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Successful Deployment of a New Intervention Technology Using a Reinforced, Flexible, High Pressure Hose; a World's First

Kevin Mathew John, Marie L. Morkved, Ingvar Grannes, Jarle Haugvaldstad, Stian Steinsholm

Abstract

This paper will discuss the design, qualification, testing and planning of a new intervention conveyance technology used to successfully remediate a failed down hole safety valve (DHSV).

The technology is a high pressure, reinforced, $\frac{3}{4}$ inch OD hose that is run on standard wireline equipment thereby reducing footprint, manning, cost and job time compared to other intervention methods. The hose has a working pressure of 12,500 psi with a tensile strength of 14,300 lbs. The system is gravity-fed into the well similar to a conventional wireline system and is spooled onto a wireline add-on drum with conventional wireline pressure control equipment (PCE). The difference compared to a standard wireline equipment is a modified add-on drum which includes a swivel for pumping, a purpose built stripper installed above the lubricator, and special inserts for the BOP.

Before mobilization, a series of tests were carried out to qualify the reinforced high pressure hose to ensure it was safe for interventions. Based on successful test results, the coil hose was mobilised and a total of 5 runs were carried out on the first job. These runs included jetting, spotting of chemicals and a caliper survey.

The intervention successfully jetted 15% hydrochloric acid (HCl) over the DHSV, and through to surface. The job was an operational success and the DHSV inflow test, post treatment was successful. The reinforced, high pressure coiled hose is a new conveyance technology that positions itself between wireline and coiled tubing. This technology can access wells on locations where running coiled tubing (CT) operations can be a challenge due to limited crane capacities and/or deck space. While coiled hose is not a replacement for CT due to its limited pumping rates (approx. 50lpm) and gravity feeding, it is suitable for spotting chemicals, N₂ lifting and light cleanout operations.
