

Well Test Analysis for Non-Specialists

Course Objectives:

The purpose of this one-day course is to offer a high level overview on well test analysis to allow the use of this tool effectively in reservoir management and production optimization. Further, well test analysis could be very challenging for many professionals that are not specialists or are reluctant to go through a lengthy training to feel confident to perform well test analysis. Therefore, this concise course has been designed to offer the attendees the essential knowledge to understand the main concepts of well test analysis; whether they might consider to become specialists or just to be able to audit/use the information test analysis reports. Production analysis techniques for challenging formations such as the unconventional and tight formations will also be reviewed including the use of Multi-stage Frac Horizontal Wells (MFHW). A detailed course hand-out, which is an excellent reference, will be provided. No calculators are required for this class!

Who Should Attend?

This course is aimed at all the technical staff such reservoir, petroleum and exploitation engineers/technologists, geophysicists, and geologists who are involved in well testing, whether the interest is to perform well test analysis or simply to audit/use well test results performed by specialists or consultants.

Course Instructor:

Mr. Saad Ibrahim, P. Eng, president of Petro Management Group Ltd. He has over 30 years of diversified experience in the oil and gas Industry as a worldwide highly recognized engineering consultant and a distinguished instructor. He also completed a post-graduate program with the University of Calgary in Chemical and Petroleum Engineering. The focus of Mr. Ibrahim's experience lies in the area of Reservoir management, and well test planning/analysis. Mr. Ibrahim is a member of APEGGA and SPE.



Course Agenda:

➤ **Introduction to well testing and benefits**

➤ **Well test planning and equipment**

- Measurements of pressure/production data for flowing and pumping wells
- Wireless technology applications
- Testing of High pressure/high temperature wells (HPHT) Common flow geometry

➤ **Technical background on well test analysis**

- Common flow geometry
- Boundary conditions: infinite, Pseudo- steady state and steady state
- Dimensionless parameters – use of type curve and pressure derivative
- Solution of the diffusivity equation
- Three stages of well testing

➤ **Pressure Transient Analysis (PTA)**

- Flow and build-up test (skin factor, boundaries)
- Gas well testing
- Draw-down testing (case study)
- Production analysis for tight formation (flowing material balance, Blasingame Type Curves)

➤ **Multi-stage Frac of Horizontal Wells (MFHW)**

- Hz well spacing
- Frac size and the number of frac stages
- Taking advantage of sweet spots – quantifying benefits
- Case studies

➤ **Selected well tests will be analyzed in the class using commercial software.**

➤ **Closing comments and a question period**

