

Directional, Horizontal and Sidetrack Drilling Training Course

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Overview

Directional, Horizontal and Sidetrack Drilling Training Course is a one-week advanced course for drilling, planning, survey, MWD/LWD, geosteering, operations, and assurance functions who leave with a Well-Path Delivery and Assurance File. Participants connect trajectory design, survey assurance, anti-collision, sidetrack selection, steering, torque and drag, hole cleaning, and geosteering decisions. The course controls the whole well-path workflow from targets through post-well review. Agile Leaders Training Center presents directional, horizontal, and sidetrack drilling.

Who Should Attend

- Drilling functions responsible for well-path execution and operating limits
- Planning functions responsible for targets, trajectories, and design assurance
- Survey and MWD/LWD functions responsible for positional data and uncertainty
- Geosteering and operations functions responsible for navigation and drilling response
- Technical authorities responsible for collision risk and change control

The course assumes participants already use drilling plans, survey data, or subsurface targets, and it leaves out introductory drilling engineering, detailed BHA component design, and vendor-specific software operation.

Departments and Industries

The course supports departments and industries that control subsurface well paths.

- Oil and gas drilling and well delivery
- Geothermal well planning and operations
- Mining exploration and borehole surveying
- Directional-drilling and well-service providers
- Engineering assurance and well integrity

Learning Objectives

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

- Build target-led well trajectories
- Analyze survey uncertainty and anti-collision evidence
- Evaluate sidetrack methods and kickoff requirements
- Compare steering systems against trajectory demands
- Diagnose torque, drag, and hole-cleaning constraints
- Apply execution monitoring and post-well assurance

Course Agenda

Day 1: Define the Well Path

- Subsurface Target and Drilling-Objective Definition Sheet
- Coordinate Reference and Survey-Database Quality Checklist
- Kickoff Point, Build Rate, Inclination, and Azimuth Design Method
- Dogleg Severity and Curvature Constraint Register
- Well-Path Design-Basis File

Day 2: Assure Trajectories

- Build-Hold-Drop and Three-Dimensional Trajectory Comparison
- ISCWSA Survey Error Model Application
- Wellbore Position Uncertainty and Error-Ellipse Analysis
- Separation-Factor and Anti-Collision Screening Method
- Trajectory Peer-Review and Change-Control Gate

Day 3: Select Sidetrack Methods

- Open-Hole and Cased-Hole Sidetrack Selection Matrix
- Whipstock, Cement-Plug, and Formation-Kickoff Decision Method
- Mud-Motor and Rotary-Steerable System Comparison
- BHA Steering Response and Toolface Control Interface
- Kickoff Risk and Contingency Register

Day 4: Control Horizontal Execution

- Torque-and-Drag Operating-Envelope Analysis
- Cuttings Transport and Hole-Cleaning Surveillance Method
- MWD/LWD Survey Validation Workflow
- Geosteering Decision Log and Reservoir-Navigation Interface
- Real-Time Deviation and Corrective-Action Board

Day 5: Practice Well-Path Delivery

- Suggested Exercise: Construct a Three-Dimensional Trajectory
- Suggested Exercise: Evaluate Survey and Collision Risk
- Suggested Exercise: Select a Sidetrack and Steering Configuration
- Suggested Exercise: Diagnose Horizontal-Section Trends
- Capstone Exercise: Complete the Well-Path Delivery and Assurance File

Practical Exercises

The course uses suggested activities to connect planning, positional assurance, equipment interfaces, and execution decisions.

- Suggested activity: convert targets, constraints, and kickoff assumptions into a controlled trajectory.
- Suggested activity: challenge survey quality, uncertainty, separation evidence, and collision actions.
- Suggested activity: compare sidetrack and steering options against formation and trajectory conditions.
- Suggested activity: assemble an assurance file covering design, surveys, decisions, changes, and closeout.

FAQs

Who suits directional, horizontal and sidetrack drilling training?

Directional, horizontal and sidetrack drilling training suits drilling, planning, survey, MWD/LWD, geosteering, operations, and assurance functions. It assumes exposure to drilling plans, survey data, directional operations, or subsurface targets.

How does directional well-path training differ from BHA design training?

Directional well-path training manages targets, trajectories, collision avoidance, sidetracks, execution, and review. BHA design training concentrates on bottomhole assembly components and drilling-performance behavior.

How is anti-collision managed in directional drilling?

Anti-collision management combines coordinate control, survey quality, positional uncertainty, separation analysis, offset data, escalation rules, and documented responses as planned and actual paths change.

What determines a sidetrack drilling method?

A sidetrack method depends on casing status, access, formation behavior, kickoff location, window requirements, achievable dogleg, tool compatibility, objectives, and contingencies.

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How does geosteering support horizontal drilling?

Geosteering uses directional and formation measurements to update the interpreted position relative to reservoir boundaries and support recorded landing or navigation decisions.

Conclusion

Participants take back a Well-Path Delivery and Assurance File connecting targets, trajectories, surveys, collision controls, sidetrack choices, steering interfaces, and execution records. The file makes assumptions and decision limits visible. It supports controlled changes and traceable post-well review.

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