Production and Reserves Forecasting

Course Agenda

Day 1

Session 1: Production and Reserves Forecasting - Introduction
- What is it and why is it important?
- Risk and Uncertainty – key factors
- From Production Forecasts to Reserves and more
- Institutional requirements and guidelines

Session 2: Initial Hydrocarbons in Place – a First Step to Forecasting
- Technical evaluation techniques
- Methodologies to address uncertainty (deterministic, probabilistic)
- The link to production forecasting

Session 3: Forecasting Conventional Resources – Overview of Techniques
- Decline Curve Analysis (DCA)
- Material balance (p/z) analysis
- ‘Type’ wells
- Analytical forecasting techniques for IOR/EOR (waterflood, thermal, CO2)
- Dynamic reservoir simulation

Session 4: Decline Curve Analysis
- Application and data requirements
- Technical basis – Arp’s empirical model
- Assumptions and limitations
- Example case studies and exercises
Day 2

Session 5: Material Balance (p/z) Analysis
- Application and data requirements
- Technical basis
- Assumptions and limitations
- Example case studies and exercises

Session 6: Forecasting Using ‘Type’ Wells
- Application and data requirements
- Technical basis – the analog question
- Assumptions and limitations
- Example case studies and exercises

Session 7: Dynamic Reservoir Simulation
- Application and data requirements
- Technical basis – the analog question
- Assumptions and limitations
- Example case studies

Session 8: Forecasting Unconventional Resources – “We Have a Problem”
- Shale gas, ‘tight’ gas, CBM, shale oil
- The issues: flow regimes and basic physics
- Limitations of conventional techniques
- Advanced Decline Curve Analysis using empirical modifications
- Theoretical and empirical models
- Forecasting examples and conclusions

Closing Session & Summary
- Production forecasting economics – the link between technically recoverable resources (i.e., production forecasts) and Reserves
- Lessons learned and best practices