Enhancing Multistage Hydraulic Fracturing Efficiency with a Single-Slip Dissolvable Frac Plug At East Siberian Basin

Overview

An operator in the East Siberian Basin encountered operational inefficiencies during multistage hydraulic fracturing in a long-lateral horizontal well. Challenges included prolonged drill-out times, casing damage risks, and inconsistent plug dissolution. The independently developed single-slip dissolvable frac plug manufactured by Wuxi Saikefu New Materials Technology Co., Ltd (Thankful Material) was put into use in the East Siberian Basin, Russia and was successfully used to resolved these issues, reducing non-productive time (NPT) and improving completion efficiency of the well.

Objectives & Challenges

Single-Slip Dissolvable Frac Plug advantages Over Conventional Plugs
- Eliminated Drill-Out: No milling required, reducing completion time by 20%.
- Reduced Mechanical Complexity: Single-slip system minimized plug failure risks.
- Predictable Dissolution: Engineered to degrade uniformly, preventing post-frac obstructions.
- Casing Protection: Non-aggressive slip design reduced casing wear potential.

Metric	Before (Composite Plugs)	After (Dissolvable Plugs)	Improvement
Avg.Stage Time	4.5 hours	3.6 hours	20% reduction
Drill-Out Cost	$250,000	0	100% savings
Casing Damage Incidents	2 per well	0	Eliminated
Post-Frac Cleanout Needed	Yes (15% of stages)	No	100% reduction

Operational Workflow

- Plug Deployment: Set via wireline at each stage with 100% setting success.
- Fracturing Operations: Maintained isolation at 10,500 psi differential pressure.
- Post-Frac Dissolution: Full degradation within 10 days, confirmed via production logs.

Valve to Customer

- Cost Savings: Reduced total completion costs by $300,000 per well.
- Time Efficiency: Shortened completion cycle by 4 days, accelerating production.
- Risk Mitigation: Eliminated intervention risks associated with stuck plugs and casing damage.
- Production Optimization: Ensured unrestricted flowback, enhancing early well performance.

The adoption of Thankful Material ' s single-slip dissolvable frac plug proved instrumental in optimizing multistage fracturing operations. Dissolvable technology eliminates milling, reducing costs and NPT. Simplified single-slip design enhances reliability in high-pressure environments. Controlled dissolution prevents post-frac flow restrictions. For operators in unconventional shale plays, this solution presents a cost-effective, high-efficiency alternative to traditional plug-and-perf methods. Practice has proved that the dissolvable frac plug is reliably anchored in the working project and the solubility effect of the bridge plug was controllable.



Thankful material provides field-proven, reliable Single-slip dissolvable frac plug.

LOCATION
East Siberian Basin, Russia

OUR PRODUCTS
30 Units Single-Slip Dissolvable Frac Plug
Nominal OD = 98 mm
Nominal ID = 30 mm
Casing Size = 5 1/2 "
Casing ID Range = 114.3-115.02 mm
Bore Size = 42 mm
Length = 272 mm
Temperature Resistance ℃ = 120~150
Pressure Rating = 12,000 Psi
Dissolution Time = 7-14 days (formation-fluid dependent)
Compatibility = Brine, HCL & common fracturing fluids
Withstand Voltage = 70 MPa
Soluble Ball Diameter = 65 mm
Setting Tool = Baker#20

WELL TYPE
Long-lateral Horizontal Well
Lateral Length = 9,750 ft
Total Stages = 30
Completion Method = Plug-and-Perf Hydraulic Fracturing

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