Reservoir modeling and simulation study to plan a 2,000 well drilling program

Client: BP Americas, Inc. (BP)

Location: Wamsutter Field, Green River Basin, Southwestern Wyoming

Objective: Evaluate an incremental gas recovery and production acceleration of down-spacing wells.

The Wamsutter Field is located in the eastern part of the Green River Basin and has produced over 2 Trillion Cubic Feet (TCF) gas. BP, the field's largest operator, has announced plans for a 2,000 well drilling program over the next 15 years that should produce an additional 3 TCF. BP contracted Knowledge Reservoir for a reservoir modeling and simulation study of a representative area of the Wamsutter Field. The work required creating an accurate and detailed static and dynamic model that can find the appropriate scope of infill drilling by down-spacing the wells from 160 acres to 80, 40, and 20 acre spacing.

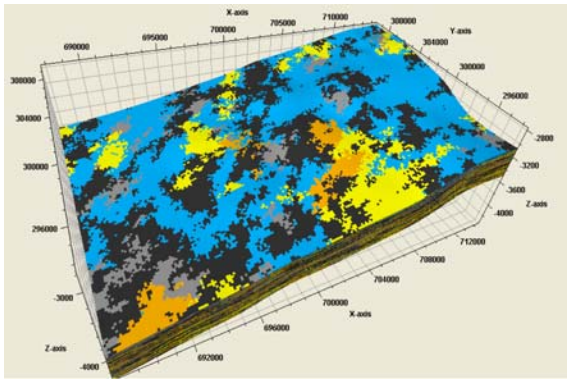

Figure 1: SIS model that provided 3-D facies model of the field

Knowledge Reservoir provided a realistic development plan for this field, which included:

- Understanding the facies distribution in the upper formation using the field-specific Petrophysical model.
- Creating a Geocellular model using Object-Based Modeling (OBM) and Sequential Indicator Simulation (SIS) modeling.
- Initializing a 2-phase gas-water dynamic model within Geo-Model to estimate OGIP and EUR.
- Conducting history matching of the production data to forecast production for 80, 40 and 20-acre spacing.

Based on the well model and simulation result, Knowledge Reservoir estimated the incremental gas recovery in the Wamsutter Field for different well spacing. The team also developed appropriate methods to increase gas recovery rate per well. Knowledge Reservoir's team demonstrated state-of- the-art simulation techniques to successfully complete this study for a complex continental basin.

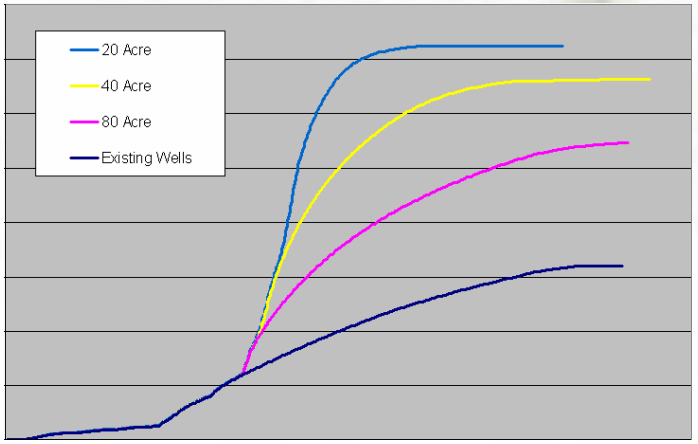

Figure 2: The plot shows incremental recovery over time due to less acreage spacing of wells