

PETROLIZE® One-Step Cleanup Solution Enhances Production by 52% in Offshore UAE Limestone Reservoir

Location: United Arab Emirates

SPE-161643

An ADNOC offshore well, faced suboptimal production due to incomplete filter-cake removal and residual damage after drilling in a high-salinity limestone formation. The application of the PETROLIZE® one-step cleanup solution achieved a 52% production increase, outperforming conventional acid treatments while preserving formation integrity.

CHALLENGE

Encountered reduced productivity from a 16,290-ft well with a 2,280-ft horizontal open-hole section. The limestone reservoir exhibited high salinity (240,000 ppm) and elevated bottomhole temperature (230°F). Expected production was 1,500 BOPD, but previous wells in the same field demonstrated less-than-expected flow rates due to mud residue and incomplete filter-cake cleanup.

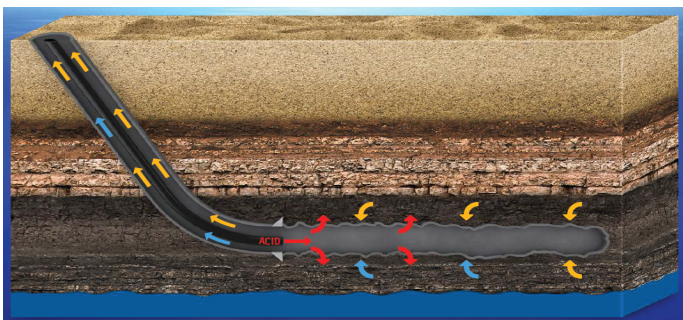


Figure 1- Simulated traditional Acid treatment wormhole initiation.

Previous treatments with conventional acids had shown limited success and caused formation instability, wormhole propagation, and potential productivity loss. A safer, more uniform cleanup approach was required to restore permeability and enhance production.

SOLUTION

The PETROLIZE® one-step cleanup system was deployed to address residual filter-cake damage and improve formation cleanliness without relying on strong mineral acids. The treatment sequence included: [1] Surfactant solution, [2] Brine pill, [3] PETROLIZE® one-step cleanup solution (no fluid losses observed). Then a customized/planned static soak period, and finally followed by brine circulation using coil tubing, later the final displacement to diesel.

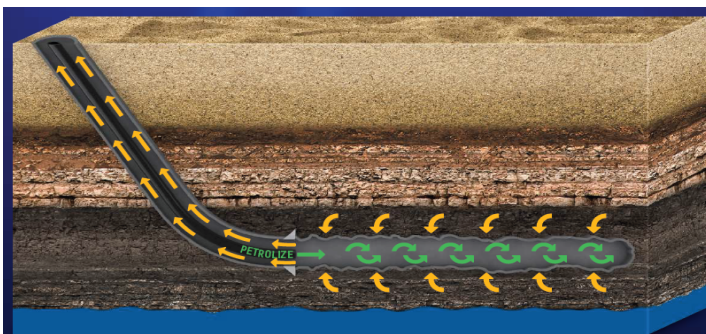
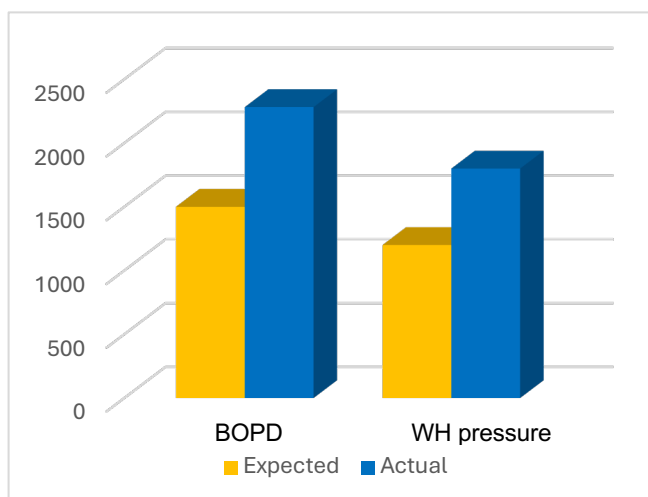


Figure 2- Simulated enzymatic solution uniform cake degradation.

The PETROLIZE® system's enzymatic and surfactant blend effectively degraded residual polymers and organic debris, allowing uniform contact with the wellbore surface while minimizing risk of emulsion formation or acid-related damage.

RESULTS

Post-treatment testing demonstrated exceptional performance improvements:



- Production increased from expected 1,500 BOPD to 2,280 BOPD (a 52% gain).
- Wellhead pressure increased from 1,200 psi to 1,800 psi.
- No HCl post-treatment improvement observed (confirming complete cleanup).
- No formation damage, worm-holing, or fluid losses recorded

Graph 1- BOPD and Wellhead pressure, comparison between expected and post-treatment.

To validate performance, a secondary 15% HCl treatment was applied to the same horizontal section. The post-acid flow rate remained constant at 2,250 BOPD, confirming that the PETROLIZE® cleanup had already restored full formation productivity.

CONCLUSION

The PETROLIZE® one-step cleanup solution demonstrated its ability to remove filter-cake residues, enhance formation permeability, and deliver measurable production gains under high-temperature, high-salinity conditions. Its enzyme formulation provided uniform cleaning and safe handling, eliminating the need for corrosive acids and reducing operational risks. The 52% production increase validated PETROLIZE® as an efficient, environmentally responsible, and cost-effective cleanup technology for offshore carbonate wells.

**This success is documented in SPE-161643, presented Abu Dhabi International Petroleum Exhibition & Conference held in Abu Dhabi, UAE, 11–14 November 2012.*