

WEM Shale

Shale Gas Model

Increase Your Confidence in Shale Gas Estimated Ultimate Recovery (EUR)

Complex shale gas plays have tremendous energy potential, but present serious challenges for operators and service companies. Gas stored in the natural fractures, the pore space, and organic matter in the matrix means complicated heterogeneous reservoir systems, which makes production modeling, optimization, and facilities design more difficult.

The basic strategy for economically viable shale gas production has been determined: horizontal wells and hydraulic fracturing. But operators and service companies working in these plays will be the first to admit—the solution is not one-size-fits-all and the strategy is only the first answer in a long line of challenging questions.

In any given well, you need to know: Is the principal flow coming from the matrix or the fractures? Is my production profile on track? Over time, as permeability changes and pressure decreases, how will production be affected?

You need a fast and efficient way to develop reliable production profiles, which in turn can help you forecast reliable EUR. Well now you have it with WEM Shale.

The Power of Two Proven Technologies: WEM + PMTx(SL)

WEM Shale delivers a fast and efficient way to history match shale gas production data, generate production forecasts, and estimate EUR. These capabilities improve your ability to accurately plan and design production facilities, thereby reducing associated costs.

Design

Optimize

Analyze

WEM Shale integrates these two proven technologies from trusted and reliable sources:

- ◆ WEM well productivity software from Dr. Phil Moseley
- ◆ PMTx(SL), a single-layer, unconventional gas analytical simulator from Dr. John Spivey, founder Phoenix Reservoir Software, LLC

Dual Porosity

Desorption

Pressure-dependent Permeability

Optimizing Performance

WEM Shale integrates the multi-layer and horizontal fracture modeling capabilities for wells in WEM with a modified subset of the single-layer analytical reservoir simulator, PMTx(SL), allowing boundary conditions to be set on the analytics. WEM Shale models the effects of dual porosity, pressure-dependent permeability, and desorption from the matrix—delivering reliable results for better understanding of these complex reservoirs.



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Get Reliable Answers Fast

WEM Shale uses the same nodal analysis algorithms and technology as WEM. Use WEM Shale to:

- ◆ **Perform fast, efficient analog history match.** WEM Shale provides fast, accurate shale gas history matching in as little as one-tenth the time as numerical simulation.
- ◆ **Help focus numerical simulation.**

When a project requires the high-dollar, time-intensive investment of numerical simulation, WEM Shale can quickly and efficiently provide initial results to focus numerical simulation and help you get the most value from that investment.
- ◆ **Execute all of the same well design, analysis, and optimization as WEM.** WEM Shale includes all of the same capabilities as WEM to design producing and injecting wells, monitor operations and production, perform sensitivity analysis, and more. Need to know when to add a compressor? When to add tubing to deviate liquid loading? What size tubing to add? WEM Shale delivers answers to the toughest questions.

More rigorous than decline curve analysis and up to 10 times faster than numerical simulation, WEM Shale provides a powerful analysis tool that optimizes your time by providing reliable answers fast.

Constraining Well Performance in the Context of a Reservoir Model

Overall production performance is controlled by the reservoir's flowing capacity and the wellbore's flowing performance. The single-layer PMTx(SL) reservoir model used in WEM Shale is based on an analytical solution that accounts for naturally fractured reservoirs with adsorbed gas in the matrix.

WEM Shale lets you choose an outer boundary model (infinite, closed circular, or closed rectangular). Then the reservoir model iterates to approximate the method to match the historical production data. WEM Shale helps you understand the basis behind the historical production profile, which then enables you to forecast future performance.

Field Tested

The Moseley development team has worked closely with a shale gas operator-client for in-depth understanding of the customer perspective of the issues and challenges confronted in these plays. So WEM Shale has been rigorously tested throughout the development process.

Your Next Step

To discuss your specific needs and arrange a demonstration or free trial of WEM Shale, call us today at +1 281 496 1249. Or email us at sales@pmoseley.com.

About P.E. Moseley & Associates, Inc.

P.E. Moseley & Associates, Inc. (Moseley) develops and supports software and delivers training, mentoring and consulting services exclusively for the oil and gas industry. Products and services focus on well design, production optimization and reserves.

Since its inception in 1982, the company has delivered innovative, analytically-rigorous, user-friendly software solutions, beginning with WEM (Well Evaluation Model), the first commercial software to apply nodal analysis to well design and production optimization.

Virtually all software is developed and supported in-house by a Moseley team of advanced-degree experts and superior programmer talent. This elite team means Moseley customers receive fast, accurate technical support and rapid response to requests for new functionality.

Founder and president Dr. Phillip E. Moseley drives development, support, training and consulting. A team of Moseley associates executes the vision through continuous product enhancement and support, consulting, and delivery of public or company-specific training in well design and production optimization using Moseley software.