

## DeGolyer and MacNaughton Training Seminar

### Overview of Unconventional Resources: From Characterization to Resources/Reserves Estimation



**Instructor:** Dilhan Ilk, Ph.D. is a vice president and staff engineer at DeGolyer and MacNaughton in Dallas. He specializes in the analysis and forecasting of well test and production data. In particular, Ilk focuses on well performance analysis in unconventional reservoirs and has extensive practical experience in numerous tight oil and gas fields. He has written more than 30 articles on well test analysis, the analysis/interpretation of production data, and general reservoir engineering. Ilk has also presented multiple industry short courses and regularly serves in program committees at SPE events focused on unconventional reservoirs (conferences, workshops and forums), and currently is a member of SPE Reservoir Description and Dynamics Advisory Committee. He holds a bachelor's degree from Istanbul Technical University and master's and doctorate degrees from Texas A&M University, all in petroleum engineering.

**Duration:** Three or four days

**Who Should Attend:** Geoscientists, engineers, and managers who are interested in understanding the key characteristics of unconventional resource plays, factors that control productivity, how to analyze, model and forecast well performance, and estimation of reserves and resources for unconventional assets.

#### Learning Outcomes:

- Understand the controls on in-place volumes and productivity
- Identify effects of drilling/completion on well production
- Estimate key reservoir and completion parameters using model-based production analysis
- Forecast production using numerical, analytical, and decline curve techniques
- Establish workflows to help quantify reserves and resources

**Course Description:** Unconventional resource plays are becoming increasingly important contributors to the world's energy output. The purpose of this course is to provide practical insights for understanding productivity and well performance in unconventional resource plays, as well as for reserves and resources estimation for unconventional assets. The workshop presents an overview of fluid flow at the pore-scale, factors that control productivity, and the effects of completion practices. Various production analysis methodologies will be emphasized, from simple decline curve relations to more advanced numerical simulation models – which can be used to analyze, model and forecast well performance. The course concludes with approaches to reserves and resources estimation, and address key questions on determining proved area, 1P, 2P and 3P type curves, reserves classification and reliable technology.

## **Tentative Course Contents:**

- Module 0: Introduction
  - Overview
  - Definitions
  - (North America) Production trends
- Module 1: Overview of Subsurface Characterization
  - Fluid flow/storage in nanopores
  - Geochemistry
  - Petrophysical analysis/interpretation and geomechanics
  - Data requirements for evaluation
- Module 2: Drilling and Completion
  - Drilling trends and hydraulic fracturing
  - Completion techniques and evaluation
  - Completion diagnostics
- Module 3: Well Performance Analysis and Forecast
  - Background and orientation, historical work
  - PA objectives
  - Decline curve analysis
  - Production diagnostics (diagnostic plots, applications in shale, tight reservoirs)
  - Analysis by modeling (analytical solutions, numerical simulation)
  - Workflows/examples
- Module 4: Resources and Reserves
  - PRMS — unconvensionals
  - Prospective resources
  - Discovery test
  - Contingent resources assessment methodology
  - Reserves assessment in unconvensionals

To register, send an email to [degolyer@demac.com](mailto:degolyer@demac.com).