Oilfield Water Injection and Waterflood Management Training Course

OGT-1095 · 5 days · 15 CPD hours · English

OVERVIEW

The **Oilfield Water Injection and Waterflood Management Training Course** is a specialised professional development programme designed to strengthen participants' technical knowledge and operational capabilities in managing water injection systems and improving oilfield waterflooding performance. Water injection is one of the most widely applied secondary recovery techniques in the oil and gas industry, supporting reservoir pressure maintenance, improving displacement efficiency and extending the productive life of oil reservoirs.

As oilfields mature and natural reservoir pressure declines, maintaining production becomes increasingly challenging. Water injection provides an effective approach to sustaining reservoir energy by introducing treated water into designated injection wells. However, achieving successful waterflood performance requires more than simply injecting water into a reservoir. It involves understanding reservoir characteristics, maintaining injection water quality, selecting appropriate filtration and deaeration systems, monitoring injection pressures and rates, and continuously evaluating reservoir response.

This course explores the engineering principles, operational practices and management strategies involved in designing, operating and optimising oilfield water injection systems. Participants will examine waterflooding mechanisms, injection water treatment requirements, filtration technologies, oxygen removal, corrosion and scaling prevention, injection well integrity, reservoir surveillance and waterflood performance evaluation.

Particular attention is given to the relationship between surface water treatment facilities and subsurface reservoir performance. Participants will learn how suspended solids, dissolved gases, bacteria, incompatible water chemistry and inadequate filtration can affect injectivity, formation damage and long-term waterflood efficiency. The programme also examines how injection water quality can be managed through appropriate treatment processes, operational controls and monitoring procedures.

As part of the **Water Treatment and Management for Oil & Gas** category, this programme connects water treatment engineering with reservoir management and production optimisation. It addresses the technical and operational challenges faced by oilfield professionals responsible for injection water preparation, treatment facilities, pumping systems, distribution networks and reservoir pressure maintenance.

Delivered through the professional training approach of the Oil & Gas Training Institute, the course combines technical explanations, practical exercises, industry-based case studies and operational scenarios. Participants will develop the ability to evaluate water injection systems, identify performance limitations, interpret monitoring data and recommend improvements that support reliable operations.

By the end of the programme, participants will have a stronger understanding of how to manage water injection operations, maintain suitable injection water quality and implement effective waterflood management strategies to

improve reservoir performance and support sustainable oilfield production.

OBJECTIVES

By completing this training course, participants will be able to:

1. **Explain** the fundamental principles of water injection and waterflooding, including their role in secondary oil recovery and reservoir pressure maintenance.

2. **Evaluate** reservoir characteristics, formation properties and fluid compatibility requirements when developing water injection strategies.

3. **Identify** injection water quality requirements and assess the effects of suspended solids, dissolved oxygen, bacteria, scaling compounds and other contaminants on injection performance.

4. **Apply** appropriate water treatment techniques, including filtration, deaeration, chemical treatment and solids removal, to improve injection water quality.

5. **Analyse** water injection system components, including pumps, pipelines, manifolds, control valves, storage facilities and injection wells.

6. **Assess** injection rates, wellhead pressures, pressure differentials and injectivity trends to identify operational inefficiencies and potential formation damage.

7. **Interpret** waterflood surveillance information, including injection and production data, water cut trends, pressure measurements and waterflood performance indicators.

8. **Develop** practical approaches for controlling corrosion, scaling, biological activity, plugging and other water injection system problems.

9. **Evaluate** waterflood management strategies and recommend operational improvements to enhance sweep efficiency, injection reliability and reservoir recovery.

10. **Prepare** water injection optimisation and monitoring plans that support reservoir management objectives, operational safety and long-term production performance.

TRAINING METHODOLOGY

The Oilfield Water Injection and Waterflood Management Training Course uses a practical, technically focused learning methodology that connects water treatment operations with reservoir engineering and production management. The programme is structured to help participants understand the complete water injection process, from water sourcing and treatment to injection well performance and reservoir surveillance.

