Cobra Frac® Service
Cost-Effective Method for Stimulating Untapped Reserves – Proved in More Than 30,000 Fracture Treatments

- Allows individual stringers to be fractured cost effectively
- Single-day stimulation reduces cycle time to sales and minimizes environmental impact
- Fit-for-purpose units enhance process efficiency
- Smaller footprint than conventional fracturing equipment
- Exclusive Cobra Frac® service bottomhole assembly helps assure successful, trouble-free operations
- Ideal for CBM and shallow gas applications
- Successfully applied to 7,700+ to date

Operating in today’s aging reservoirs, operators are challenged with finding an effective method for stimulating shallow sand formations in under-pressured gas reservoirs. In addition, in long intervals, an initial fracturing treatment may not effectively and completely stimulate all areas of the interval and a second fracture job may be required to fully penetrate gas-laden reservoirs. A common practice is to fracture the wells in stages down casing, using wireline retrievable plugs to isolate lower zones.

Now, Cobra Frac service offers a better way. With a single trip in the well, operators are stimulating multiple zones by straddling each individual productive stringer. Recoverable reserves and production rates are significantly improved, while total completion costs are lowered. Cobra Frac service has been successfully applied to stimulate more than 5,000 wells!

Cobra Frac Service Bottomhole Assembly is a Key Factor:
- Specially designed straddle packer helps assure a successful operation
- An equalizing valve allows movement of the tools without flowing the well
- Reciprocating J allows multiple sets on a single trip
- Top cup packer acts like a check valve allowing the well to be reverse circulated to clean the tools
- Safety shear sub allows the release of tools
- Simple to operate, dependable and easily field serviced
- Safety – with compression type tools, in an unplanned event, the wellbore can be isolated to help prevent uncontrolled releases

Cobra Frac service bottomhole assembly is a key factor in successfully applying coiled tubing technology to fracturing.
**Cobra Frac Service Successes**

**United States (Colorado)** – In the southeastern part of the state, coalbed methane trapped in multiple seams has plagued operators for decades. Depth of the typical well is 3,500 ft with up to 20 seams trapping methane gas. Until recently, the most popular technique was to fracture multiple seams simultaneously using a “velocity over accuracy” approach. Today, Halliburton’s Cobra Frac service team is fracturing multiple seams in a single day, bringing more methane to market with less cycle time and less environmental impact. The result: Improved NPV compared to conventional methods.

**United Kingdom** – The operator was challenged with completing an exploration program in multiple coal seams (10–14 per well) in a cost-effective and timely manner in a highly populated area just outside Liverpool, England. After trying the velocity over accuracy approach, the operator took advantage of Boots & Coots Cobra Frac service technology. The result: five wells completed with 53 individual fracture treatments, with 3 million pounds of sand accurately placed in all targeted seams giving unparalleled completion efficiency. Today, the operator is moving forward with continued exploration and drilling plans with the potential to become the UK’s first commercial CBM operator.

**Canada (Alberta)** – Operators in Southern Alberta are challenged with recovering trapped gas in under-pressured low-temperature sandstone reservoirs from shallow gas wells on tight spacing on very environmentally sensitive pastureland. Cobra Frac service is being used to exploit gas-bearing sands in new wells and to refracture old wells with bypassed pay. Using the patented selective straddle packer system, the Cobra Frac team frequently treats multiple wells in a single day. In fact, it recently set a world record by treating 19 zones in two wells with a single crew in a 12-hour day, placing a total of 520,000 pounds of 20/40 sand at concentrations of up to 16 lb/gal. Well responses have yielded superior production at higher flowing pressures.

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**Cobra Frac Service Answers Operators’ Concerns About CT Fracturing**

**What happens if we sand off?**
We hoist the tools to the next interval, reverse them clean and continue with the next frac.

**What happens if we get annulus pressure?**
We stop pumping, hoist the tools to the next interval, reverse them clean, and then continue with the next fracture treatment.

**How do you know if you have a tool failure?**
We monitor the pipe weight throughout the treatments.

**How is the Cobra Frac service tool different from cup-type tools?**
Cup-type tools rely on differential pressure to seal and require well intervention to be reset.

**Is hydraulic isolation important?**
Yes. To prevent communication on close zones, isolation is critical.

**What type of wells are good candidates?**
Look for wells with one or more of these characteristics:
- Multiple zones that require stimulation
- Located in areas of environmental concern
- NPV can be increased by reduced cycle time
- Casing integrity problems
- Bypassed pay behind pipe

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For more information on how Cobra Frac® Service, can help you maximize production without a maximum investment, contact your local Halliburton representative or e-mail Stimulation@Halliburton.com

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