

Case Study



SUREjet Abrasive Jet Fracturing System Fractures 40 Stages in a Single Trip with Zero Tool Non-productive Time

Features and Benefits

- Mechanical collar locator has field adjustable over-pull which increases depth correlation reliability in longer laterals and minimizes tool failure
- Our next generation packer design is capable of cutting and fracturing more than 40 fracturing stages in a single trip
- Abrasive perforator has 5 to 8 minute cut interval capability using standard fracturing sand
- Works in both 4.5 in (114.3 mm) and 5.5 in (139.7 mm) wellbores
- Unique component coatings provide element longevity and component erosion resistance
- Unloader valve designed to function effectively in heavy sand-laden environments

Customer Challenge

An operator in Northern Alberta was looking for an advanced annular fracturing system that is reliable with the capability of making pinpoint adjustments when necessary. In the past, the operator experienced several problems associated with poor tool engineering as well as malfunctions with coiled tubing packer sleeves and was looking for an alternative tool system to provide increased tool reliability and productivity for their operations.



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Technical Solution

Gryphon's SUREjet Abrasive Jet Fracturing System consists of an abrasive jet cutter, multi-set packer, and mechanical collar locator. The existing system was modified to the client's operational requirements with the option to change the pinpoint fracture locations throughout the operation.

The system was initially utilized on a 26 well drilling program, averaging 20 stages per well. In one instance, 40 stages were completed in a single trip with minimal tool wear. In addition, Gryphon Oilfield Solutions has successfully executed several requests from the operator to change the location of pinpoint fractures during the operation. Due to system's speed, reliability and it not requiring the purchase of coiled tubing fracturing sleeves, the operator experienced significant increases in operational efficiencies.

Job Execution Details

- 2,900 m (9,514 ft) MD
- Greater than 1,200 m (3,937 ft) TVD
- 114.3 mm, 17.26 kg/m (4-1/2" 11.6 lb/ft) LT&C casing
- Maximum fracture pressure: 48 MPa (6,961 psi)
- Average fracture pressures: 32.5 MPa (4,713 psi)
- Maximum sand concentration: 600 kg/m³ (5 lb/gal)
- Average fracture rate: 1.2 m³/min (7.55 bbl/min)
- Average fracture tonnage per stage: 5.0
- Average time per stage: 55 min
- Requested interval changes during the job: 12

Overall Performance in the Field

To date, the SUREjet system has performed more than 1,000 stages with zero tool non-productive time.

This example clearly demonstrates the effectiveness of the SUREjet system in low to mid-pressure wells, and its ability to fracture multiple stages reliably in sand-laden environments in a single trip while making fracture interval changes on the fly in the wellbore.



Packer's element after a 40 stage stimulation operation under moderate fracturing pressures exhibits virtually no wear.