The training combines the following approaches:

Interactive Presentations and Technical Discussions

Experienced training facilitators explain the principles of water injection, waterflooding mechanisms, injection system configurations and reservoir pressure maintenance. Technical discussions explore the relationship between water

quality, injection performance and reservoir behaviour.

Practical Water Treatment Exercises

Participants examine water treatment requirements and work through practical exercises involving filtration, deaeration, oxygen removal, chemical dosing and injection water quality assessment. These activities help learners understand how treatment decisions influence injection system reliability.

Industry-Based Case Studies

Realistic oilfield scenarios are used to examine common challenges, including declining injectivity, formation plugging, corrosion, scaling, inadequate water treatment and uneven reservoir sweep. Participants evaluate the causes of these problems and develop suitable corrective actions.

Injection System Analysis Workshops

Participants review the operation of water injection facilities, including pumps, pipelines, filtration units, treatment vessels, manifolds and injection wells. Practical exercises focus on identifying equipment limitations and understanding system performance.

Reservoir Surveillance and Data Interpretation

Training activities introduce participants to injection rate monitoring, pressure trends, water cut analysis, injectivity assessment and waterflood performance indicators. Learners practise interpreting operational information to support better technical decisions.

Scenario-Based Problem-Solving

Participants work through simulated operational situations involving changing injection pressures, declining water quality, abnormal injection rates and suspected formation damage. They assess possible causes and recommend appropriate operational responses.

Group Activities and Knowledge Exchange

Collaborative discussions allow participants to share professional experiences, compare waterflood management approaches and examine how different operational environments influence water injection strategies.

Practical Implementation Planning

The programme concludes with exercises in which participants develop recommendations for improving injection water quality, operational monitoring, injection reliability and reservoir performance.

ORGANISATIONAL IMPACT

Effective water injection and waterflood management can significantly influence oilfield production performance, reservoir recovery and operating costs. Organisations that develop strong technical capabilities in these areas are better positioned to maintain injection system reliability, manage reservoir pressure and address production challenges in mature oilfields.

This course supports organisational development through the following improvements:

Improved Waterflood Performance

Participants develop a stronger understanding of waterflooding mechanisms, injection distribution and reservoir response. This knowledge can help organisations identify opportunities to improve sweep efficiency, reduce inefficient injection and support more effective reservoir pressure maintenance.

Enhanced Injection Water Quality Management

Inadequate injection water quality can contribute to formation damage, reduced injectivity, corrosion and equipment deterioration. The course strengthens organisational capabilities in filtration, deaeration, contaminant control and water quality monitoring.

Reduced Operational Problems

A better understanding of injection system behaviour helps personnel identify potential issues before they develop into major operational disruptions. Improved monitoring and maintenance practices can reduce equipment failures, plugging incidents and unnecessary production interruptions.

Better Reservoir Management Decisions

By developing skills in injection and production data interpretation, organisations can improve their ability to evaluate waterflood performance, recognise changing reservoir conditions and recommend appropriate adjustments to injection strategies.

Improved Asset Reliability

The course covers operational requirements for injection pumps, pipelines, treatment equipment, valves and injection wells. This knowledge supports better equipment management, maintenance planning and system reliability.

Stronger Corrosion and Scaling Control

Participants learn how water chemistry, dissolved gases and biological activity can affect injection facilities and subsurface formations. This supports more effective chemical treatment programmes and asset integrity management.

More Effective Operational Coordination

Water injection involves cooperation between reservoir engineers, production teams, water treatment specialists and maintenance personnel. The programme encourages a more integrated understanding of responsibilities across these functions.

Better Cost and Resource Management

Optimised injection operations can help organisations manage energy consumption, treatment chemicals, maintenance activities and water handling requirements more efficiently.

Support for Long-Term Production Objectives

By improving water injection practices and reservoir surveillance, organisations can strengthen their ability to manage mature assets, maintain production objectives and make informed decisions about future field development.

PERSONAL IMPACT

The Oilfield Water Injection and Waterflood Management Training Course provides participants with technical knowledge and practical capabilities that can strengthen their professional performance in oilfield operations, reservoir management and water treatment engineering.

