

MetalSkin® Cased-Hole Liner Patches Leaky Gas Well, Restores Production in Field with Major Pressure and Temperature Issues



Weatherford MetalSkin cased-hole liner systems answer mature-field challenges by permanently repairing corroded or parted casing. Elastomer seal bands give more reliable zonal isolation than cement squeezes and, unlike scab liners, will not significantly reduce well ID.

Objectives

- Restore production in a prolific gas field in the Azerbaijan sector of the Caspian Sea. The field's extreme pressure and temperature variances, ranging from 0 to 9,000 psi (0 to 62,053 kPa) and 40°F to 190°F (4°C to 88°C), would make this repair particularly challenging. The potential for formation damage and the time required to kill the well and pull the completion made a full workover operationally and economically unattractive.

Results

- A 5 1/2- × 7-in. MetalSkin cased-hole liner was used to bridge the gap between less effective options: cement squeezes and scab liners.
- Post-expansion ID was reduced by less than 0.8 in. (0.02 m) from the parent casing while providing a minimum of 4,000 psi (27,579 kPa) pressure integrity. The system was run on drillpipe in conjunction with a snubbing unit and was expanded in one trip, using a solid cone and Weatherford hydraulic MetalSkin setting tool.
- A 15-ft MetalSkin cased-hole liner for 38-lb/ft casing was custom made out of 13 chrome alloy. An entire testing and certification program certified the capability of the liner to provide a gas-tight seal and confirmed its burst and collapse ratings.
- The MetalSkin liner was then successfully snubbed in the hole and expanded over the leaking connection.



LOCATION

Azerbaijan sector, Caspian Sea

SETTING DEPTH

515 ft (157 m)

TEMPERATURE RANGE

40°F to 190°F (4°C to 88°C)

PRESSURE RANGE

0 to 9,000 psi (0 to 62,053 kPa)

NUMBER OF TRIPS

One

PRODUCTS/SERVICES

MetalSkin cased-hole liner



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Value to Client

- Production was restored to its previous level of 55,000 BOE/d.
- There were no accidents, incidents, or environmental issues at any time during the procedure.
- No increase in annular pressure was observed during the production ramp-up or at any time since, which proves that the patch maintained its integrity during the critical period of well ramp-up after the installation. The acquisition of quality image data was crucial to understanding the reservoir makeup and enabled the client to realize the full potential of the well.



The MetalSkin system provided a long-term solution that repaired the leaky connection and restored production to its previous level.

