

Extended Reach Drilling Design and Operations Training Course

18 – 22 April 2027
Muscat

AGILE LEADERS
Training Center

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Ref: 1978_246213 **Date:** 18 – 22 April 2027 **Location:** Muscat **Fees:** 6500 Euro

Overview

Extended Reach Drilling Design and Operations Training Course is a one-week advanced course for drilling engineers, directional specialists, well planners, supervisors, rig managers, BHA engineers, and assurance personnel who leave with an ERD Delivery Assurance File. Participants integrate ERD candidate screening, trajectory limits, torque and drag, drillstring mechanics, hydraulics and ECD, high-angle hole cleaning, wellbore stability, rig capability, tubular running, and operational monitoring into one delivery basis. Agile Leaders Training Center presents extended reach drilling design and operations.

Who Should Attend

- Well planning functions responsible for ERD candidate screening, design assumptions, and technical limits
- Directional drilling functions responsible for trajectory delivery, steering systems, and downhole response
- Drilling engineering functions responsible for mechanical, hydraulic, cleaning, and stability envelopes
- Rig leadership functions responsible for equipment capability, operating practices, and execution readiness
- Completion and tubular functions responsible for casing, liner, and completion-string deployment
- Operations assurance functions responsible for risk controls, monitoring thresholds, and technical reviews

The course assumes participants already use drilling programs, directional surveys, hydraulics outputs, torque-and-drag models, or daily drilling reports at work, and it leaves out introductory directional drilling and vendor-specific tool maintenance.

Departments and Industries

The course supports departments and industries that plan, execute, assure, or enable long-step-out and high-angle well delivery.

- Oil and gas drilling, wells, and field development
- Directional drilling, measurement, and rotary steerable services
- Rig contractors, drilling equipment, and tubular services
- Geothermal well construction and subsurface energy projects
- Well integrity, completions, and production technology
- Technical assurance, operational risk, and asset engineering

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Learning Objectives

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

- Evaluate ERD candidates against step-out, trajectory, formation, and rig constraints
- Analyze torque, drag, buckling, fatigue, and wear envelopes
- Build hydraulic, ECD, cleaning, and wellbore stability limits
- Compare BHA, steering, drillstring, and rig capability options
- Diagnose drilling, tubular-running, and monitoring deviations
- Prioritize integrated controls, contingencies, and assurance evidence

Course Agenda

Day 1: Establish the ERD Design Basis

- ERD Candidate Screening and Step-Out Feasibility Matrix
- Reservoir Target, Formation, and Well Architecture Constraint Map
- Trajectory Profile and Tortuosity Acceptance Method
- Rig Capability and Surface Equipment Gap Assessment
- ERD Design Assumption and Decision Register

Day 2: Define Mechanical Operating Envelopes

- Torque-and-Drag Load Case Modeling Method
- Drillstring Buckling, Fatigue, and Connection Limit Chart
- Friction Factor Calibration and Sensitivity Analysis
- Drillpipe Wear and Casing Contact Risk Map
- Weight Transfer and Rotation Operating Envelope

Day 3: Control Hydraulics and Borehole Condition

- Hydraulics and Equivalent Circulating Density Window
- High-Angle Cuttings Transport and Bed-Removal Model
- Flow Rate, Rotation, and Rheology Cleaning Matrix
- Wellbore Stability and Loss-Kick Margin Review
- Wiper Trip, Backreaming, and Conditioning Decision Protocol

Day 4: Engineer Execution and Assurance

- BHA and Rotary Steerable Selection Scorecard
- Casing, Liner, and Completion Running Force Forecast
- Real-Time Drilling Parameter and Trend Monitoring Board
- Stuck-Pipe, Pack-Off, Vibration, and Loss Response Matrix
- ERD Readiness Gate and Contingency Control Plan

Day 5: Practice Integrated ERD Delivery

- Suggested Exercise: Screen an ERD Candidate and Challenge Design Assumptions
- Suggested Exercise: Reconcile Mechanical and Hydraulic Operating Envelopes
- Suggested Exercise: Select Rig, BHA, and Steering Capabilities
- Suggested Exercise: Diagnose Monitoring Trends and Trigger Contingencies
- Capstone Exercise: Complete the ERD Delivery Assurance File

Practical Exercises

The course uses suggested activities to connect design models, equipment capability, execution limits, and assurance decisions.

- Suggested activity: screen a long-step-out well against targets, formations, trajectory, mechanical limits, hydraulics, and available rig capability.
- Suggested activity: reconcile torque-and-drag, ECD, hole-cleaning, wear, and stability outputs into a controlled operating envelope.
- Suggested activity: assess tubular-running forecasts, monitoring trends, deviation triggers, and response ownership before an assurance gate.
- Suggested activity: assemble design evidence, thresholds, contingencies, and post-well learning in the ERD Delivery Assurance File.

FAQs

Who suits extended reach drilling design and operations training, and what does it assume?

Extended reach drilling design and operations training suits well planners, drilling engineers, directional specialists, supervisors, rig managers, BHA engineers, completions functions, and assurance personnel. It assumes working exposure to drilling programs, surveys, engineering models, or operational reports.

How does extended reach drilling differ from general directional well-path planning?

Extended reach drilling integrates long-step-out mechanical loads, hydraulics, cuttings transport, stability, rig capability, tubular deployment, monitoring, and contingencies. General directional well-path planning centers on target access, trajectory geometry, survey control, and steering execution across a broader range of wells.

What limits extended reach drilling step-out?

Extended reach drilling step-out is limited by interacting torque, drag, buckling, fatigue, wear, hydraulic pressure losses, ECD, hole cleaning, wellbore stability, rig capacity, steering performance, and the ability to run casing and completions within controlled margins.

How is high-angle hole cleaning controlled in ERD operations?

High-angle hole cleaning is controlled by matching flow rate, fluid rheology, drillstring rotation, penetration rate, cuttings size, annular geometry, circulation practices, and monitoring trends, then applying conditioning or backreaming actions when bed-development indicators cross defined triggers.

What should an ERD assurance review test before execution?

An ERD assurance review should test design assumptions, model calibration, mechanical and hydraulic envelopes, rig and tool capability, tubular-running forecasts, monitoring thresholds, contingency readiness, interface ownership, and the evidence required to proceed through each delivery gate.

Conclusion

Participants take back an ERD Delivery Assurance File containing screening evidence, design limits, equipment decisions, operating envelopes, monitoring triggers, and contingencies. The file changes separate engineering studies into one traceable basis for well delivery. It supports clearer readiness gates, controlled operational responses, and structured post-well learning.