

Integrated Services Installs Record-Length Expandable Liner To Eliminate H₂S Intrusion and Restore Production



Weatherford coordinated services from multiple products lines to perform the longest expandable liner installation in the world at 7,047 ft (2,147.9 m). The MetalSkin® cased-hole expandable liner enabled the operator to extend the producing life of the well.

Objectives

- Remediate the upper 7,000 ft (2,133 m) of production casing to enable installation of artificial-lift equipment in a shale well with naturally declining production.
- Meet compliance requirements for hydrogen sulfide (H₂S) to ensure wellbore integrity. The chosen method of artificial lift (gas lift) would expose the production casing to wellbore fluids that contain H₂S.

Results

- MetalSkin® cased-hole expandable liner was set to surface. The liner was expanded in a fixed-fixed condition without issues.
- Samples expanded in the fixed-fixed condition were qualified using NACE TM0177 Method B sulfide stress cracking tests.
- Mills and a casing scraper used to make a cleanout run removed corrosion, scale, and other buildup.
- The CalView™ and FluxView™ logging systems were used to provide an internal and external casing profile.
- A 156-ft (47.5-m) packer seat was set to facilitate setting the packer deeper in the well.
- A casing jack relieved tension trapped in the liner, and the casing was cut below the cone.
- Torque turns were used to monitor the liner makeup.



LOCATION

Live Oak County, Texas

FORMATION

Eagle Ford

WELL TYPE

Onshore, oil

PRODUCTION CASING

5 1/2-in., 20-lb/ft P110

EXPANDABLE LINER

4 1/4-in. x 5-1/2 in., 10.69-lb/ft SX50

PRODUCTS/SERVICES

- MetalSkin solid-expandable system
- Tubular running services
- Cased-hole wireline services
 - FluxView tool
 - CalView tool
- Fishing services
- Decommissioning services
- Rental equipment
- Artificial-lift equipment



Integrated Services Prepare Declining Well for Artificial Lift

Results *(continued)*

- For H₂S compliance, a seal was designed and manufactured by the wellhead provider to seal around the expandable liner.
- The well was completed using a gas-lift system.

Value to Client

- The well was prepared for an artificial-lift installation that complied with H₂S requirements.
- The solid-expandable liner installation enabled the operator to use the well rather than construct a replacement well.
- The existing 5 1/2-in., P-110 non-sour service production casing was converted for sour service by installing 7,047 ft of NACE-compliant MetalSkin expandable liner.
- A gas-lift completion with packer was successfully run to produce the recoverable well reserves.
- The liner expansion technology for long sections of casing is proven for future well intervention activities.
- This solid expandable liner installation set a new world record (length).

