



Water Handling in Oil and Gas Production

ABOUT THE COURSE

The goal of this training is to provide the participants with vision, tools and knowledge of the main water handling systems typically encountered in upstream (E&P) production operations.

As oil fields mature, more water is produced. In addition to produced water, large quantities of seawater and water from other sources is treated and injected in waterflooding and other EOR projects. Therefore, water handling represents one of the biggest operating challenges and significant costs for most oilfield operators.

The course covers treating system designs of water handling projects - from produced water disposal to waterflooding and EOR projects. The theoretical and practical aspects of the main water related problems of suspended solids, mineral scales, corrosion, bacteria, and oily water will be reviewed. During the course participants will be introduced with basic theoretical and practical aspects of water quality requirements, quality control and monitoring.

As water production increases, more chemicals are used to maintain production. The course includes methods to determine the need for chemical treating, how to select the proper chemicals, and how the testing for chemical compatibility with

the formation is and other chemicals performed. The course will include how the usage of chemicals can prevent problems, improve production and economics, and extend the life of the system.

DESIGNED FOR

Facilities, research and development, production and operations engineers, managers, chemists, field supervisors- personnel involved with some aspects of a new or existing water disposal, waterflooding or other EOR projects and need to understand water related problems and their solutions, and those responsible for project implementation and monitoring.

YOU WILL LEARN

- The basics of oilfield water chemistry
- How to identify problems like suspended solids, oil, scale, bacteria and corrosion in water handling operations
- How to propose system design for long-term production, injection and disposal system life cycles
- How to identify, monitor and control system problems
- How to collect data to detect potential problems before system damage occurs
- To select and apply treating chemicals - scale inhibitors, corrosion inhibitors, H₂S and oxygen scavengers, water clarifiers, biocides, etc.

COURSE OUTLINE

- Water chemistry fundamentals
- Scale formation
 - Common scales
 - Prediction of scale formation
 - Prevention of scale formation
 - Case study
- Corrosion
 - Theory of corrosion
 - Corrosion rate prediction
 - Control methods
 - Monitoring
 - Case study
- Produced water subsurface discharge/disposal
 - Water disposal requirements
 - Water treatment technology principles
 - Treating chemicals
 - Monitoring
 - Case study
- Waterflooding
 - Water source selection
 - Factors affecting water quality
 - Injection water quality requirements- how good must injection water quality be
 - Water quality control and its importance in water flooding operations
 - System design
 - Data gathering and presentation of results
 - Monitoring
 - Case study
- Water treatment for EOR (polymer flooding, steam injection, hot water injection, alkaline flooding)
 - Water quality requirements
 - Typical problems in water quality maintenance
 - Monitoring aspects
 - Review of case histories