# Basic Well Test Analysis

## ABOUT THE COURSE

Well test interpretation, which is the process of obtaining information about a reservoir by analyzing the pressure transient response caused by a change in production rate, plays a very important part in making overall reservoir-management decisions. Well tests have a basic significance, allow to determine the state of reservoirs and wells and help to optimize production and recovery.

Well testing is a surface/downhole operation affecting one or several wells. It consist in flowing a well and recording the downhole pressure changes corresponding to the surface flow rates. When a reservoir is submitted to changing production conditions, the reservoir pressure changes are monitored and analyzed. The results, associated with other sources of information are used to build well/reservoir models. The quality of the interface between the well and the reservoir (SKIN) is indicative of the possibility to improve the well productivity. Well Testing is the only dynamic way to access this information.

Results obtained from Well Test Analysis (WTA) are permeability thickness product, reservoir heterogeneities, initial or average pressure, shape and distances to boundaries. WTA results permit to calculate well description parameters such as productivity index (PI), skin factor (S) and well geometry.

This course has a goal to introduce participants with basics of well testing, objectives of a well test, role of well test in describing a reservoir and information obtained from a well testing analysis.

## DESIGNED FOR

This training course is designed for engineers who want to understand well testing principles and interpretation techniques to design, analyze, report, evaluate results or participate in the well testing process.

## YOU WILL LEARN

- Principles and objectives of Well Testing
- The method – to be able to describe the conventional and modern methods to find a well/reservoir model and the corresponding results
- Wellbore conditions – to be able to identify wellbore conditions responses using derivative approach
- Double porosity reservoirs
- Boundaries – to be able to identify reservoir limits, type, geometry and distances and extract the corresponding results
- Test design
- Analyze drawdown and buildup tests in oil and gas wells
- Identify flow regimes using the log-log diagnostic plot

**COURSE OUTLINE**

- Introduction to Well Testing
- Development of the diffusivity equation
- Data used in Well Testing
- Radial flow and radius of investigation
- Characterizing damage and stimulation
- Wellbore storage
- Type curve analysis
- Manual log-log analysis
- Flow regimes and the diagnostic plot