JUPITER PRIME
Consulting • Training • Advisory
جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Sand Production Prediction and Erosion Monitoring Training Course

28 February – 4 March 2027
Doha

Sand Production Prediction and Erosion Monitoring Training Course

Ref: 2921_111177 **Date:** 28 February – 4 March 2027 **Location:** Doha **Fees:** 6500 GBP

Sand Production Prediction and Erosion Monitoring is a 1-week training course for production and completion engineers who decide when wells will produce sand and how to respond, and who leave with a sand management strategy for one well group. Weakening reservoirs, rising water cuts and higher drawdowns are pushing more wells past their sand-free limits. Jupiter Prime Training presents Sand Production Prediction and Erosion Monitoring as a field engineering discipline.

Why Sand Production Prediction and Erosion Monitoring Matters Now

Three forces shape sand decisions today. Mature fields lose reservoir pressure, so effective stress on the rock rises and weak sandstones fail. Water breakthrough dissolves the cement between grains and lowers the drawdown a well can tolerate. And operators want to produce harder from fewer wells, which narrows the margin between a sand-free rate and a damaging one. A team that predicts and monitors sand well keeps chokes, bends and separators intact and avoids workovers. A team that reacts late faces eroded pipework, plugged wells and lost containment. The course rests on rock mechanics, multiphase flow and erosion rate methods.

Who Gains Most from Sand Production Prediction and Erosion Monitoring

- Engineers who set maximum drawdown and production rates for weak-sand wells
- Engineers who select downhole sand exclusion for new completions
- Engineers who interpret acoustic sand detectors and erosion probe readings
- Engineers who size desanders, cyclones and solids disposal at the surface
- Engineers who plan remedial treatments for wells already producing solids

An asset team that sends production, completion and facilities engineers together gains most, because sand decisions cross the wellhead and need all three views.

Sand Production Prediction and Erosion Monitoring Capabilities

Participants follow a grain of sand from the formation face to the separator and decide where it should be stopped.

- Calculate the critical drawdown at which a formation starts to fail — production rate setting
- Assess core, log and field evidence of rock strength — completion design choices
- Weigh passive and active sand exclusion against rate and cost — well delivery budgets
- Specify acoustic and intrusive sand monitoring for critical flowlines — facilities engineers
- Apply erosion rate methods to chokes, bends and tees — inspection planning
- Design surface solids separation, cleaning and disposal — operations and environmental leads

Key Sand Production Prediction and Erosion Monitoring Terms

- Critical drawdown — the reservoir-to-wellbore pressure difference above which near-well rock begins to fail.
- Unconfined compressive strength — the load a rock sample withstands without side support, a first indicator of sand risk.
- Maximum sand-free rate — the highest production rate at which a well delivers fluids without measurable solids.
- Acoustic sand detector — a clamp-on sensor that hears particle impacts and estimates sand rate.
- Erosion allowance — the wall loss a component can tolerate from solids impact before it must be replaced.
- Desander — a separator, often a cyclone, that removes produced solids near the wellhead.

Sand Production Prediction and Erosion Monitoring Day by Day

Day 1: Why Formations Fail and Sand Moves

- Grain Cementation and Rock Fabric — Which Sandstones Are Prone to Failure
- In-Situ Stress and Depletion — How Pressure Decline Raises Sand Risk
- Water Cut Effects on Rock Strength — Revising Limits After Breakthrough
- Sand Production Modes — Transient Bursts Versus Continuous Solids
- Field Sand History Review — Learning From Offset Well Behaviour

Day 2: Predicting Sand Onset

- Rock Strength From Logs and Core Tests — Calibrating Strength Profiles
- Critical Drawdown Calculation — Setting Safe Rates for Each Interval
- Perforation Tunnel Stability — Choosing Phasing and Orientation
- Sand Prediction Sensitivity Cases — Testing Depletion and Water Scenarios
- Sand Risk Ranking Sheet — Prioritising Wells for Exclusion or Monitoring

Day 3: Downhole and Surface Sand Control Choices

- Standalone Screens and Expandable Screens — Fit for Sorting and Fines
- Gravel Packs and Frac Packs — Rate, Skin and Longevity Trade-Offs
- Chemical Consolidation — Remedial Option for Short Intervals
- Rate Restriction as Sand Control — Accepting Lower Production for Integrity
- Surface Sand Tolerance Philosophy — When Producing Some Solids Is Acceptable

Day 4: Erosion Monitoring and Solids Handling

- Acoustic and Intrusive Sand Sensors — Placement and Calibration Decisions
- Erosion Rate Calculation for Chokes and Bends — Setting Velocity Limits
- Wall Thickness Inspection Intervals — Linking Monitoring to Inspection Plans
- Desanders and Cyclones — Sizing Separation Upstream of Process Equipment
- Produced Solids Cleaning and Disposal — Oily Sand Treatment Routes

Day 5: Practising the Sand Management Strategy

- Well Group Sand Risk Screening — Applying Strength and Drawdown Results
- Exclusion Versus Tolerance Decision — Choosing a Route for Each Well
- Monitoring Layout Exercise — Placing Sensors and Erosion Probes
- Sand Event Response Drill — Choke Back, Inspect and Restart Steps
- Sand Management Strategy — Limits, Controls, Monitoring and Review Triggers

Applying Sand Production Prediction and Erosion Monitoring After the Course

- Recalculate critical drawdown for the five highest-rate wells using current pressure and water cut.
- Audit sensor placement and erosion probe readings on one manifold and agree velocity limits.

Sand Production Prediction and Erosion Monitoring Questions FAQ

What is sand production prediction and erosion monitoring and why does it matter now?

Sand production prediction and erosion monitoring forecasts when wells will produce solids and tracks the damage solids cause. It matters now because depleting, watered-out fields are pushing more wells past their sand-free limits.

Which roles gain most from sand production prediction and erosion monitoring training?

Production and completion engineers gain most, with facilities engineers who look after chokes and separators.

How does a sand production prediction and erosion monitoring course differ from a completion design course?

A sand production prediction and erosion monitoring course follows solids from formation failure to surface disposal. A completion design course concentrates on tubing, packers and the selection of downhole equipment.

What do you bring back from sand production prediction and erosion monitoring training?

You bring back a sand strategy for a group of your own wells, with rate limits, a chosen control route for each well, a monitoring layout and response steps.

Sand Production Prediction and Erosion Monitoring: The Way Forward

The sand management strategy first informs the rate limit each well in the group may run at. Production engineers apply it daily, completion engineers use it for the next workover and facilities engineers use it to set inspection intervals. After its first year, revisit the strength assumptions: depletion and water breakthrough change rock behaviour quickly.