

LOCATION: CENTRAL TEXAS

**BAKER
HUGHES**
a GE company



MAX-PRIME solution restores production to damaged well, saves \$48,000 USD



An operator working a Barnett Shale well contacted Baker Hughes, a GE company (BHGE), to help with sand cleanout in order to restore the well to original production levels. Barnett Shale wells are typically known for drawing frac sand into the wellbore during production, eventually “sanding up” and stopping production all together.

Typical remediation treatments require bringing in a workover rig to pump fresh water in order to flush out the sand. This treatment requires a large amount of water and typically takes up to 5 days to remove the sand. Another option for remediation is by bailing the sand out with a bailer, although this carries the inherent risk of getting stuck and the resultant fishing job. The operator attempted a workover, removing tubing from the wellbore and then running the workover string into the hole until tagging up. Water circulation was then attempted, but yielded no returns due to the low formation pressure of the Barnett.

To effectively clean and restore the well, BHGE customized its **MAX-PRIME™ reservoir drill-in fluid solution (RDIF)** with the **PERFFLOW™ water-based RDIF**, formulated using the **BRIDGE-WISE™ modeling software**, to seal perforations and establish circulation.

MAX-PRIME RDIF are engineered to lower overall completion costs while optimizing production rates. These fluids deliver all the properties required from typical drilling fluids while protecting the pay zone against costly formation damage.

Four stands of pipe were pulled and 35 barrels (bbl) of the PERFFLOW RDIF were pumped and spotted on the bottom. The annulus was shut in and a squeeze was applied slowly, building up pressure. After reaching 1,000 psi (68.95 bar), the pumps were turned off and the well remained shut in for 30 minutes. Four stands of pipe were tripped back in the hole and circulation was

Results

- Saved 3 days on clean out, equating to \$48,000 USD
- Avoided thousands of barrels of water usage
- Avoided risk of sticking bailer and costly fishing job
- Restored well to previous production rate after solving sand-up issues

Challenges

- Wells normally take 5 days to clean out sand
- Saving water usage and associated workover costs due to losses

BHGE solution

- MAX-PRIME RDIF solution
- PERFFLOW water-based RDIF
- BRIDGE-WISE software

established with 1,000 psi pressure, enabling the sand to be washed out of the hole. After cleaning several hundred feet of hole, lost circulation occurred again. The same process using the MAX-PRIME solution was applied, reestablishing returns and cleaning out the well within 100 ft of total depth where calcium carbonate was removed with acid treatment.

PERFFLOW RDIF sealed the perforations without losing water to the formation, allowing operations to continue without

shutting down and eliminating thousands of barrels of water, ultimately saving the operator time and money. The well was put back into production and its gas production rate was restored to its original level. The cleanout operation took only 2 days, saving the operator 3 days of workover time in comparison to alternative methods, equating to approximately \$48,000 USD in associated costs.

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