Challenge
Refraecture existing horizontal wells in the Barnett Shale to improve declining well performance.

Solution
Used StimMORE service, which incorporates StimMAP LIVE microseismic monitoring service, to refracture and achieve good zonal coverage without mechanical intervention.

Results
Improved well estimated ultimate recovery (EUR) by 20%.

A vastly unexploited option
Horizontal well completions in the complex Barnett Shale reservoir have increased steadily in recent years, and the standard completion method is placing multiple transverse fracture treatments across the wellbore. A typical first-year average gas production decline is more than 50%, making completions in this reservoir good candidates for restimulation. Finding an economically feasible way to reenter the well and place multiple fractures in the wellbore is another limiting factor in the refracturing treatments that are undertaken today. These limitations make refracturing a vastly unexploited option in this area.

Refracturing improves well productivity and increases ultimate recovery.

To access trapped gas reserves, a major operator in the Barnett Shale collaborated with Schlumberger to develop a technique to refracture a horizontal well in the Barnett Shale. After an initial gas production of approximately 2,200 Mcf/d, well performance declined to less than 500 Mcf/d in 4 years. However, microseismic monitoring of the original stimulation treatments confirmed the opportunity to contact more of the reservoir rock.
Case study: Integrated approach to well stimulation improves EUR by 20%

StimMORE service, which combines fluid-based, tool-free fracture diversion technology with StimMAP LIVE real-time data, enabled efficient and cost-effective completion of the previously unstimulated well sections.

The graphs show stimulation results using conventional treatment methods and the results using the StimMORE service.

An integrated approach to refracturing

The operator selected the Schlumberger StimMORE refracturing service for this treatment. The StimMORE service combines a unique fluid-based, tool-free fracture diversion technology with StimMAP LIVE real-time fracture monitoring.

The diversion slurries consisted of a multicomponent blend of degradable materials that temporarily block fractures, diverting fluid flow and inducing the creation of additional fractures in situ and/or at the wellbore. StimMAP LIVE diagnostics were used during the treatment to confirm the lateral section that the stimulation fluids contacted, and four diversion plugs were pumped to maximize lateral coverage.

Cost-effective completion and increased recovery

This new approach to refracturing improved well economics by avoiding costly intervention techniques and optimizing stimulation treatment in real time. Based on the estimated production decline, the operator expects payback for the stimulation treatment within 6 months. More importantly, over a 20-year time period, recoverable reserves are expected to increase by 20%.

Projected recovery comparison over 20 years.

About the Contact family

StimMORE service is part of the dynamic category of the Contact® staged fracturing and completion services. These technologies maximize reservoir contact by offering the most efficient and effective services for each well. The Contact dynamic category offers fluid-based and tool-free fracturing of multiple stages in one continuous operation. Contact services can be enhanced with real-time measurement options.