DecisionSpace®
Fracture Productivity

INCREASING ASSET PRODUCTIVITY FOR CLIENTS WORLDWIDE IS THE KEY TO THIS SOFTWARE’S PROVEN INDUSTRY LEADERSHIP.

OVERVIEW
Tight gas and shale reservoirs have shown tremendous growth in the last decade. In the current low-price environment, more than ever, it is necessary to efficiently exploit these assets while increasing the recovery at the same time. DecisionSpace® Fracture Productivity is designed to enable reservoir and frac engineers to do precisely this — by utilizing unique and sophisticated technology in an easy-to-use form, while taking advantage of the collaborative and integrated DecisionSpace® platform.

DecisionSpace® Fracture Productivity is a technologically-advanced and yet easy-to-use software to improve economic outcomes in low and ultra-low permeability reservoirs by optimizing completions and well spacing. Its drastic impact on asset productivity has been proven in various projects for numerous clients around the world.

BENEFITS
Rigorously predict productivity of wells and pads in low and ultra-low permeability reservoirs
DecisionSpace® Fracture Productivity makes physics-based predictions of well productivity and reservoir behavior in the presence of natural and hydraulic fractures through workflows tailor-made for low and ultra-low permeability reservoirs. The application assembles a geologically-consistent simulation model, combining planar or complex hydraulic fractures and discrete 2D/3D natural fractures in an automatically-generated unstructured grid that resolves pressure and fluid saturation transients accurately. The software supports simpler black-oil or the more complex equation-of-state (EOS) fluid models, which may be critical to model fluid behavior of condensates in liquids-rich shales. Specific transport mechanisms, such as Forchheimer flow, component-based adsorption, molecular diffusion, and Knudsen diffusion, are implemented in this software.

Optimize the fracture treatment design based on well and field productivity
Since hydraulic fracturing can easily account for 60 to 70 percent of the cost of shale wells, optimizing completions has a large economic impact. This software optimizes fracture treatments by changing the parameters of the fracture model to maximize productivity. For an operator in the Barnett Shale, the use of this technology resulted in a complete re-design of the hydraulic fracture treatment that doubled the per-well production for newer wells. The software provides a lot of flexibility in modeling hydraulic and natural fractures for uncertainty analysis, even when only limited data is available.
Improve capital allocation by optimizing well spacing
The software also works as a field planning tool for well spacing optimization by quantifying the changes in reservoir response and well productivity through interactions among multiple wells. With the software, the subsurface team is not limited to analyses on a single well — it is easy to model and optimize a whole pad.

FEATURES

Increased user productivity
In a purpose-built user interface, users can focus on solving problems through automated gridding technology and an improved model building process rather than spending time on the mechanics of setting up complex reservoir simulation models. This enables users to increase productivity while reducing months of work to hours.

Improved decision-making with accurate models
This software can utilize all available data for a well or group of wells to optimize hydraulic fracture job design and well spacing, hence driving efficient use of capital. It works well within an earth-model based continuous improvement process, so that data-driven decision-making based on reservoir understanding improves the economic outcomes from the asset.

Advanced technology for non-specialists
This software provides more accurate, physics-based predictions of recovery compared to current decline curve or rate-transient analysis type tools. Technical innovations include generating unstructured grids for complex models with fine resolution of near-fracture pressure and saturation gradients; direct meshing to solve natural fracture networks within the same unstructured grid, improving simulation prediction quality; and meshing algorithms that produce reservoir simulation grids on laptops and workstations within acceptable time frames even for enormous grids. With this software, analysis of complex reservoir processes, such as miscible injection, becomes accessible to non-specialists.

Innovative unstructured gridding technology
Unstructured gridding technology (with multiple patents pending) is specifically designed to discretely model fractures both hydraulic and natural — and helps users to rigorously model and accurately simulate flow. Automated gridding provides ease of use and reduces the time required to build a model.

DecisionSpace® Fracture Productivity helps operators minimize cost per BOE in low and ultra-low permeability assets through fast decision-making based on accurate simulation models of the reservoir.

Landmark offers solutions to help you deliver on your business strategies. For questions or to contact your Landmark representative, visit us at www.landmark.solutions.