



Transient Oil and Gas Well Test Analysis



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Introduction:

The transient oil and gas well test analysis course covers well testing goals involving in-depth transient oil and gas well test analysis. Oil and gas wells explore classical methods for drawdown and buildup analysis and delve into specific well testing solutions in the context of gas well testing, IPR and AOF analysis, and well test validation. Our journey starts with understanding the industry's oil and gas well tests fundamentals and the methodologies applied.

Participants in this transient oil and gas well test analysis training will grasp the importance of reservoir rock and fluid properties critical for successful well analysis, supported by a theoretical foundation and essential equations. We will also look at operational aspects, such as sampling and utilizing specialized testing equipment for transient well testing.

Targeted Groups:

- Petroleum Engineers.
- Reservoir Engineers.
- Production Engineers.
- Drilling Engineers.
- Field Operators.
- Geoscientists.
- Data Analysts.
- Oil and Gas Well Test Analysts.
- Oil and Gas Consultants.
- Technical Managers.
- Reservoir Simulation Specialists.
- Environmental Engineers.
- Regulatory Compliance Officers.
- Research and Development Scientists.
- Engineering Students specializing in Petroleum or Reservoir Engineering.
- This transient oil and gas well test analysis course will greatly benefit Reservoir and Production Engineers who seek to enhance their oil and gas analysis skills. It specifically focuses on the nuances of oil and gas well testing within the industry.

Course Objectives:

By the end of this transient oil and gas well test analysis course, participants will be proficient in:

- Downhole and surface testing equipment is crucial for oil and gas well analysis.
- Execute a Well Testing Sequence and ensure Data Validation.
- Master Gas well Test Sequences and Analysis Procedures.
- Undertake comprehensive Oil Well Testing.
- Inform gas and oil Well Test Design for improved oil and gas well test solutions.

Targeted Competencies:

At the end of this transient oil and gas well test analysis training, target competencies will be proficient in the following:

- Understand Well Test Objectives.
- Proficiency in Data Acquisition Techniques.
- Know Pressure Transient Analysis.
- Interpret Flow Regimes.
- Familiar with Wellbore Effects.
- Competence in Software Tools for Analysis.
- Ability to Estimate Reservoir Properties.
- Expertise in Identifying Wellbore Damage.
- Skill in Analyzing Reservoir Boundaries.
- Proficiency in Production Forecasting.
- Understand Fluid Properties.
- Know Multiphase Flow Behavior.
- Ability to Design Well Test Procedures.
- Competence in Quality Control of Data.
- Familiar with Industry Standards and Regulations.

Course Content:

Unit 1: Introduction to Well Testing:

- Purpose of Well Testing in the oil and gas industry.
- Key Reservoir and Rock Properties that influence well test outcomes.
- Understanding Reservoir Fluid's impact on well test analysis.
- Grasping Basic Well Test Theory is essential for transient well testing.

Unit 2: Objectives of Well Testing, Equipment, and Processes Used:

- The role of Downhole and Surface Equipment in well analysis.
- Monitoring Downhole Data for optimal well test oil and gas processes.
- Sampling Techniques - Surface and Downhole.
- Steps of a Well Testing Sequence and Data Validation with a Focus on Typical Well Test Sequence.
- Critical Parameters and Quality Control in Well Test Solutions.

Unit 3: Principles of Pressure Transient Analysis:

- Techniques of Flow Regime Identification during well tests.
- Effective Validation and Analysis for Mobility and Skin in oil and gas wells.
- Understanding and managing Effects of Boundaries in well analysis.
- Importance of Accurate Reporting in well test oil and gas.

Unit 4: Gas Well Test Sequences and Analysis Procedures:

- Employing Isochronal and Back-pressure Gas Well Tests - their Uses and Objectives in the context of transient well testing.
- Analyzing Rate Dependent Skin, its Calculation, and its Impact on well test oil and gas.
- Facilitating exercises in the Analysis of Gas Well Test Data.
- Detailing IPR and AOF Analysis as critical components in gas well analysis.

Unit 5: Practical Oil Well Testing:

- Designing effective Well Tests tailored to the needs of oil well analysis.
- Transient Wireline Testing and its significance in oil and gas well tests.
- Work on an Example of Buildup Interpretation for a Vertical Oil and Gas Well, demonstrating practical application in well test solutions.

Conclusion:

By integrating these crucial aspects, participants will leave the transient oil and gas well test analysis course with a comprehensive understanding and practical experience in contemporary oil and gas well test analysis techniques.