

Water Flooding Design, Management and Monitoring □  
Certification by IFP Training or Next SLB

*Cairo (Egypt)*

*19 - 30 October 2025*

UK Traininig

**PARTNER**



# Water Flooding Design, Management and Monitoring – Certification by IFP Training or Next SLB

Code: OG28 From: 19 - 30 October 2025 City: Cairo (Egypt) Fees: 6800 Pound

## Introduction

Water flooding is a fundamental secondary oil recovery technique that plays a crucial role in maintaining reservoir pressure and enhancing hydrocarbon recovery. This comprehensive training course—Water Flooding Design, Management and Monitoring - Certification by IFP Training or Next SLB—equips engineers and petroleum professionals with the practical tools and methodologies to design, manage, and monitor effective water flooding projects.

Aligned with the latest IFP Training and Next SLB standards, this program emphasizes real-world applications, field-proven practices, and industry best practices to optimize field performance and maximize recovery efficiency.

## Course Objectives

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

- Understand the fundamentals and mechanics of water flooding and its role in enhanced oil recovery EOR.
- Design and implement efficient water flooding schemes tailored to reservoir conditions.
- Monitor and manage water injection operations to ensure project success.
- Analyze reservoir performance and identify strategies for improving sweep efficiency.
- Address challenges such as water breakthrough, conformance control, and injectivity issues.

## Course Outlines

### Day 1: Fundamentals of Water Flooding

- Introduction to water flooding as an EOR technique.
- Understanding reservoir drive mechanisms and displacement processes.
- Historical background and real-world applications in oil fields.
- Key rock and fluid properties influencing water flooding.
- Critical recovery efficiency factors: mobility ratio, areal sweep, vertical conformance.

### Day 2: Screening and Feasibility Analysis

- Criteria for selecting suitable reservoirs for water flooding.
- Conducting economic and technical feasibility studies.
- Choosing appropriate water sources and assessing quality.
- Case studies of successful and unsuccessful water floods.
- Navigating environmental and regulatory challenges.

### Day 3: Water Flooding Pattern Design

- Types of injection well patterns: five-spot, nine-spot, line drive, peripheral.



- Determining well spacing and evaluating pattern efficiency.
- Volumetric calculations and sweep efficiency estimates.
- Impact of reservoir heterogeneity on pattern selection.
- Designing patterns for fractured vs. homogeneous reservoirs.

#### Day 4: Injection System Design

- Key surface and subsurface components of injection systems.
- Techniques for water treatment and filtration.
- Managing corrosion and scaling in injection systems.
- Controlling injection pressure and flow rates.
- Leveraging simulation models for injection system design.

#### Day 5: Reservoir Simulation for Water Flooding

- Introduction to dynamic reservoir simulation.
- History matching and calibrating models with real data.
- Using predictive models for performance forecasting.
- Conducting sensitivity analyses for injection parameters.
- Overview of commercial simulators: ECLIPSE, CMG.

#### Day 6: Monitoring and Surveillance Techniques

- Key KPIs for water flooding project performance.
- Techniques for pressure monitoring and flow analysis.
- Utilizing tracer studies and interwell communication tests.
- Advanced monitoring tools: logging, 4D seismic.
- Developing comprehensive surveillance plans.

#### Day 7: Production Performance Analysis

- Evaluating production response to water injection.
- Analyzing water cut trends and breakthrough timing.
- Applying material balance and fractional flow analysis.
- Identifying channeling and unswept zones.
- Tools like decline curves and WOR plots for performance evaluation.

#### Day 8: Conformance Control and Optimization

- Causes and impact of poor sweep efficiency.
- Implementing zonal isolation and mechanical control.
- Chemical solutions: polymers, gels, surfactants.
- Adjusting injection patterns and rates to optimize recovery.
- Case studies on successful conformance improvement.

#### Day 9: Troubleshooting and Risk Management

- Common issues: injectivity loss, scaling, souring.
- Performing root cause analyses and developing mitigation strategies.



- Ensuring well integrity and preventing injection system failures.
- Safety protocols and emergency response measures.
- Lessons learned from failed projects to avoid future risks.

## Day 10: Project Integration and Wrap-Up

- Developing a life-cycle plan for water flooding projects.
- Integrating water flooding with other EOR methods.
- Group workshop: designing a comprehensive water flooding project.
- Reviewing key tools, methodologies, and final takeaways.
- Certificate presentation and course wrap-up session.

## Why Attend this Course: Wins & Losses!

- Gain a solid foundation in water flooding mechanics and applications.
- Design and optimize injection patterns and operational strategies.
- Enhance surveillance skills to monitor field performance and improve recovery efficiency.
- Troubleshoot operational challenges using industry-proven tools and techniques.
- Apply simulation models to support data-driven decisions and maximize field performance.
- Learn from real-world case studies for immediate application.
- Boost your credibility with a certification recognized by IFP Training or Next SLB.
- Future-proof your career in the evolving EOR landscape and complex reservoirs.

## Conclusion

Water flooding remains a powerful method for enhancing oil recovery and ensuring long-term reservoir management. This certification course—aligned with the highest industry standards—provides participants with the skills and knowledge to design, manage, and monitor successful water flooding projects.

Whether you're an engineer seeking advanced techniques or a field professional working in secondary recovery, this program offers the insights and confidence to deliver high-impact results. Start your journey to become a trusted expert in water flooding and enhanced oil recovery EOR today!





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International House 185 Tower Bridge  
Road London SE1 2UF United Kingdom



+44 7401 1773 35  
+44 7480 775526



[Sales@blackbird-training.com](mailto:Sales@blackbird-training.com)



[www.blackbird-training.com](http://www.blackbird-training.com)

