

BroadBand Sequence

Fracturing service

APPLICATIONS

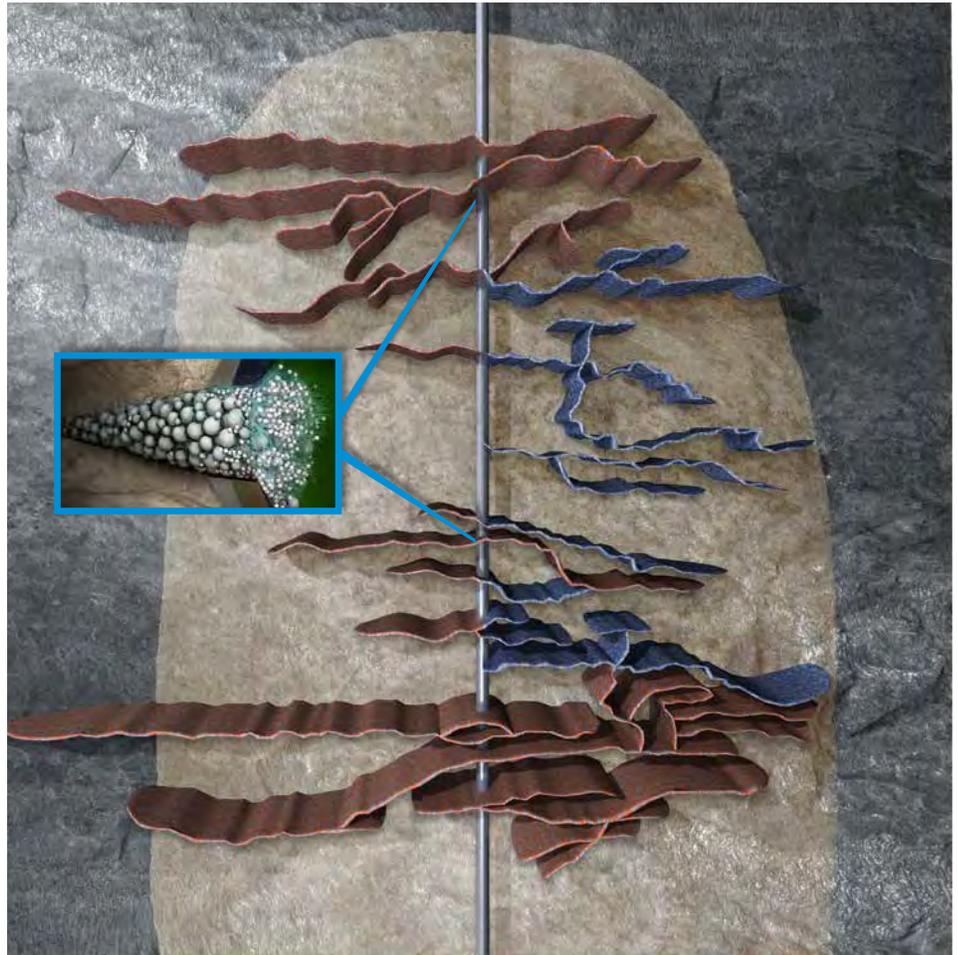
- Wells in unconventional formations
- Low- to high-temperature wells
- New completions
- Refracturing operations
- Poorly cemented completions
- Compromised casing situations
- Cased hole with perforations or jetted slots
- Openhole completions

BENEFITS

- Maximizes well productivity and completion efficiency through novel well stimulation treatment
- Increases production and recovery through sequenced stimulation of zones with increasing fracture initiation pressure
- Increases efficiency through fewer interventions and reduced NPT during coiled tubing milling and cleanout operations

FEATURES

- Engineered stimulation treatment enabled by blending degradable fibers and particles with multimodal size distribution
- Temporary isolation of perforations and wide fractures using a small volume of material
- Ability to reduce the number of bridge plugs used per completion
- No residue after degradation
- Enhanced near-wellbore conductivity and superior diversion with partially degradable pills
- Suitability in downhole temperatures ranging from 70 to 400 degF [21 to 204 degC]



Conventional stimulation techniques produce highly variable results (left), while the BroadBand Sequence fracturing service stimulates additional clusters (in blue on the right).*

A breakthrough in reservoir stimulation

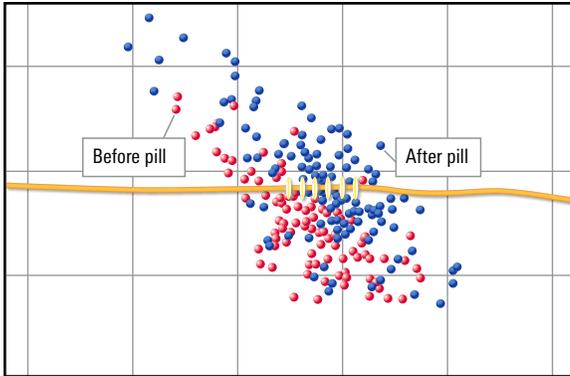
The BroadBand Sequence fracturing service improves well production through the engineered stimulation of zones with increasing fracture initiation pressure. This is enabled by the use of a composite fluid comprising a proprietary blend of degradable fibers and multimodal particles along with an option for highly conductive, high-strength spheres.

The BroadBand Sequence service enables sequential stimulation of perforated clusters or openhole intervals, maximizing wellbore coverage and reservoir contact. It increases operational efficiency, productivity, and potentially estimated ultimate recovery.

BroadBand Sequence

Sequenced stimulation for optimal reservoir contact

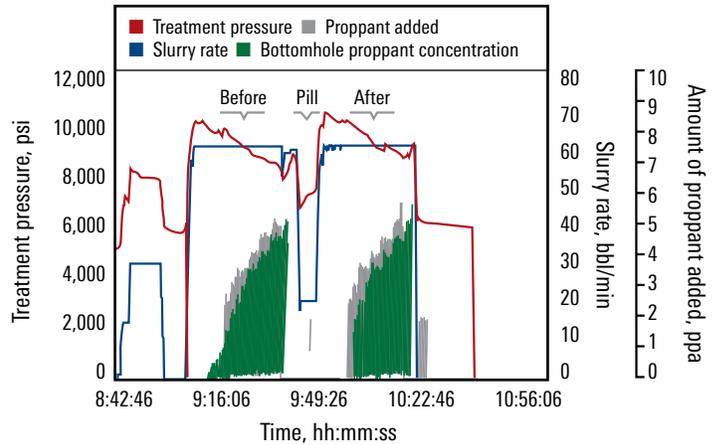
The BroadBand Sequence fracturing service reliably induces temporary isolation on demand and thus stimulates more perforations. It increases contact with the reservoir and enables the extension of the interval lengths to be stimulated. The BroadBand Sequence service can also be used as an alternative to bridge plugs in situations where a bridge plug cannot be used. It is an unparalleled enabler for refracturing and for stimulation operations in troubled completions (deformed casing, stuck casing, or misfired perforations).



The distribution of microseismic events demonstrates the effectiveness of the BroadBand Sequence service (in blue) in a previously unstimulated zone (in red).

Step change in completion efficiency

When using the BroadBand Sequence service, the stimulation treatment for each interval (the length of lateral between two bridge plugs) consists of multiple stages of proppant separated by pills of composite fluid comprising degradable fibers and particles. Longer intervals can be treated effectively by increasing the number of stimulation stages and pills without requiring additional bridge plugs, saving operational time and costs.



In the interval between two bridge plugs, the BroadBand Sequence service alternates stages of proppant with pills of degradable fibers and particles to improve stimulation effectiveness.

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