Cobra Frac® H Service
Enables High-Intensity Multistage Fracturing and Post-Frac Analysis

Cobra Frac® H service enables a virtually unlimited number of frac stages in a horizontal section plus post-frac analysis to determine the effectiveness of the treatment. Aspects of the new service include the following:

- Multiple intervals fractured per run
- Horizontal, cased, cemented and perforated wellbores
- Straddle-packer isolation of frac intervals
- Coiled tubing deployed
- Post-frac analysis facilitated
- Refrac treatments simplified

Implemented through a unique process, the service includes a new bottomhole assembly that features hydraulic hold-down capability and improved elastomer technology.

Cobra Frac H service can include cementing, perforating, milling, fracturing and post-frac analysis.

Halliburton’s ZoneSeal® Isolation Process, a foam cementing service, provides the durability to withstand the forces of intense fracturing and the milling process helps assure a good seal for the cups and packer elements.

For deeper completions the utility of coiled tubing can be optimized for higher treatment rates using large diameter coiled tubing strings combined with jointed tubing and run with Halliburton’s hydraulic workover unit.

**Post-fracture Analysis**

Data for post-fracture analysis can be obtained by including a Halliburton DynaMem® memory gauge in the bottomhole assembly. Analysis of the pressure data can be used to determine effective fracture half-length, fracture conductivity, reservoir pressure, reservoir permeability and near-wellbore skin. This information can help determine the effectiveness of the current fracture treatment and optimize future treatments designs.

**Refracturing Treatments**

The proven ability of the Cobra Frac H process to fracture stimulate preperforated completions makes it a likely choice for isolating, testing and refracturing intervals – even in horizontal wells.

Cobra Frac® H service process – top to bottom: ZoneSeal® foam cementing to endure fracturing forces, tubing conveyed perforating, coiled tubing milling to help assure a dependable seal and, finally, pinpoint multistage fracturing.
**Case History - Cobra Frac® H Service Pays Off for Canadian Operator**

A major oil and gas company producing from the Spearfish tight sand formation in Manitoba, Canada, is achieving excellent results with Cobra Frac H service horizontal fracturing. The project has resulted in significantly improved production, enabling the operator to maintain its drilling program.

To achieve good production from this formation, the operator needed to overcome two challenges. First, a water-bearing zone immediately below the zone of interest meant closely controlling the fracture treatments to minimize the risk of contacting the water. If the water zone were contacted, production would be significantly hindered. Second, the operator needed to implement more fracture treatments in each well to increase production because it has been proved that, in this area, economic production levels are achieved only with a significant increase in fracture intensity.

The Cobra Frac H fracturing process enabled Halliburton to control the fracture initiation points with pinpoint accuracy while engineering and modeling enabled controlling fracture geometry.

**The Results**

The result was a fully stimulated reservoir with fractures located out of the water-bearing areas. Typical initial production rates for the Spearfish formation were approximately 90 bbl/day of oil using previous horizontal stimulation technologies. With the Cobra Frac H process, the operator is achieving about 350 bbl/day initially, declining over five months to a steady flow rate of approximately half the initial production rate.

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*Average production results from Cobra Frac® H service treatments in Canada's Spearfish tight sand formation. Cumulative production is almost double that of horizontal offsets.*

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For more information about how Cobra Frac® H service can help make your horizontal completions more productive, contact your local Halliburton representative or email stimulation@Halliburton.com.