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Wireless barrier verification during well suspension and P&A

Well Flow Management | Wireless Well Solutions



Objectives and background

- The customer was undertaking a six-well temporary abandonment campaign from a light well intervention (LWI) vessel. The objective was to suspend all wells, ready to be P&A'ed at a later stage
- Norsok D-010 guidelines require that two well barriers are always present in a well and that the integrity and function of the barrier shall be verified at the time of construction
- During workover or P&A it is common to install both deep and shallow set bridge plugs or temporary barriers. Sometimes these are necessarily set deep in the well. The sealing integrity of the lower plug can generally be validated by pressuring up from surface and monitoring for any leakage using a surface pressure gauge, however when installing the upper plug and due to the small volume of fluid between the two plugs, it is unlikely that a pressure test applied from surface will detect any leakage past the upper plug, thus verifying the sealing integrity of the plug can be inconclusive
- These uncertainties can potentially lead to well integrity issues if they are not identified at the time of setting and testing the barrier

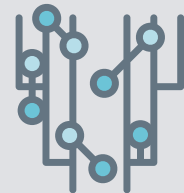
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- A CaTS wireless gauge was run below an E-line conveyed upper plug, to monitor the pressure below the plug in real-time at surface whilst the pressure testing operation is being performed
- Standard completion hardware was used with no requirement for any penetrations through the plug
- No additional components were required in the plug setting string meaning no increased rig-up height and no additional risks in tool performance or reliability
- The plug deployment, setting and pressure sealing verification was completed in a single run in hole resulting in operational efficiencies
- All operations took place from a LWI vessel, without the need to mobilize a MODU

Value to the client

- By running a CaTS gauge below the upper bridge plug in a dual barrier sealing configuration it has been possible to accurately verify, in real time, the sealing integrity of the upper barrier placed in the well
- Requiring only a single run in hole to set and verify the plug resulted in a cost effective and operationally efficient suspension campaign
- No barrier penetrations meaning no compromise to the integrity of the well
- Compatibility with any 3rd party plug and E-line vendors provides for flexibility in vendor selection
- Enabled customer to batch suspend six-wells with the confidence that the integrity of each is assured

Well integrity



Insight

