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COURSE BROCHURE

Pre-Drill Pore Pressure Prediction for Geologists Training Course

19 – 23 September 2027
Online

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Registered in the United Kingdom and Saudi Arabia

Pre-Drill Pore Pressure Prediction for Geologists Training Course

Ref: 2899_110624 **Date:** 19 – 23 September 2027 **Location:** Online **Fees:** 2900 GBP

Pre-Drill Pore Pressure Prediction for Geologists is a 1-week training course for geologists and petrophysicists who supply the subsurface picture behind a new well, built around a pre-drill pore pressure prognosis for a planned location. Exploration wells are reaching deeper, hotter and less explored basins where an unexpected pressure ramp can stop a campaign. Jupiter Prime Training presents the subject as the geologist's own contribution to safe well design.

Why Pre-Drill Pore Pressure Prediction for Geologists Matters Now

Three forces shape pre-drill prediction today. Exploration is moving into deepwater, sub-salt and high-temperature plays where offset wells are scarce. Seismic interval velocities now support pressure mapping well before spud. And drilling teams expect the geologist to hand over a defended prognosis with stated uncertainty rather than a single line. Reading overpressure early sets casing points with confidence; missing it risks kicks, losses and sidetracks. The course rests on basin physics and the compaction behaviour of shales, described in plain terms.

Who Gains Most from Pre-Drill Pore Pressure Prediction for Geologists

- Exploration geologists responsible for the subsurface prognosis of new prospects
- Petrophysicists who condition sonic, density and resistivity logs from offset wells
- Geophysicists who convert seismic velocities for pressure mapping
- Operations geologists who compare drilled data against the pre-drill forecast
- Basin modellers who estimate burial, temperature and fluid history

Prospect teams gain most when geologist, petrophysicist and geophysicist attend together and agree one shale trend.

Pre-Drill Pore Pressure Prediction for Geologists Capabilities

Participants turn basin history, shale behaviour and velocity cubes into a pressure forecast a well planner can trust.

- Assess which overpressure mechanism dominates a basin — the choice of prediction approach for the prospect
- Build a normal compaction trend from offset shale logs — the baseline the drilling team accepts
- Calculate pore pressure from seismic interval velocity using velocity-to-pressure transforms — the pressure profile below the last offset
- Estimate vertical stress and the fracture gradient from density and leak-off data — the upper limit of the operating window
- Test the forecast with high, low and most-likely cases — the risk statement shared with the asset manager
- Communicate the prognosis and its uncertainty to drilling engineers — casing point and contingency decisions

Key Pre-Drill Pore Pressure Prediction for Geologists Terms

- Hydrostatic pressure — the pressure of a formation water column at a given depth.
- Overpressure — formation pressure above hydrostatic, where fluids cannot escape during burial or heating.
- Disequilibrium compaction — overpressure created when rapid burial traps water in shales faster than it can drain.
- Normal compaction trend — expected shale porosity decline with depth under hydrostatic pressure.
- Effective stress — overburden stress minus pore pressure; the load actually carried by the rock grains.
- Fracture gradient — the pressure per unit depth at which the formation opens and drilling fluid is lost.

Pre-Drill Pore Pressure Prediction for Geologists Day by Day

Day 1: Basin Controls on Formation Pressure

- Burial History Curves — Where Rapid Sedimentation Traps Pore Fluids
- Seal Capacity and Shale Permeability — Pressure Compartment Boundaries
- Fluid Expansion From Hydrocarbon Generation — Secondary Overpressure in Source Rocks
- Smectite to Illite Transformation — Unloading Signatures at Elevated Temperature
- Lateral Transfer and Centroid Effects — Crest Pressure in Tilted Sands

Day 2: Reading Pressure in Offset Wells

- Shale Point Selection From Gamma Ray — Clean Input for Trend Building
- Sonic and Resistivity Normal Compaction Trends — Baseline Agreement Across Offsets
- Formation Tester and Kick Data Calibration — Anchoring Predicted Pressure to Measurement
- Drilling Exponent and Gas Show Indicators — Pressure Clues From Mud Logs
- Density Integration for Overburden — Vertical Stress Profile for Each Offset

Day 3: Seismic Velocity to Pressure

- Interval Velocity Conditioning and Smoothing — Removing Processing Artefacts Before Conversion
- Velocity-to-Pressure Transforms Calibrated on Offsets — Pressure Cube Away From Wells
- Loading Versus Unloading Velocity Paths — Avoiding Underprediction Below Ramps
- Pressure Maps Along Prospect Cross Sections — Spotting Ramps Before Target Depth
- Velocity Uncertainty Bands — High and Low Pressure Cases

Day 4: Stresses and the Operating Window

- Leak-Off and Formation Integrity Test Interpretation — Minimum Stress Estimates
- Stress Orientation From Breakouts and Image Logs — Well Path Sensitivity
- Fracture Gradient Profiles From Effective Stress — Upper Bound of the Window
- Pore Pressure Versus Fracture Gradient Plots — Narrow Window Warnings for Planners
- Offset Kick and Loss Event Mapping — Hazard Depths for the New Well

Day 5: Practising the Pre-Drill Pore Pressure Prognosis

- Mechanism Screening for an Undrilled Prospect — Applying Basin Controls to a Location
- Combined Log and Velocity Forecast — Reconciling Offsets With the Seismic Cube
- Case Ranges and Risk Wording — Statements the Asset Manager Can Act On
- While-Drilling Update Triggers — Signals That Revise the Forecast
- Pre-Drill Pore Pressure Prognosis Handover — Final Pressure and Stress Document

Applying Pre-Drill Pore Pressure Prediction for Geologists After the Course

- Rebuild the normal compaction trend for one active prospect from cleaned offset shale points.
- Run a velocity-to-pressure forecast along the planned well path and present the high and low cases to the drilling team.

Pre-Drill Pore Pressure Prediction for Geologists Questions FAQ

What is pre-drill pore pressure prediction for geologists and why does it matter now?

It is the forecast of formation pressure and stress at a new location before drilling starts. It matters because deeper, less explored targets punish a missed pressure ramp.

Which roles gain most from pre-drill pore pressure prediction for geologists?

Exploration geologists, petrophysicists and geophysicists gain most. You build the subsurface case that drilling engineers turn into casing choices.

How does pre-drill pore pressure prediction for geologists differ from a drilling geomechanics course?

This course works from the geologist's side, before any well is designed. A drilling geomechanics course covers borehole stability while drilling; here the focus is basin history, shale trends and velocity forecasts.

What do you bring back from pre-drill pore pressure prediction for geologists?

You bring back a worked pressure and stress forecast for a prospect, with calibration, uncertainty cases and update triggers.

Pre-Drill Pore Pressure Prediction for Geologists: The Way Forward

The pre-drill pore pressure prognosis first informs where the casing points sit and which rig the well needs. Well planners and asset managers use it to set contingency. After the first well, compare the drilled pressures with the forecast and revisit the compaction trend and the velocity calibration, since each new well sharpens the next prediction.