

## N969: Optimizing Waterfloods

Instructor(s): Rob Lavoie / Brian Weatherill

## Format and Duration

Classroom - 3 Days

Virtual - 6 Sessions

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### Summary

Course participants will acquire an understanding of the basic mechanisms that result in greater or lesser degrees of success for waterfloods. They will learn about methods to modify these mechanisms and how to make decisions to improve waterflood performance. Practical design considerations are discussed and worked examples are provided.

### Learning Outcomes

Participants will learn to:

1. Evaluate important water flood performance issues.
2. Construct and use a fractional flow curve for water flood design, forecasts, diagnostics, and enhancement.
3. Assess practical water flood surveillance methods and make maintenance (optimization) decisions.
4. Judge whether your water flood is performing too slowly and propose methods of accelerating and enhancing waterflood performance.
5. Evaluate how horizontal well technologies represent a "Game Changer" for existing and future waterflood schemes.
6. Calculate vertical and horizontal well steady state water injection rates.
7. Assess unique economic issues associated with waterfloods.
8. Evaluate knowledge gained from a number of classic waterfloods.
9. Evaluate the unique characteristics of decline curve analysis for waterflood remaining reserves assessments.

### Training Method

This is a classroom or virtual classroom course comprising a mixture of lectures, discussions, case studies, and practical exercises.

### Who Should Attend

This course is directed towards reservoir engineers, non-reservoir engineers and engineering managers involved in making decisions about improving an existing waterflood.

### Course Content

#### DAY 1

- Introduction
- Physics of Waterflooding

#### DAY 2

- Water Quality and Injectivity Issues

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- Waterflood Surveillance
- Pattern Design and Alteration

### DAY 3

- Modern Waterflood Improvement and Optimization Methods
- Waterflood Economic Considerations
- Field Examples