VERTECHS

Intelligent pressure control

IPC-MPD

Case Study 1: MPD and Workover in an Ultra-Deep Oil Well with Slimhole

OVERVIEW

- Operation Time: May – July 2024
- Operation Area: Northwest China
- Reservoir Type: Oil Well (Ultra-Deep, Slimhole)
- Mud Density: 2.16 – 2.20 g/cm³ (18.02 – 18.36 ppg)
- Mud Type: OBM
- ECD Window: <0.05 g/cm³ (<0.42 ppg)
- Casing Runs: 1 (6 in)
- Well Depth: 6,260m – 8,100m (20,541 ft – 26,575 ft)
- Applied in: MPD, Workover

RESULTS

- Completion of MPD and well intervention operations in an ultra-deep well exceeding 8,000m (26,247 ft)
- Simulation of the wellbore pressure window through real-time and high-precision hydraulic modeling enabled precise pressure control during both circulation (drilling) and non-circulation phases (tripping and connections) to meet formation pressure requirements

Case Study 2: MPD and Cementing in a High-Pressure, High-Production Gas Well

OVERVIEW

- Operation Time: April – October 2023
- Operation Area: Southwest China
- Reservoir Type: Gas Well (High-Pressure, High-Production)
- Mud Density: 2.12 – 2.25 g/cm³ (17.70 – 18.77 ppg)
- Mud Type: OBM
- ECD Window: <0.1g /cm³ (<0.83 ppg)
- Casing Runs: 2 (8 ½ in, 6 in)
- Well Depth: 3,410m – 5,072m (11,190 ft – 16,632 ft)
- Applied in: MPD, Cementing

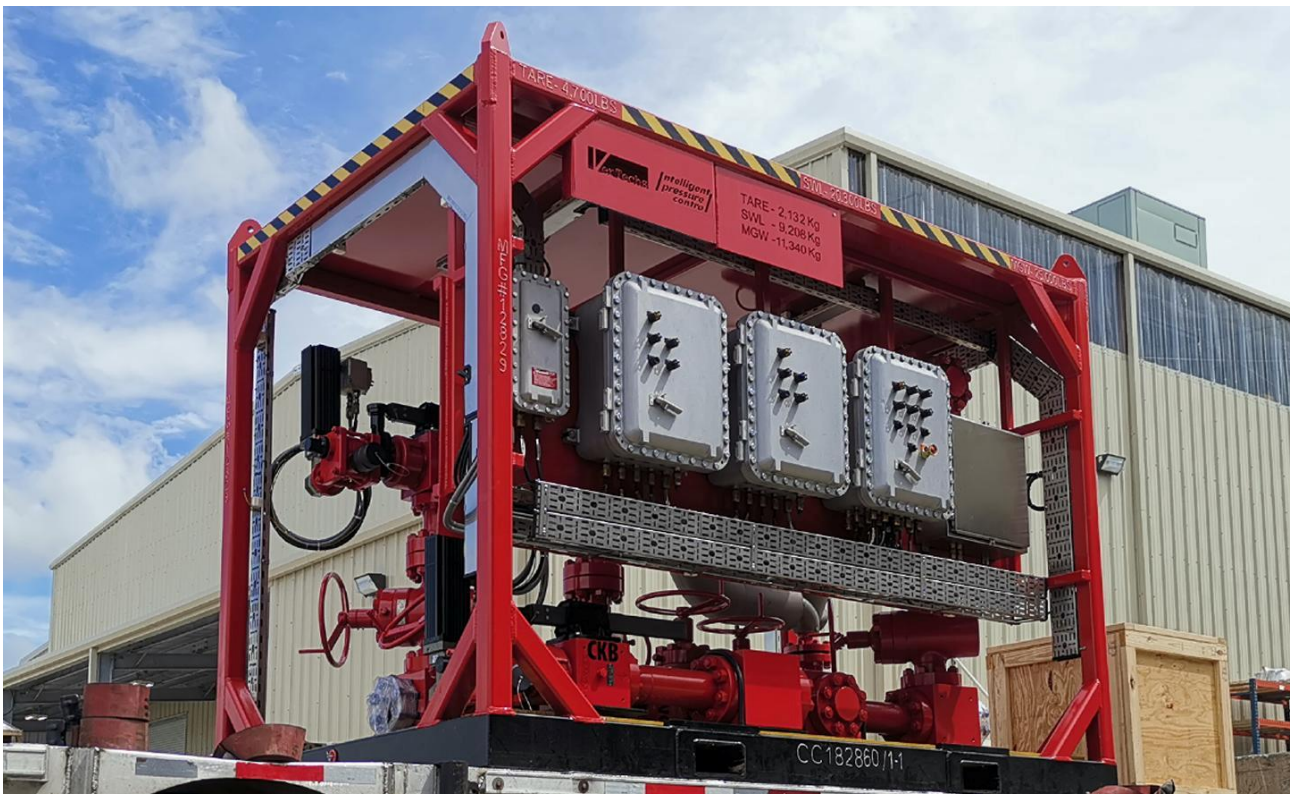
RESULTS

- Ensured safe operations in the high-pressure gas well
- Successfully resolved more than 8 downhole kicks and loss events across 2 sections
- Achieved 9 days of constant bottomhole pressure circulating operations during 14 gas discharge operations, reducing NPT and shortening the well completion cycle

Case Study 3: MPD and Cementing in a Gas Well in a Fractured Reservoir with High H_2S

OVERVIEW

- Operation Time: February – July 2021
- Operation Area: Southwest China
- Reservoir Type: Gas Well in a Fractured Reservoir (High H_2S)
- H_2S Content: >30,000 ppm
- Mud Density: 2.32 – 2.40 g/cm³ (19.37 – 20.03 ppg)
- Mud Type: WBM
- ECD Window: <0.1 g/cm³ (<0.83 ppg)
- Casing Runs: 2 (8 ½ in, 6 in)
- Well Depth: 4,804m – 6,210m (15,758 ft – 20,379ft)
- Applied in: MPD, Cementing



RESULTS

- Precise bottomhole pressure control enabled safe operations in the well with high H_2S content
- Significantly improved drilling efficiency and cementing quality
- New record set: 250m (820 ft) deeper than the planned measured depth and the faster exploration well

Contact Us

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