Participants can expect the following benefits:

Advanced Technical Understanding

Develop a comprehensive understanding of water injection systems, waterflooding mechanisms, reservoir pressure maintenance and injection water treatment requirements.

Improved Water Treatment Expertise

Gain practical knowledge of filtration, deaeration, suspended solids removal, oxygen control, chemical treatment and water quality management.

Stronger Operational Problem-Solving Skills

Learn to investigate common injection problems, including declining injectivity, pressure fluctuations, plugging, scaling, corrosion and equipment performance issues.

Better Reservoir Performance Assessment

Improve the ability to interpret injection rates, pressure measurements, water cut trends and other surveillance information used in waterflood management.

Increased Confidence in Technical Decisions

Develop the confidence to evaluate injection system performance, identify operational weaknesses and communicate appropriate corrective recommendations.

Greater Understanding of Equipment and Processes

Build familiarity with injection pumps, treatment facilities, filtration systems, pipelines, manifolds, control equipment and injection well operations.

Improved Cross-Functional Communication

Understand how water treatment, production operations and reservoir engineering activities influence one another, supporting more effective technical collaboration.

Enhanced Career Development

Strengthen professional knowledge relevant to water injection operations, production engineering, reservoir surveillance, oilfield water treatment and asset management.

Practical Workplace Application

Acquire methods and analytical approaches that can be adapted to actual oilfield environments, helping participants contribute more effectively to operational improvement initiatives.

WHO SHOULD ATTEND

This course is designed for professionals involved in oilfield water treatment, water injection operations, reservoir management, production engineering and petroleum asset optimisation.

It is particularly suitable for:

- **Reservoir Engineers:** Professionals responsible for reservoir pressure maintenance, waterflood design, injection strategies and recovery performance evaluation.
- **Production Engineers:** Specialists managing production and injection performance, well optimisation and operational efficiency.
- **Water Treatment Engineers:** Engineers responsible for injection water preparation, filtration, deaeration and water quality control.
- **Water Injection Engineers:** Professionals involved in injection system design, operation, monitoring and optimisation.
- **Petroleum Engineers:** Technical professionals seeking to strengthen their understanding of secondary recovery methods and waterflood management.
- **Process Engineers:** Specialists responsible for oilfield water treatment facilities, separation systems and process optimisation.
- **Production Supervisors:** Personnel overseeing daily injection operations, equipment performance and production support activities.
- **Oilfield Operations Managers:** Managers responsible for coordinating injection facilities, production operations, maintenance and operational performance.
- **Corrosion and Integrity Engineers:** Specialists involved in corrosion prevention, chemical treatment, pipeline integrity and equipment protection.
- **Facilities Engineers:** Professionals responsible for injection pumps, pipelines, filtration equipment, storage systems and water handling infrastructure.

- **Reservoir Surveillance Specialists:** Professionals monitoring injection performance, pressure trends, water breakthrough and reservoir response.
- **Maintenance and Reliability Engineers:** Personnel responsible for maintaining injection equipment and improving the reliability of water injection facilities.
- **Technical Consultants:** Consultants supporting waterflood projects, oilfield water treatment, production optimisation and reservoir management.
- **Oil and Gas Project Engineers:** Professionals involved in planning, developing and upgrading water injection facilities and associated infrastructure.

The programme is also valuable for technical graduates, newly appointed engineers and professionals seeking to expand their knowledge of oilfield water injection and waterflood management.

