

# 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

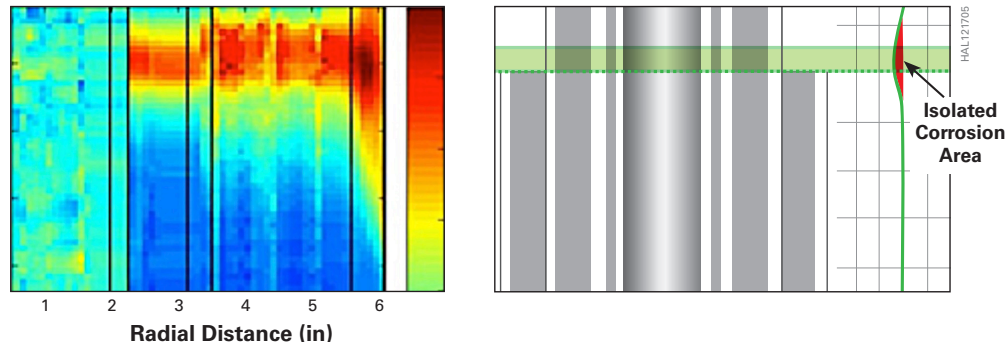
- » Halliburton recommended its Electromagnetic Pipe Xaminer® V (EPX™ V) service to determine metal loss across all strings of pipe
- » The EPX V service is capable of resolving metal loss despite the thick casings present in the well

### 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 1<sup>11</sup>/<sub>16</sub>-in. OD allows for assessing the 9<sup>5</sup>/<sub>16</sub>-in. surface casing from within the 2<sup>7</sup>/<sub>16</sub>-in. tubing.

*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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