



Kinetics Controls
& Innovation Ltd

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Isolation Barrier System

Annulus Leak Sealing Solutions



UPDATED

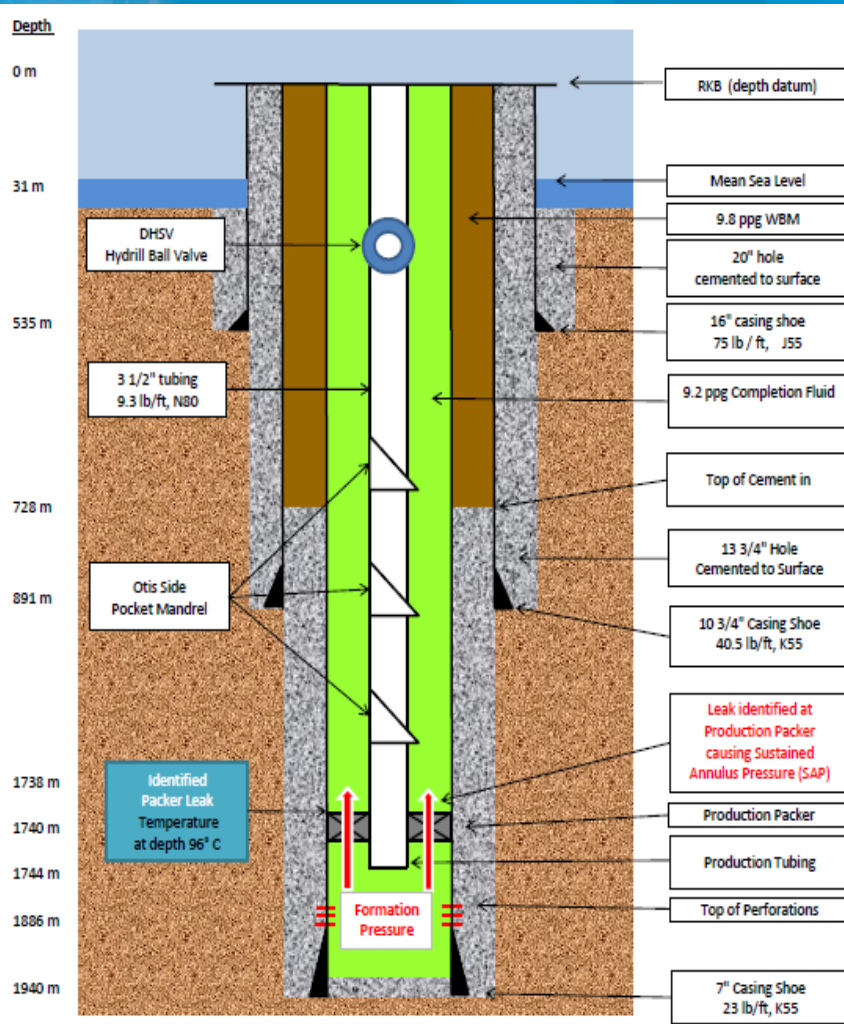
“Successful Offshore Rigless Production
Packer Isolation Trial With KCI’s IBS-SB”



Well Schematic Pre IBS-SB Deployment

Background

- Well status was not compliant with customer operating criteria :
 - * Leaking Production Packer causing Sustained Annulus Pressure (SAP)
- Well Shut In due to a major Well Integrity issue
- Leak identified at Production Packer by Downhole Acoustic Leak Detection Tool
- KCI were requested to propose a solution for the resolution of this Well Integrity issue
- KCI proposed an IBS-SB deployment via the "A" Annulus Gate Valve. The IBS-SB sinks through the completion brine and sits on top of the Production Packer creating an isolation
- KCI's IBS-SB was selected by the customer as a trial to isolate the Production Packer leak

