement and coning, and reservoir simulation.
- Identify under-performing areas and recommend interventions.
- Assess incremental reserves and reserve acceleration.
- Evaluate the impact of evolving technology and operating practices.
- Interpret limited data and link practices to new opportunities.
- Classify reserves and conduct risk assessments.
- Evaluate the value of new information (VOI) and ensure data quality.
- Understand reservoir heterogeneity, compartmentalization, and 3D seismic application.
- Exploit reservoirs through techniques like fluid injection, waterflood redevelopment, infill drilling, and horizontal/multilateral wells.
- Implement re-completions in stratified reservoirs and de-bottleneck gathering systems.
- Manage produced water and explore co-production for enhanced recovery.

WHO SHOULD ATTEND

Reservoir and production engineers, development geoscientists, asset team leaders, acquisition and divestiture managers, and other technical personnel involved in evaluation and exploitation of reserves in mature fields.

COURSE DURATION

5 Working Days

COURSE OUTLINES

Day 1

- Pre course evaluation.
- How to recognize production and reservoir characteristics of old fields
- The potential for increasing reserves and value
- How to conduct reviewing existing recovery factors
- How to check consistency with RF that can be realized with effective utilization of the natural drive mechanism(s).
- Impact of the appropriate use of improved recovery methods.
- How to Identify under-performing wells or field areas and recommend appropriate intervention

Day 2

- Determine the upside potential of a field,
- Distinguishing between incremental reserves and reserve acceleration
- Examine alternative re-development strategies by studying case histories
- Working example industry problems
- Why Opportunities Emerge
 - Nature of reserves growth
 - Operating practices and their effect on new opportunities
 - The contribution of evolving technology

Day 3

- Recognizing opportunities
 - Reservoir characteristics
 - Production performance indicative of new opportunities
 - Unraveling limited data
 - Linking operator practices to new opportunities

- Reserves versus upside potential:
 - Review of reserve classification
 - Risk assessment
 - Value of new information, VOI

Day 4

- Value of new information, VOI (cont'd)
- Data quality control and integration
- Reservoir heterogeneity and new opportunities
 - Categories of heterogeneity and their implications for new opportunities
 - Reservoir compartmentalization
 - Application of 3d seismic in old fields
 - Identification of net pay
 - Fractured reservoirs

Day 5

- Exploitation opportunities
 - Reservoir enhancement through fluid injection
 - Redevelopment of mature waterfloods
 - Infill drilling
 - Its utility
 - Application
 - Value
 - Horizontal and multilateral wells
 - Their use in displacement projects
 - Re-completions in stratified reservoirs
 - De-bottlenecking gathering systems
 - Produced water management
 - Co-production of water for improved recovery
- Post course evaluation.

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