

RE-ABANDONMENT – Milling out shallow plugs

Prepare for pressure

Background

The well was drilled in 2012 to a depth of 2635m AH and was found dry. The 13-3/8" and 9-5/8" casing-shoes were set at 564m and 1295m respectively. The well was permanently abandoned by means of 5 cement plugs. The 9-5/8" production casing was cut and retrieved from 600m creating a uncased hole section of 40m between the top of the 9-5/8" and the shoe of the 13-3/8". Cement plug #4 was set in this open hole section. After removal of the wellhead and demobilization of the rig gas bubbles were detected. As a result an emergency slip-lock head MX2 wellhead and a 4-1/16" X-mass tree were installed.

Objective

The objective was to re-enter the well, find the leak and re-abandon the well.

Execution

- Drill a pilot hole through plug #5 and bleed-off any trapped pressure and set and test new cement plugs in order to remove X-mass tree.
- Rig down BOP's and remove 4-1/16" X-mass tree in order to accommodate a 13-5/8" BOP stack.
- Re-enter the well by milling through top cement plugs and plug #4. Try to re-enter the 9-5/8" csg, run a tie-back liner, perform a leak search and re-abandon the well.
- Pressure below the shallow plugs could cause pipe-light scenarios. For that reason the HWT600 HWO/snubbing unit was used for milling through top plugs.



Results

- Milling through the top plugs was done without problems. Pressure was contained. New plugs were set and tested. The 4-1/16" X-mass tree was removed and a 13-5/8" Snubbing BOP stack was rigged up.
- Finding back the original 9-5/8" hole at 600m proved to be difficult because of the uncased hole section between 560 and 600m. Further attempts to access the original hole were cancelled.
- New cement plugs were successfully set and tested and the leakage stopped.