COURSE OUTLINE

Fundamentals of Oilfield Water Injection and Waterflooding

Injection Water Quality, Treatment and Preparation

Water Injection Facilities, Equipment and Operational Management

Reservoir Surveillance, Injectivity and Waterflood Performance Optimisation

Integrated Waterflood Management, Risk Control and Operational Improvement

SCHEDULED DATES

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Abu Dhabi, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Abuja, Nigeria	In person	On request
04 - 08 Jan 2027	Accra, Ghana	In person	On request
04 - 08 Jan 2027	Addis Ababa, Ethiopia	In person	On request
04 - 08 Jan 2027	Al Ain, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Al Khobar, Saudi Arabia	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Alberta, Canada	In person	On request
04 - 08 Jan 2027	AlUla, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Amman, Jordan	In person	On request
04 - 08 Jan 2027	Amsterdam, The Netherlands	In person	On request
04 - 08 Jan 2027	Athens, Greece	In person	On request
04 - 08 Jan 2027	Baku, Azerbaijan	In person	On request
04 - 08 Jan 2027	Barcelona, Spain	In person	On request
04 - 08 Jan 2027	Berlin, Germany	In person	On request
04 - 08 Jan 2027	Boston, USA	In person	On request
04 - 08 Jan 2027	Brussels, Belgium	In person	On request
04 - 08 Jan 2027	Budapest, Hungary	In person	On request
04 - 08 Jan 2027	Cairo, Egypt	In person	On request
04 - 08 Jan 2027	Cape Town, South Africa	In person	On request
04 - 08 Jan 2027	Casablanca, Morocco	In person	On request
04 - 08 Jan 2027	Dammam, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Dhahran, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Doha, Qatar	In person	On request
04 - 08 Jan 2027	Dubai, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Edinburgh, United Kingdom	In person	On request
04 - 08 Jan 2027	Edmonton, Canada	In person	On request
04 - 08 Jan 2027	Frankfurt, Germany	In person	On request
04 - 08 Jan 2027	Geneva, Switzerland	In person	On request
04 - 08 Jan 2027	Houston, USA	In person	On request
04 - 08 Jan 2027	Istanbul, Turkey	In person	On request
04 - 08 Jan 2027	Jakarta, Indonesia	In person	On request
04 - 08 Jan 2027	Jeddah, Saudi Arabia	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Jubail, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Khamis Mushait, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Kigali, Rwanda	In person	On request
04 - 08 Jan 2027	Kuala Lumpur, Malaysia	In person	On request
04 - 08 Jan 2027	Lisbon, Portugal	In person	On request
04 - 08 Jan 2027	Liverpool, United Kingdom	In person	On request
04 - 08 Jan 2027	London, United Kingdom	In person	On request
04 - 08 Jan 2027	Los Angeles, USA	In person	On request
04 - 08 Jan 2027	Luanda, Angola	In person	On request
04 - 08 Jan 2027	Madrid, Spain	In person	On request
04 - 08 Jan 2027	Manama, Bahrain	In person	On request
04 - 08 Jan 2027	Marbella, Spain	In person	On request
04 - 08 Jan 2027	Marrakech, Morocco	In person	On request
04 - 08 Jan 2027	Miami, USA	In person	On request
04 - 08 Jan 2027	Milan, Italy	In person	On request
04 - 08 Jan 2027	Munich, Germany	In person	On request
04 - 08 Jan 2027	Muscat, Oman	In person	On request
04 - 08 Jan 2027	Nairobi, Kenya	In person	On request
04 - 08 Jan 2027	New York, USA	In person	On request
04 - 08 Jan 2027	Nice, France	In person	On request
04 - 08 Jan 2027	Oslo, Norway	In person	On request
04 - 08 Jan 2027	Paris, France	In person	On request
04 - 08 Jan 2027	Port Louis, Mauritius	In person	On request
04 - 08 Jan 2027	Prague, Czech Republic	In person	On request
04 - 08 Jan 2027	Pretoria, South Africa	In person	On request
04 - 08 Jan 2027	Riyadh, Saudi Arabia	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Rome, Italy	In person	On request
04 - 08 Jan 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
04 - 08 Jan 2027	Sharm El Sheikh, Egypt	In person	On request
04 - 08 Jan 2027	Singapore, Singapore	In person	On request
04 - 08 Jan 2027	Stockholm, Sweden	In person	On request
04 - 08 Jan 2027	Tokyo, Japan	In person	On request
04 - 08 Jan 2027	Toronto, Canada	In person	On request
04 - 08 Jan 2027	Tromso, Norway	In person	On request
04 - 08 Jan 2027	Vienna, Austria	In person	On request
04 - 08 Jan 2027	Zagreb, Croatia	In person	On request
04 - 08 Jan 2027	Zurich, Switzerland	In person	On request
04 - 08 Jan 2027	Online, Virtual	Online	On request

CERTIFICATE