CBM - Coalbed Methane Reservoir Analysis

Main Features

Isotherm / Volumetrics:
Visually compare measured gas content of coal to the Langmuir Isotherm. Generate volumetric estimates of the recovery factor and recoverable reserves based on abandonment pressure or abandonment CO2 fraction. Calculate free, adsorbed and total gas-in-place.

Binary Langmuir Isotherm:
Monitor the fraction of CO2 in the produced gas by modeling the binary mixture of CH4 and CO2 using Extended Langmuir Isotherm.

History Matching:
Import historical production data and match it to determine reservoir parameters (permeability, skin, drainage area, and porosity).

Material Balance:
Estimate original-gas-in-place using static material balance (including King, Seidle and Jensen & Smith methods) or flowing material balance (for dry coal).

Deliverability Forecasting:
Forecast gas and water rates, as well as average reservoir pressure and water saturation based on constant or variable flowing pressure. Use the multi-well option to quickly determine optimal drill spacing for play areas.

Numerical Models:
Generate forecasts or history match production data using the numerical models available for single fracture, vertical or horizontal well configuration.

Data Diagnostics:
Plot production data to quickly show data inconsistencies or operational issues in a producing well. Includes Turner and Coleman rates to help identify liquid loading.
Type Curves for CBM:
Use type curves developed for dry coal to estimate gas-in-place as well as permeability and skin.

Analytical Models:
Use analytical models to generate single-phase production forecast, historymatch production or confirm results of other models. The available well/reservoir models includes fracture, vertical, horizontal, composite, multi-layer, horizontal multi-frac and multi-frac composite.

Matrix Shrinkage:
Invoke the matrix shrinkage option to model stress-dependent permeability of coal. Utilize different matrix shrinkage correlations for forecasting or history matching. Generate permeability vs. pressure plots for visual confirmation of correlations.

Sensitivity Analysis:
Create tornado charts to determine the sensitivity of expected recovery and original gas-in-place to reservoir parameters.

Multi-Layer Modeling:
Use the multi-layer functionality to history match the production or generate forecast for a well perforated into multi zones of coal and sand.

Risk Analysis:
Perform Risk Analysis using Monte Carlo simulation to investigate the impact of uncertainty in reservoir/well parameters on the gas-in-place, EUR and gas production and determine the likely outcomes.

IHS Piper Integration:
Analyze your coal bed methane wells with our CBM solution and import the results in Piper to forecast multiple wells & optimize tie-in locations, pipeline capacity and compression.

Request a free trial now!
For more information www.ihs.com/energyengineering

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