

PNGE 634

Pressure Transient Analysis

Catalog Description (Fall 05)

Pressure Transient Analysis, 3 Hr. PR: PNGE 234 or consent, Methods of analysis of pressure transient data obtained from well testing for the purpose of determining in-situ reservoir conditions including porosity, lateral extent, average reservoir pressure, and formation permeability.

Textbook(s) and/or Other Required Material

Course Notes prepared by the instructor

Course Objectives

To provide the students with opportunity to learn and practice the interpretation of the well test data from various type of reservoirs in order to estimate formation characteristics.

Topics Cove

1. **Introduction**
What is a Well Test? What can be learned from a well test?
Reservoir Behaviors, Boundary Effects, Solutions, Type Curves
2. **Fundamental of Well Testing**
Fluid Flow through Porous Media, Basic Equations, RDE, Boundary Conditions, Solutions of RDE, Ideal Well Tests, Superposition, Damage, Boundary Effects.
3. **Well Test Interpretation:** Diagnostic Plot, Specialized Plot, Wellbore Storage, Type Curves, Pressure Derivative, Pressure Derivative Type Curves, Consistency Check, Dimensionless Plots.
Gas Flow Equations, Gas Well Testing, Gas Well Deliverability Testing
4. **Testing Fractured Wells**
Infinite Conductivity Vertical Fractures, Finite Conductivity Vertical Fractures
Solutions, Type Curves, Wellbore Storage, Damage.
5. **Testing Heterogeneous Formation**
Double-Porosity Models, Type Curve Solutions, Pressure Derivative, Pressure Derivative Type Curves, Consistency Check, Dimensionless Plots.
6. **Other Well Tests**
Fall-off, DST, Interference, Pulse...

Class/laboratory schedule

Lecture: 1 sessions/week, 150 minutes per session