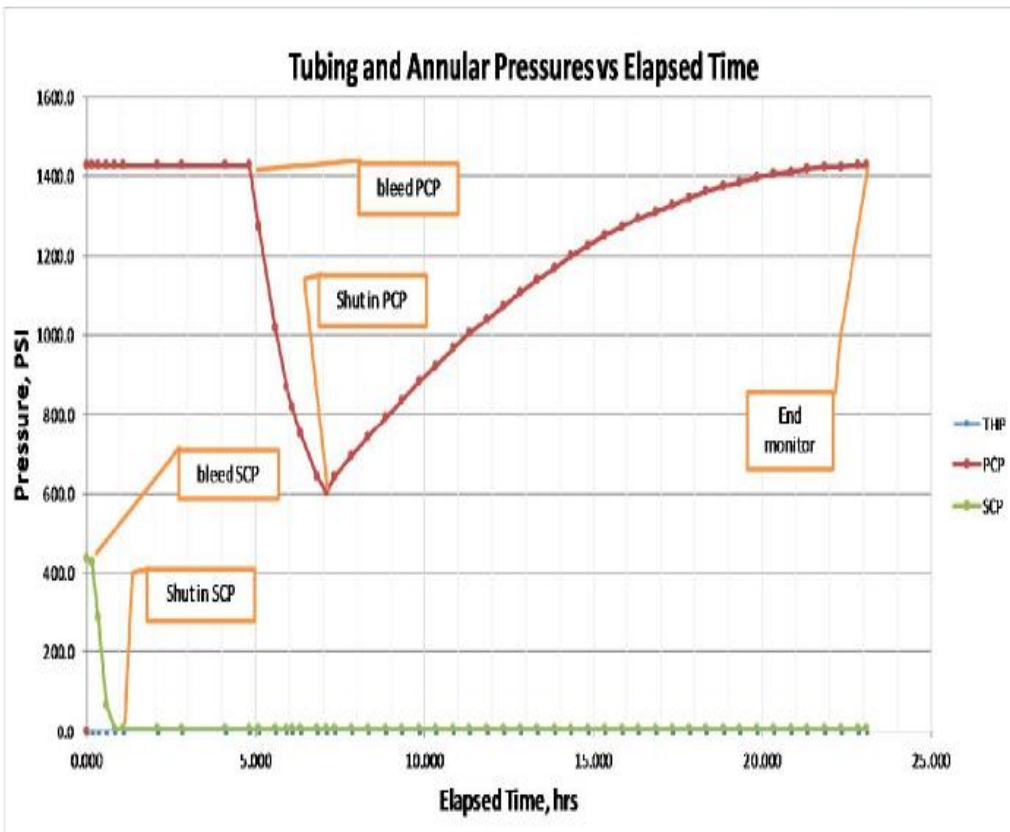




Rigless Packer Isolation with IBS-SB



Initial "A" Annulus Pressure Build Up Graph

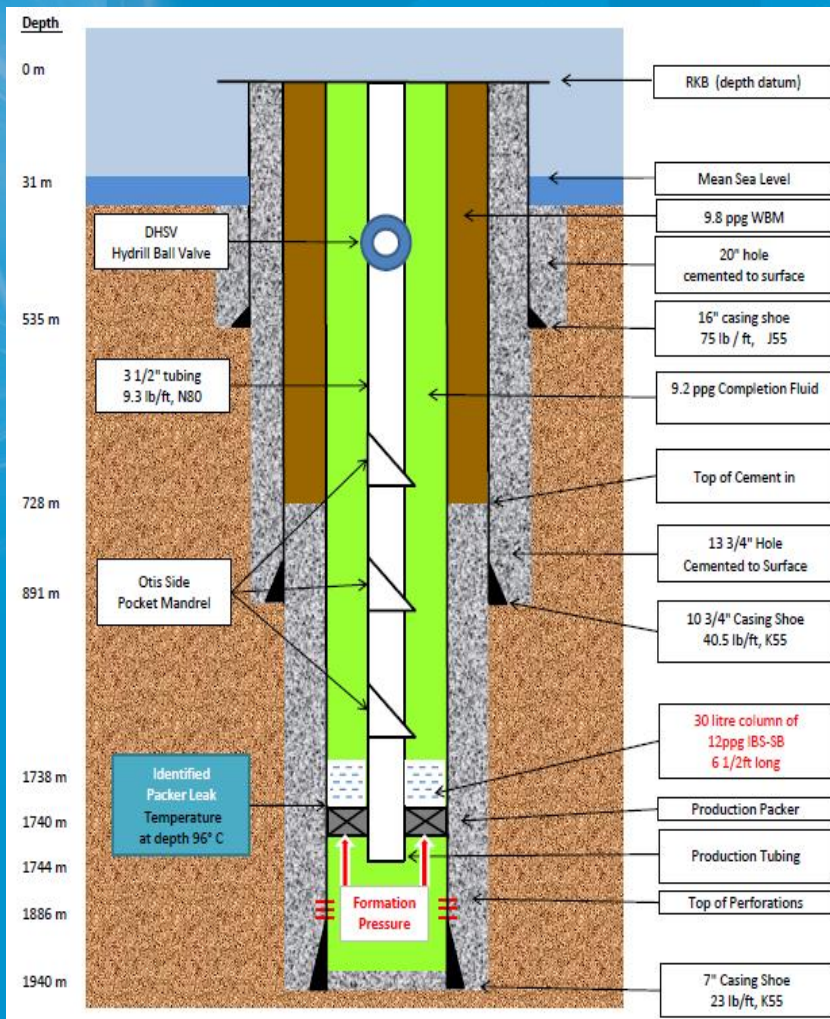


Data gathered during leak investigation work

- Initial "A" Annulus Sustained Pressure of 1440psi
- "A" Annulus pressure vented from 1440psi to 600psi. Full pressure build up back to 1440psi over 14hrs

