

JPT



Wellbore Tubulars
Well Intervention
Artificial Lift

Technology Applications

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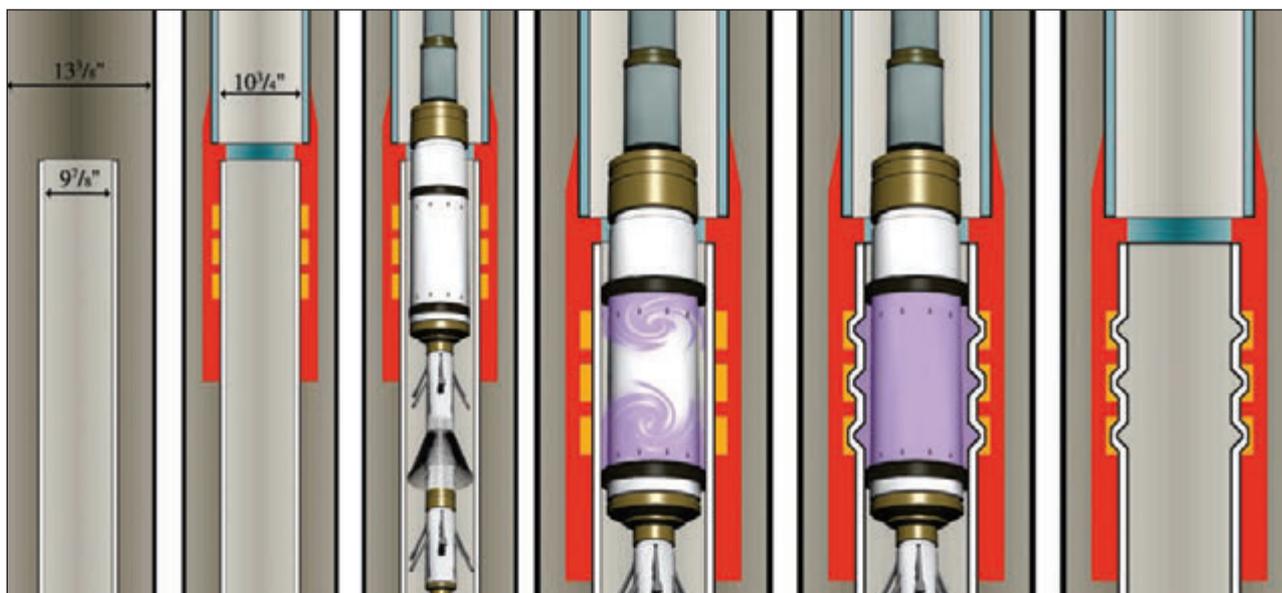


Fig. 1—Read Well Services Hydra-Lok swage casing tie-back system.

Expandable Casing Tie-Back—

Expandable tubular technology is at the forefront of well-design engineering. A new technique has been developed and tested by Read Well Services in partnership with Oil States MCS Inc. One application of the technique achieves reconnection to severed tubulars downhole, with no reduction in original inside diameter (ID). Onshore trials have tested a 9⁵/₈-in. connection under 800 tons compression and 11,000 psi pressure. The solution was developed for a specific casing-tieback problem. The upper section of 9⁷/₈-in. casing had to be replaced. This system was developed for use in the event that the casing could not be backed off and required being cut. The system is also being studied for development of a hydraulically expandable casing patch deployed on drillpipe or coiled tubing. The downhole tool is based on the Oil States' Hydra-Lok swaging tool. The method provides a pressure-tight metal-to-metal seal, mechanical strength, and minimal loss in ID for remedial intervention. As shown in **Fig. 1**, the plan was to run 12¹/₄-in. casing with the swage overshoot and engage over the cut 9⁷/₈-in. casing.

Run on drillpipe with a multifinger caliper below it, the tool is positioned at the overshoot. The seals on the tool are set, and water is pumped between the seals and the internal surface of the 9⁷/₈-in. casing and pressured to 30,000 psi. As the hydraulic pressure increases, the casing is permanently expanded into the internal profile of the overshoot, achieving a mechanical and pressure-tight joint. After tool retrieval, the resulting joint has comparable mechanical integrity to the original casing and makes no reduction in ID.

Automated Wellhead Data

Capture—Ferguson Beaugard's Walk-Up SCADA data capture capability enables its AutoCycle Plus production automation system to provide an integrated solution to capture manually entered and telemetry transmitted data from field monitoring devices. Data include wellhead pressures and temperatures, equipment status, and gas-flow measurement. The production automation system comprises intelligent wellhead controllers, client/server supervisory control and data acquisition (SCADA) software designed for oil/gas operations, and various forms of telecommunication

to acquire field data remotely (telemetry). The system provides the capability to view and manage field production remotely. With the walk-up feature, operators can gather nontelemetry data from the field and integrate it with the production automation system. Total data capture is enabled for paperless data flow from the wellhead to the corporate office or beyond by use of the Internet. For field operations, the user "goes mobile," with the host computer synchronizing the most recent data for a group of wells defined for the mobile device. When the operator returns to the field office, downloaded data are automatically synchronized with the host computer, updating the system database with current wellhead and field information.

Drilling With Shot—

ProDrill Services Inc. has developed a drilling technique that increases the rate of penetration and extends bit life. Field tests at the Rocky Mountain Oilfield Testing Center have demonstrated the process under different downhole conditions (**Fig. 2**). The process adds ⁵/₃₂-in. steel shot at a concentration of less than 1% to the drilling mud through the surface equipment. The