

TRAINING TITLE

SAMPLING AND TESTING PROCEDURES

Training Duration

5 day

Training Venue and Dates

Ref. No. PE081	Sampling and Testing Procedures	5	15-19 Sep. 2025	\$5,500	DUBAI, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

Sampling and testing are fundamental activities in the oil and gas industry, ensuring the quality, integrity, and safety of products and operations. Accurate sampling and reliable testing procedures are critical for assessing the composition of raw materials, intermediate products, and final outputs, as well as for monitoring environmental compliance. This 5-day course is designed to provide participants with the essential knowledge and hands-on experience to effectively conduct sampling and testing in various oil and gas contexts, from upstream exploration to downstream refining and storage.

TRAINING OBJECTIVES

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Upon the successful completion of this course, participants will be able to:-

1. Understand the importance of sampling and testing in oil and gas operations, including its role in safety, quality assurance, and regulatory compliance.
2. Apply the correct sampling techniques for different substances (crude oil, natural gas, refined products, water, etc.) and operational environments (onshore, offshore, pipelines).
3. Select the most suitable testing methods and equipment for various oil and gas samples (e.g., hydrocarbon content, gas composition, water quality).

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4. Ensure the quality and integrity of samples through proper handling, storage, and transport methods.
5. Understand industry standards and best practices for sampling and testing, including ASTM, API, and ISO guidelines.
6. Interpret and report test results accurately, identifying trends, issues, and areas for improvement.
7. Apply safety and environmental practices in the handling and disposal of samples and test materials.

WHO SHOULD ATTEND?

This course is ideal for professionals involved in sampling, testing, quality control, and analysis in the oil and gas industry, including:

- Quality Control (QC) and Quality Assurance (QA) Personnel
- Laboratory Technicians and Scientists
- Environmental Health and Safety (EHS) Professionals
- Petroleum and Oil & Gas Professionals
- Pharmaceutical and Biotech Industry Workers
- Food Safety and Quality Assurance Professionals
- Manufacturing Engineers and Technicians Supply Chain Managers
- Regulatory Compliance Officers

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

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COURSE PROGRAM:

Day 1: Introduction to Sampling and Testing in Oil and Gas Operations

- Overview of sampling and testing in the oil and gas industry: importance in production, quality control, safety, and environmental management.
- Types of samples: liquid, gas, solid, and sludge.
- Sampling objectives and challenges: accuracy, representativeness, and consistency.
- Sampling procedures for upstream, midstream, and downstream operations.
- Commonly tested parameters: hydrocarbon content, water quality, gas composition, impurities, and contaminants.
- Tools and equipment used in sampling and testing.
- Standards and guidelines for sampling in the oil and gas industry (API, ASTM, ISO).
- Case studies: Real-world examples highlighting the importance of accurate sampling and testing.

Day 2: Sampling Techniques for Different Oil and Gas Operations

- Sampling methods for crude oil, natural gas, and refined products.
- Techniques for liquid sampling: manual and automated methods (e.g., ball valve, sample cylinders).
- Techniques for gas sampling: grab samples, composite samples, and continuous sampling.
- Solid sampling for wellbore, pipelines, and processing units.
- Sampling in well testing: selecting representative samples from the wellbore.
- Sampling for environmental monitoring: air, water, and soil samples.
- Performing liquid and gas sampling using industry-standard techniques.
- Group discussion: Best practices for maintaining sample integrity and avoiding contamination.

Day 3: Testing Procedures and Analytical Techniques

- Overview of laboratory testing procedures: ASTM, API, and ISO standards for common oil and gas tests.
- Testing for hydrocarbon content: API gravity, viscosity, sulfur content, and density.
- Gas analysis: Composition analysis (methane, ethane, propane, CO₂, H₂S) and gas chromatography.
- Water quality testing: pH, salinity, turbidity, and dissolved oxygen.

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- **Specialized testing:** Corrosion testing, sediment testing, and quality checks for refining and storage.
- **Use of analytical instruments in testing:** gas chromatographs, spectrometers, and titration.
- **Performing basic quality tests on oil, gas, and water samples.**
- **Data analysis and interpretation:** How to evaluate testing results and identify trends.

Day 4: Quality Control, Data Management, and Reporting

- **Ensuring quality control in sampling and testing:** calibration of instruments, standardization, and accuracy.
- **Quality assurance protocols:** maintaining consistency in sampling and testing procedures.
- **Documentation and traceability in sampling and testing processes.**
- **Data management:** Logging, storing, and sharing results with relevant stakeholders.
- **Reporting test results:** creating clear, accurate, and comprehensive reports for different audiences (technical, regulatory, and management).
- **Troubleshooting common issues in testing:** dealing with outliers, discrepancies, and errors.
- **Analyzing test reports and discussing quality control methods in real-world scenarios.**
- **Case study:** Review of testing failures and their impacts on oil and gas operations.

Day 5: Safety, Environmental Considerations, and Advanced Topics in Sampling and Testing

- **Health, safety, and environmental (HSE) considerations in sampling and testing:** personal protective equipment (PPE), hazardous material handling, and spill prevention.
- **Environmental sampling techniques for monitoring compliance with regulations.**
- **The role of sampling and testing in environmental risk assessments and incident investigations.**
- **Emerging trends in sampling and testing:** automation, real-time analysis, and remote monitoring technologies.
- **Industry-specific challenges in sampling and testing:** offshore, high-pressure, and hazardous environments.
- **Group discussion:** Identifying areas of improvement in sampling and testing procedures in your organization.

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- Final assessment and certification distribution.

NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.



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