Serving Every Well

Case Study: BVS first run in UK North Sea

Challenge
A North Sea operator required to install a lower barrier through a restriction of 3.876" however, the well had a Water Injection Valve (WIV) installed above the reservoir which had packed off with debris. Any attempt to inject through the WIV resulted in the well being pressured up. This would question the planned integrity testing of the barrier due to the close proximity to the WIV.

Solution
The Barrier Verification System (BVS) allows for positive and documentable verification of barrier integrity using pressure and temperature readings. The BVS Transmitter was placed below a 325-450 Medium Expansion Retrievable Bridge Plug (RBP) and the Receiver was initially mounted on the Electronic Setting Tool (EST). Significant debris issues were a challenge and the setting string got stuck after RBP installation and only part of the planned verification testing was done. To remediate issues at a later stage, a junk basket was installed to protect the RBP. The planned verification testing was then continued with a smaller BVS probe configuration, to minimize the length and weight of the tool string. The solution was run in above the junk basket and the data was gathered, downloaded and sent to Norway for analysis. Within an hour, barrier integrity was verified.

Value Created
By using this BVS solution the client also discovered that the packed off water injection valve was leaking below the plug. The ability to overcome operational issues and show flexibility of the system was well demonstrated. The client saved a significant amount of time by being able to document the integrity of the installed lower barrier plug with the BVS.