Knowledge

D&M employs experienced petroleum engineers, exploration geologists, geophysicists, petrophysicists, and economists to support its work in analyzing and estimating reserves and development recovery strategies for unconventional reservoirs.

Integrity

Through training programs and engagements in major projects, the firm has helped hundreds of clients around the globe develop clearer pictures of how unconventional reservoirs work.

Service

D&M provides guidance to help clients develop the most effective development and recovery plans, from first wells to enhanced recovery.

Maximizing Recovery from Unconventional Resources Requires More Than Conventional Knowledge

Answers for Unconventional Resources

DeGolyer and MacNaughton offers a diverse range of services supporting the evaluation and development of unconventional resources. More and more often, D&M is being called upon to help clients understand how these reservoirs work and to provide support in the design of reservoir evaluation and testing programs that can guide development plans. The firm is also called upon to conduct economic evaluations and to estimate resources and reserves for these unconventional reservoirs.

The firm's services include:

- Reservoir/Resources Evaluations
- Estimation of Contingent/Prospective Resources
- Well Performance Analysis
- Estimation of Reserves

D&M offers wide-ranging expertise in geological, geophysical, petrophysical, and engineering evaluations of unconventional resources. Objectives include providing recommendations regarding the siting of wells, what data need to be acquired, drilling and completion design, and guidelines for production testing. The firm can also assist in the planning and implementation of coring and core-analysis programs, including the interpretation of data and integration with petrophysical and well-test information.

The estimation of resources requires an understanding of the parameters controlling gas-in-place and production, together with the knowledge of how these vary across a given area, and the impact of factors such as drilling and completion practices on ultimate recovery. D&M uses both deterministic and probabilistic approaches for this work, in accordance with industry standards.

Industry Studies

D&M can provide insights regarding basin potential, the applicability of emerging technologies, practices that are most cost-effective, and why various projects in coals, shales, and tight sands/carbonates have been successful or unsuccessful.

Experience

D&M has extensive experience with unconventional resources:

Shale gas and shale oil

In the United States: Bakken, Barnett, Bone Springs, Eagle Ford, Fayetteville, Haynesville, Horn River, Marcellus, Montney, Niobrara, Spraberry, Wolfcamp and Woodford Shales

Internationally: Algeria, Argentina, Australia, Brazil, Colombia, Europe, Kuwait and Russia

Tight oil and tight gas

In the United States: Delaware, Granite Wash, Green River, Gulf Coast, Mississippi Lime, Permian, Piceance, San Juan, and Val Verde Basins
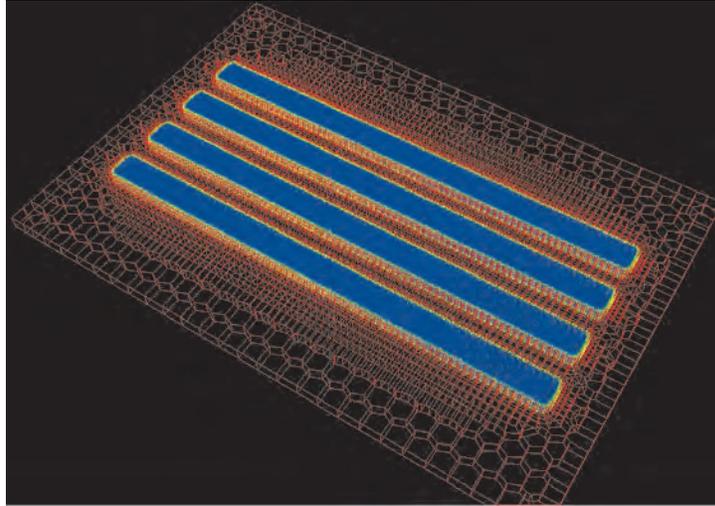
Internationally: Algeria, Australia, Brazil, China, Kuwait, and the Ukraine

Coal seam gas

In the United States: Appalachian, Arkoma, Black Warrior, Cahaba, Cherokee, Powder River, Raton and San Juan Basins

Internationally: Australia, China, England, Europe, and the Ukraine

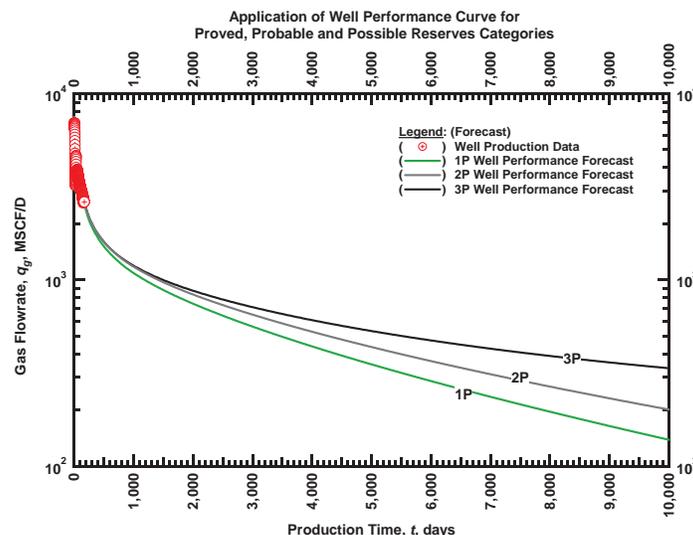# Unconventional Resources Well Performance Analysis

D&M provides multiple well simulation tests to help clients evaluate the influence of well configuration on recovery.
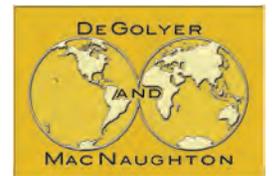
Estimation of Reserves

D&M is a recognized industry leader in the estimation of oil and gas reserves using PRMS, SEC, COGEH, and other reporting standards. D&M applies multiple techniques, including well-performance analysis, analytical/numerical modeling, and analogous reservoirs to its estimation work.

D&M is a recognized industry leader in the estimation of oil and gas reserves using PRMS, SEC, COGEH and other reporting standards. D&M uses multiple techniques, including well performance analysis, analytical and numerical modeling, and analogous reservoirs in the estimation role and for these purposes D&M has developed proprietary software. D&M has also collaborated with KAPPA Engineering to create a software solution (Citrine) that can be used for field production analysis.

Citrine permits the rapid load of mass public, client, or simulation sources for the processing of multi-well data. Using visualization, trend identification, and multi-well comparison, the user can fully understand and interpret field performance using diagnostics and decline curve analysis. The user can generate a statistical curve that can then be used as a type well for decline analysis on a wider scale. Citrine can retrieve analytical or numerical forecasts from reservoir simulation software and use them as a seed for multi-well analysis and forecast.