Confirm Cement Integrity Without Zonal Isolation Test

Case study: Isolation Scanner cement evaluation service an efficient alternative for determining cement integrity

Challenge
Determine cement integrity for deviated wells in fast formations where conventional cement bond logs (CBLs) are inconclusive.

Solution
Conclusively evaluate annulus materials and bond quality by using Isolation Scanner* cement evaluation service instead of spending extra time and costs on zonal isolation tests.

Results
Definitively identified well-bonded cement, as confirmed by an isolation test.

Fast formations hindering logging
A Canadian operator could not reliably interpret conventional CBLs because of the fast formations near TD. Pulse-echo ultrasonic logs also underestimated the cement in comparison with the results of zonal isolation tests. As a result, the operator was spending USD 200,000 per well conducting zonal isolation tests to confirm the integrity of the cement job.

Evaluating cement in any well environment
By combining classic pulse-echo technology with a new ultrasonic technique—flexural wave imaging—Isolation Scanner cement evaluation service defines the annular material with greater certainty. Low-density solids are readily discriminated from liquids to identify lightweight cements as solids. The azimuthal coverage provides answers around the entire circumference of the casing, determining hydraulic isolation and pinpointing any channels.

Confirming isolation
Isolation Scanner solid-liquid-gas (SLG) maps identified the material in the annulus as solid cement, which in some places had been identified as liquid on conventional acoustic impedance maps. The operator conducted isolation tests to confirm the Isolation Scanner results in 20 intervals within 4 wells. The Isolation Scanner evaluation correctly predicted the test results in 19 of the 20 intervals, with the one conflicting interval identified as lacking isolation whereas the test found isolation over the interval.

Isolation Scanner toolstring with subs for logging casing sizes from 4½ in to 9¾ in.
The conventional ultrasonic log underestimated the cement, but Isolation Scanner cement evaluation service correctly identified the annular material as solid cement, which was confirmed by zonal isolation tests.