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Production Laboratory Testing of Crude, Gas and Produced Water Training Course

28 February – 4 March 2027
Doha

Production Laboratory Testing of Crude, Gas and Produced Water Training Course

Ref: 2727_104177 **Date:** 28 February – 4 March 2027 **Location:** Doha **Fees:** 6500 GBP

Production Laboratory Testing of Crude, Gas and Produced Water is a 1-week training course for laboratory analysts, production chemists and field supervisors, built around a field laboratory test matrix that each participant completes. Reliable results from the production laboratory decide sales quality, chemical dosing and water disposal, so weak sampling or poor method control quickly turns into disputes and corrosion. Jupiter Prime Training presents production laboratory testing as a link between the wellhead and the commercial desk.

Why Production Laboratory Testing Matters Now

Three forces shape production laboratory testing today. Ageing fields produce more water, so oil-in-water, scale and bacteria results now drive treating costs and disposal decisions. Buyers and pipeline operators tighten quality clauses, so water and sediment content, salt and vapour pressure figures carry commercial weight. Laboratories also run with smaller, multi-skilled crews. Testing well protects revenue and equipment; testing badly brings off-specification cargoes and failed injection wells.

Who Gains Most from Production Laboratory Testing

- Analysts responsible for running daily crude, gas and water tests and recording results
- Production chemists who set chemical injection rates from laboratory evidence
- Field supervisors who decide when a separator, desalter or water plant is off target
- Quality staff who answer buyer queries and quality claims on delivered crude
- Water handling engineers who approve produced water for injection or disposal

Asset teams gain most when an analyst, a chemist and a supervisor attend together.

Production Laboratory Testing Capabilities

Participants move from single test results to a controlled testing routine that operators, chemists and buyers can trust.

- Specify representative sampling points, containers and hold times — for supervisors who must trust each result
- Apply crude tests for water, sediment, salt, density and vapour pressure — for export quality decisions
- Calculate gas composition, heating value and dew point from chromatograph output — for gas sales and process control
- Assess produced water for oil content, dissolved solids, scale tendency and bacteria — for injection and disposal approval
- Build control charts, duplicates and reference checks into daily runs — for defending results in quality claims
- Communicate trends and out-of-range results to operations — for timely chemical and process changes

Key Production Laboratory Testing Terms

- Basic sediment and water — the share of free water, emulsion and solids in a crude sample.
- Reid vapour pressure — the pressure a crude or condensate exerts at a set temperature.
- Gas chromatography — a separation method that splits a gas sample into its components.
- Oil-in-water content — the concentration of dispersed and dissolved hydrocarbons left in produced water after treating.
- Scaling index — a calculated value showing whether water chemistry tends to deposit minerals such as calcium carbonate or barium sulphate.
- Control chart — a running plot of results on a check sample, with limits that show when a method has drifted.

Production Laboratory Testing Day by Day

Day 1: Sampling and the Production Laboratory Role

- Production Fluid Streams and Test Purposes — Linking Each Result to a Decision
- Representative Sampling Points and Probes — Avoiding Biased Crude and Water Samples
- Gas Cylinder Sampling and Purging — Keeping Light Components in the Sample
- Sample Containers, Labels and Hold Times — Protecting the Chain of Custody
- Laboratory Safety With Hydrogen Sulphide and Solvents — Protecting Analysts and Samples

Day 2: Crude Oil Quality Testing

- Water and Sediment by Centrifuge and Titration — Checking Sales Quality
- Salt Content Measurement — Setting Desalter Wash Water and Performance
- Density and Gravity Correction to Reference Temperature — Supporting Custody Volumes
- Vapour Pressure and Flash Point Tests — Judging Storage and Transport Safety
- Sulphur, Wax and Pour Point Checks — Informing Blending and Flow Assurance

Day 3: Natural Gas and Condensate Analysis

- Gas Chromatograph Calibration Gases and Response Factors — Trusting Composition Results
- Heating Value and Relative Density Calculation — Supporting Gas Sales Invoices
- Water and Hydrocarbon Dew Point Measurement — Protecting Pipelines From Liquids
- Hydrogen Sulphide and Carbon Dioxide Detection Tubes and Analysers — Setting Treating Needs
- Condensate Composition and Shrinkage Tests — Informing Stabiliser Operation

Day 4: Produced Water and Chemical Treatment

- Oil-in-Water by Solvent Extraction and Infrared — Approving Discharge and Injection
- Dissolved Solids, Ions and Scaling Index — Predicting Scale in Wells and Lines
- Bacteria Counts and Sulphate Reducer Tests — Guiding Biocide Treatment
- Corrosion Coupons and Iron Counts — Tracking Inhibitor Performance
- Emulsion Bottle Tests for Demulsifier Selection — Setting Chemical Dosing Rates

Day 5: Practice in Laboratory Quality Control

- Duplicates, Blanks and Reference Samples — Proving Method Precision
- Control Charts for Daily Check Samples — Spotting Method Drift Early
- Result Reporting and Out-of-Range Escalation — Prompting Operations Response
- Quality Claim Evidence From Retained Samples — Settling Disputes With Buyers
- Completing the Field Laboratory Test Matrix — Tests, Frequencies and Owners

Applying Production Laboratory Testing After the Course

- Audit the sampling points of one separator train against the representative sampling checks taught and correct any biased probe or container practice.
- Start a control chart for one crude and one produced water check sample and review its limits with the laboratory crew each week.

Production Laboratory Testing Questions FAQ

What is production laboratory testing and why does it matter now?

Production laboratory testing is the sampling and analysis of crude, gas and produced water from a producing field. It matters now because more water, tighter buyer clauses and smaller crews make every result carry commercial and safety weight.

Which roles gain most from production laboratory testing skills?

Laboratory analysts, production chemists and field supervisors gain most from production laboratory testing skills.

How does production laboratory testing differ from refinery laboratory or crude treating courses?

Production laboratory testing focuses on field samples and the decisions taken at the separator, the water plant and the sales point. Refinery laboratory courses test finished products, while crude treating courses cover process equipment rather than methods.

What do you bring back from production laboratory testing training?

You bring back a field laboratory test matrix listing each test, its frequency, its owner and its action limits.

Production Laboratory Testing: The Way Forward

The field laboratory test matrix first informs which tests run daily and which run weekly at each sampling point. Laboratory leads and production chemists use it to set crews and chemical decisions. After its first month, revisit the action limits against real control chart data and buyer feedback.