

Enviro-Syn[®] HCR-7000-WL[®] Removes Cement Plugs

Permian Basin, Texas

An E&P company working in the Permian basin drilled two wells in the Spraberry formation. Operational issues during cement placement resulted in approximately 60 m (200 ft) of cement settling in the toe sleeve. Historically, the operator used acetic acid to dissolve the cement plug to prevent damage to the casing and coiled tubing but, in this case, after the acetic acid treatment was deployed, the operator was unable to open the toe valve at 65 MPa (9,500 psi).

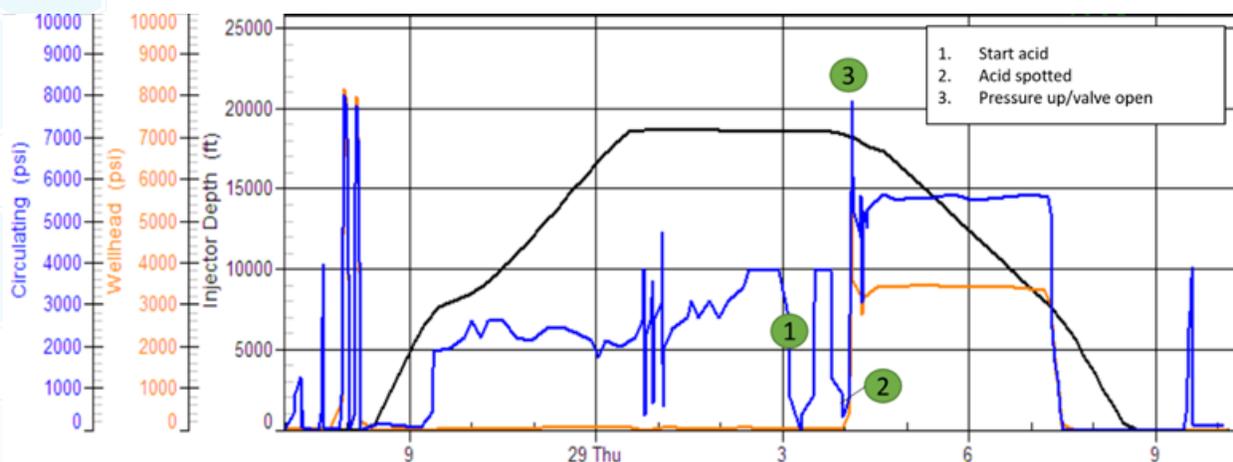
SOLUTION

The decision was made to drill out the cement to a depth of approximately 15 cm (6 in.) from the toe valve and pump Enviro-Syn[®] HCR-7000-WL[®] modified acid to dissolve the rest of the cement plug. ~3.75 m³ (1,000 gal) of HCR-7000-WL was spotted on top of the remaining cement in the toe sleeve. A pressure test was performed immediately without allowing the acid to soak.

RESULTS

During Well A operations, the toe sleeve opened on the first pressure test attempt at 56 MPa (8,200 psi). The HCR-7000-WL was then displaced with packer fluid. Coiled tubing was able to successfully perforate the first stage of the well.

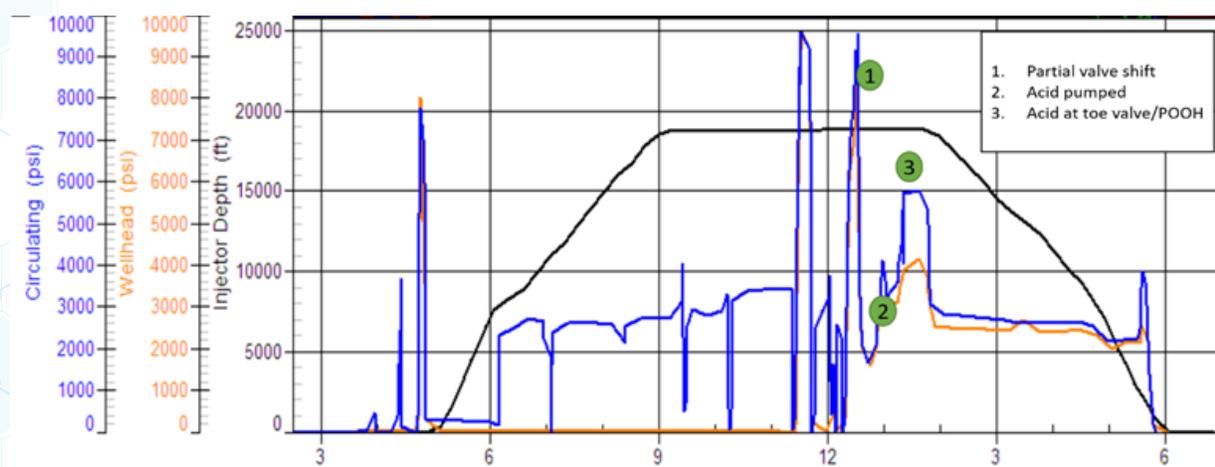
Figure 1: Well A treatment chart.



RESULTS

During Well B operations, the toe sleeve partially opened after pressuring up to 57 MPa (8,300 psi). An additional 1.5 m³ (400 gal) of HCR-7000-WL was pumped. A pressure decline was seen when acid reached the toe, allowing the valve to open fully.

Figure 2: Well B treatment chart.



After the first treatment, the motor for the drill bit was inspected for corrosion due to contact with HCR-7000-WL. No damage to the rubber or the chrome coating on the stator was observed.

Figure 3: Motor after contact with HCR-7000-WL (top) and 15% HCl (bottom).

