

Operator Identifies Shallow Surface-Casing Corrosion Without Costly Workover

HALLIBURTON ELECTROMAGNETIC PIPE XAMINER® V (EPX™ V) TOOL DETECTS METAL LOSS NEAR WELLHEAD

CHALLENGES

- » Well diagnostics indicated a very shallow leak
- » Cost and rig availability drove desire for a rigless solution to identify metal loss

SOLUTIONS

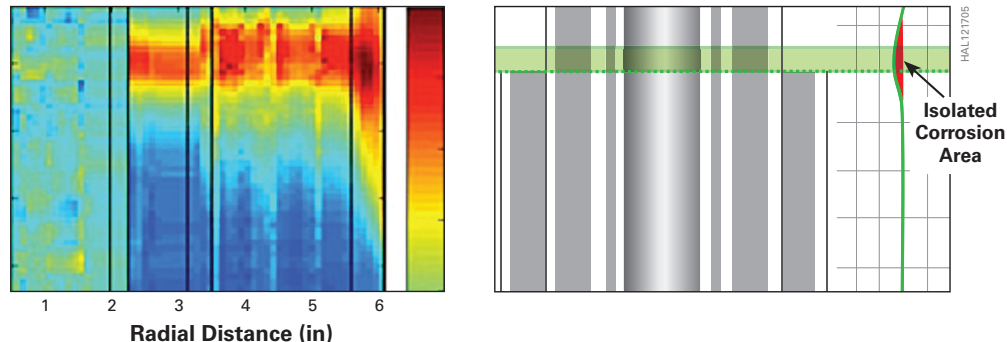
- » Halliburton recommended its Electromagnetic Pipe Xaminer® V (EPX™ V) service to determine metal loss across all strings of pipe
- » The EPX V service is capable of resolving metal loss despite the thick casings present in the well

RESULTS

- » The service indicated a metal loss anomaly a few feet below the surface-casing hanger
- » Additional diagnostics identified the metal loss anomaly as a likely leak location
- » The operator cut windows into the conductor and was able to visually confirm the corrosion and leak location
- » An external casing patch was used to remediate the damage

OVERVIEW

An operator had a well experiencing an annulus B to annulus C pressure communication similar to others previously identified by the Halliburton Acoustic Conformance Xaminer® (ACX™) tool. Because of the leak, the well could not be produced. The operator wanted to determine the extent of the corrosion. Halliburton proposed assessing the corrosion using the Electromagnetic Pipe Xaminer® V (EPX™ V) tool, which indicated a shallow metal loss anomaly within a few feet of the surface-casing hanger. Additional subsequent surface diagnostics were performed, which indicated the anomaly's shallow location. Since the problem was identified near surface, a rigless external casing repair could be performed, which will save the cost and avoid the risk associated with using a rig to cut and pull multiple strings of pipe.



An ACX™ diagnostic service was run on a well with a shallow leak (left). The EPX™ V service indicated metal loss in an area where it should not be. It was further tested, and action was taken to repair this area.

CHALLENGES

Since the operator's leak was impacting production, and similar wells in the area experience shallow surface-casing corrosion problems, the operator wished to know the extent of this potential problem to develop a remediation plan.

SOLUTIONS

Halliburton recommended assessing the corrosion using the new Electromagnetic Pipe Xaminer® V (EPX V) tool. The EPX V tool uses High-Definiton Frequency (HDF) technology, which is capable of logging the well in a single pass, without needing additional services to assign metal loss per pipe string. Additionally, the 1¹¹/₁₆-in. OD allows for assessing the 9⁵/₁₆-in. surface casing from within the 2⁷/₁₆-in. tubing.

CASE STUDY

The new EPX V technology will be used to survey and prioritize additional wells for proactive corrosion monitoring in an effort to prevent problems from delaying production.

The EPX V tool operates off mono-conductor wireline or in memory mode, which allowed the operator flexibility in choosing how to run it most efficiently

RESULTS

The section of the well in question was logged, and the results indicated a shallow metal loss anomaly within a few feet of the surface-casing hanger. Subsequent surface diagnostics were performed, which indicated a shallow location. The operator cut windows into the conductor casing and positively verified the location and degree of the corrosion.

Since the leak was identified near surface, a rigless external casing repair was performed, saving the cost and avoiding the risk associated with using a rig to cut and pull multiple strings of pipe.

Looking forward in time, the operator plans to continue using the EPX V tool in an effort to survey and prioritize wells for additional proactive corrosion monitoring and prevention. Proactive surveillance allows for optimized intervention timing and reduced well downtime. The EPX V and ACX diagnostic services can be run together, saving time and money, while providing a complete picture of the challenge.

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