SecureView® Services and HOMCO® Casing Patch

Combine For Positive Isolation of Perforations Through 14 Frac Stages

Objectives

- Identify the optimal location to install a casing patch and isolate perforated casing in preparation for fracturing operations. The operator had chosen a casing patch for isolation rather than a traditional cement squeeze.
- Permanently isolate a 3-ft (1-m) section of perforated 5 1/2-in. casing while providing a maximum pass-through diameter to minimize the impact on flow and quickly return the well to production.
- Install a patch capable of withstanding a maximum surface-treating pressure of 9,000 psi (62 MPa) through 14 stages of sand fracturing.
- Monitor the condition of the patch during fracturing stages.

Our Approach

- Weatherford dispatched a wireline team to initiate the SecureView casing evaluation service. The team deployed the high-resolution 40-arm CalView® tool to locate the open perforation clusters and determine the most effective spot to anchor the casing patch.
- A 30-ft (9.1-m) × 1/8-in., mild steel HOMCO casing patch was inserted into the existing 5 1/2-in. casing. The patch was expanded from the bottom, and the CalView tool confirmed that the casing patch bonded to the casing in a location that isolated perforations.
- The isolation operation lasted just 18 hours, and the original ID of 4.778 in. was reduced to 4.478-in.—a reduction of just 0.300-in. The resulting ID was still large enough for wireline equipment and fracturing plugs to pass through and a large volume of fracturing fluid to be pumped downhole.
- Weatherford performed a caliper log run using the CalView tool after every other stage of fracturing to monitor the patch throughout the entire operation. The patch successfully withstood cycling fracture pressures of up to 9,000 psi (62 MPa).
- The operator pumped approximately 7 million lb (3.1 million kg) of sand through the patch without any wall loss.

The versatile HOMCO casing patch is designed to seal perforations, collar and thread leaks, splits, and limited corroded areas in tubing and casing; to provide added protection during squeeze jobs; and to be effective at any depth.

LOCATION
Northern Pennsylvania

WELL TYPE
Onshore, gas producer

FORMATION
Marcellus shale

CASING TYPE AND SIZE
5-1/2 in., 20 lb/ft

PATCH SIZE
30 ft (9.1 m)

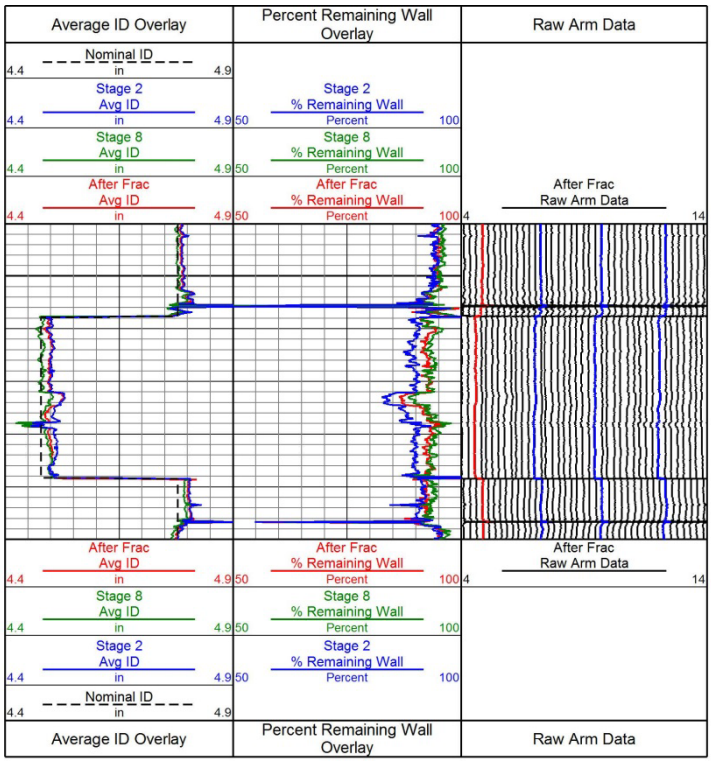
PRODUCTS/SERVICES
- SecureView services
- CalView* tool
- Casing-collar locator
- HOMCO casing patch

Weatherford®

SecureView® Services and HOMCO® Patch
Combine For Positive Isolation of Casing Perforations Through 14 Fracturing Stages

Value to Client

- SecureView casing evaluation services identified the optimal location for the HOMCO casing patch to isolate the perforated interval in preparation for fracturing operations.
- The HOMCO casing patch was run in one trip and required no additional shoe drillout, which saved rig time and operational costs when compared to multiple cement squeezes.
- The CalView tool enabled monitoring of the HOMCO casing patch throughout the 14-stage fracturing operation and confirmed that the robust patch withstood high fracturing pressures.
- The confirmed resistance of the HOMCO casing patch to treatment pressures and volumes proved it could be a viable option to a cement squeeze.



Raw data from the CalView tool shows the integrity of the HOMCO patch at three different stages of the frac operation. The overlaid blue, green, and red lines correspond to stages 2, 8, and 14, respectively, and indicate that the patch remained intact after fracturing.