# Advanced Well Testing

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# Introduction:

In this course all surface and subsurface testing tools and operations introduced before will be discussed in more detailed and advanced level. Also, understanding of the safe handling of the produced effluents (solids, liquids and gases) at high pressures and temperatures is a key objective and concern within the Well Testing operations.

This is achieved by design of equipment and operations including safety margins and protective equipment to guarantee the safety of people and integrity of the involved facilities and the environment. This comprehensive course provides the candidates with a thorough understanding of the methods used to: design, conduct and analyze well tests in order to obtain reliable information about well conditions. It provides an advanced understanding of well testing techniques and the equipment involved. You will know the definition of well testing, techniques of stabilized well testing and transient well testing. This course lays more focus on well testing equipment.

# Objectives:

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

- Locate the reasons for performing well test
- Gain a thorough understanding of well testing operations
- Know different types of equipment used in well testing operations

- Obtain advanced knowledge about surface & down hole well testing equipment description and operation
- Define the surface equipment functional requirements for well testing
- Be more able to understand the different types of well test
- How to carry out the appropriate selection and positioning of gauges

- Acquire knowledge about reservoir understanding and reservoir concepts
- Specify the requirements for a well test program including safety
- Describe the function and operation of well test tools
- How to perform flow rate calculations
- Understand how well test planning is performed
- Learn how to conduct a well test
- Follow agreed safety guide lines on surface pressure testing ESD

# Who should attend?

Well Testers, Production Engineers, Production Supervisors and Personnel, Well Testing Coordinators, Field Services Coordinators, Oil & Gas Engineers, Reservoir Engineers, Petroleum Engineers, Drilling Engineers and other service personnel who are required to have knowledge of well testing operations.

# Course Outline:

**Introduction to Well Testing Operations**

- Overview of Well Behaviour & Testing
- Principle and Objectives of Well Testing
- Well Test Process Overview
- Well Test Objectives and Drives
- Data for Predevelopment Studies
- Fundamentals of Fluid Flow in Porous Media
- Well Test Equipment

**Facility, Downhole Equipment, Gauges, Surface Equipment & Perforating Equipment**

- Surface Well Testing Equipment
- Surface Test Tree (Flowhead)
- Surface Safety Valves (SSV)
- Emergency Shutdown System (ESD)
- Chemical Injection Pump
- Data Header
- Sand Removal
- Choke Manifold
- 2-Phase Test Separator
- 3-Phase Test Separator
- Oil and Gas Manifold
- Vertical Surge Tank

**Surface Well Testing (SWT)**

**Testing Data Acquisition (TDA)**

**Fluid Sampling & Analysis (FSA)**

## Well Test Design

- Well test classification
- Test conditions (fluids, pressures, temperature etc.)
- Test design based on conditions and objectives
- Basis for design
- Design considerations

## Well Test Program

## Well Test Execution

- Roles and responsibilities
- Logistics
- Communications
- Reporting

## Well Test Evaluation & Interpretation

- Quality control of well test data
- On-site analysis & requirements
- Evaluation of test data and interpretation
- Function and principle of operation of the main components