- ← THP = Tubing Head Pressure
- ← PCP = Production Casing Pressure (A)
- ← SCP = Surface Casing Pressure (B)

Well Schematic Post IBS-SB Deployment



Well Parameters and Deployment detail

- Isolation deployment date: 10th June 2015
- 30 Litres (2 x 15 litre batches) of IBS-SB deployed from surface with a Hand Portable Air Driven Pump via the "A" Annulus Gate Valve
- 2 x KCI Personnel onsite to mix and deploy
- IBS-SB weight: 12ppg
- Full volume of IBS-SB mixed & deployed: 85 minutes
- Well temperature at deployment depth: 96° C
- Well deviation at deployment depth: 28° inclination
- Estimated time for IBS-SB to reach Production Packer leak site: 100 minutes
- Height of IBS-SB column: 6½ ft. from the Packer Element upwards

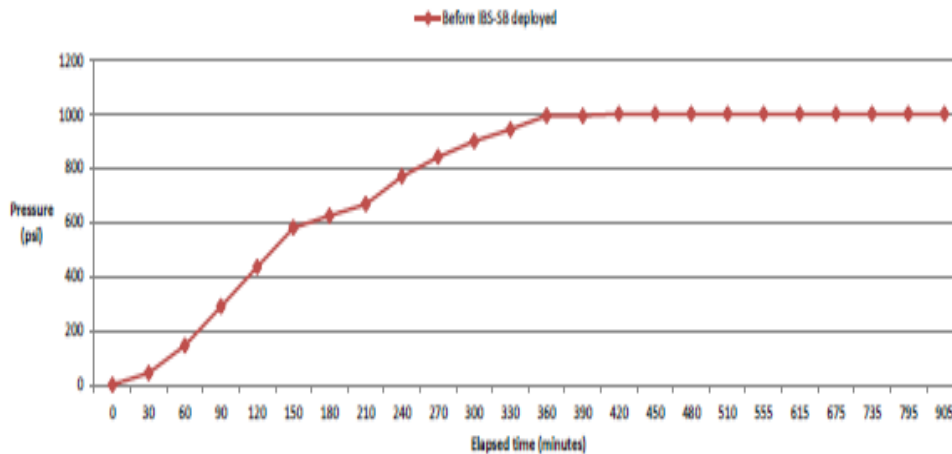


Rigless Packer Isolation with IBS-SB

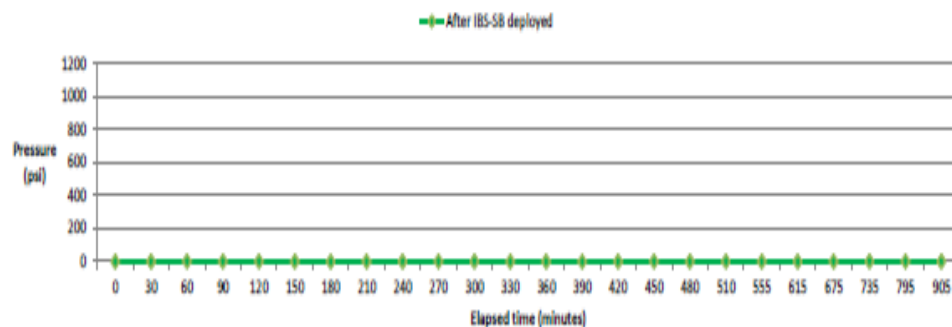


Pre & Post Packer Isolation Pressure Graphs

B-15 A annulus (PCP) original Pressure Build Up rate



B-15 A annulus (PCP) new Pressure Build Up rate



Pre IBS-SB Deployment information

- "A" Annulus topped up with Seawater.
- Surface pressure @ 1000psi prior to IBS-SB deployment – **Red Line**

Post IBS-SB Deployment information

- The "A" Annulus is now showing Opsi following IBS-SB deployment – **Green Line**
- The "A" Annulus pressure has remained static at Opsi since the IBS-SB deployment
- Production to re-start on this well following the IBS-SB isolation @ 200 bopd



Rigless Packer Isolation with IBS-SB



Objective Achieved

The Isolation was successful and the Well was brought back online safely.
Our customer was extremely satisfied with our Safe, Effective & Efficient Isolation.

This Value Adding, Rigless Isolation Operation saved the Well owner from a potentially time consuming and costly Well Workover or lost production from a Long Term Suspension.