

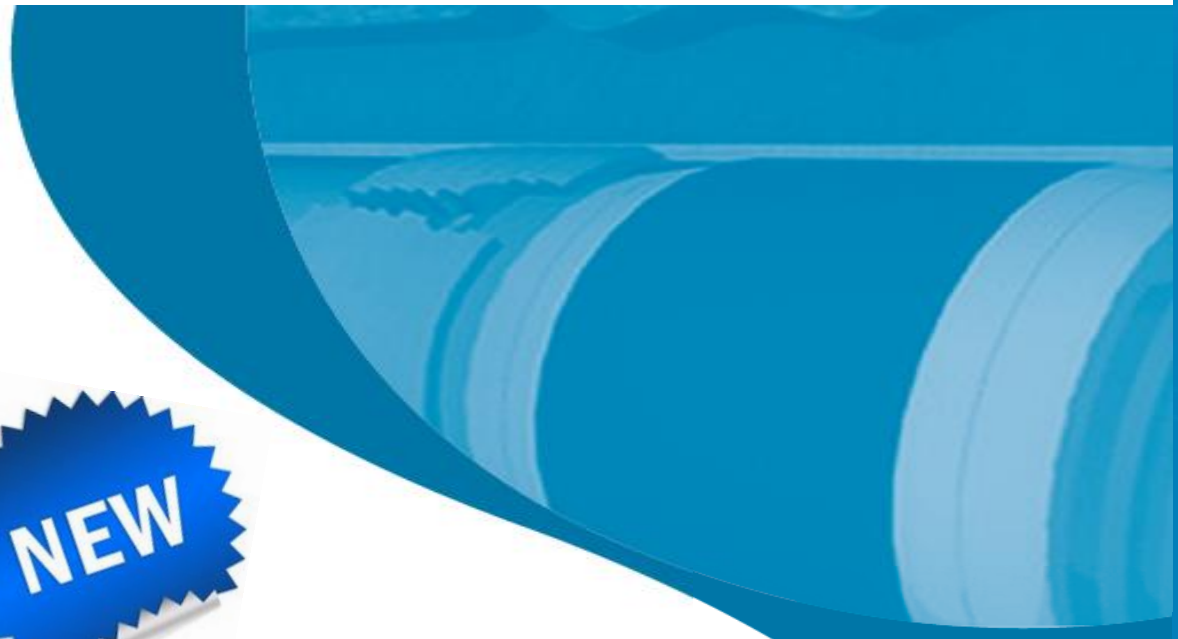


Kinetics Controls  
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## Isolation Barrier System Annulus Leak Sealing Solutions



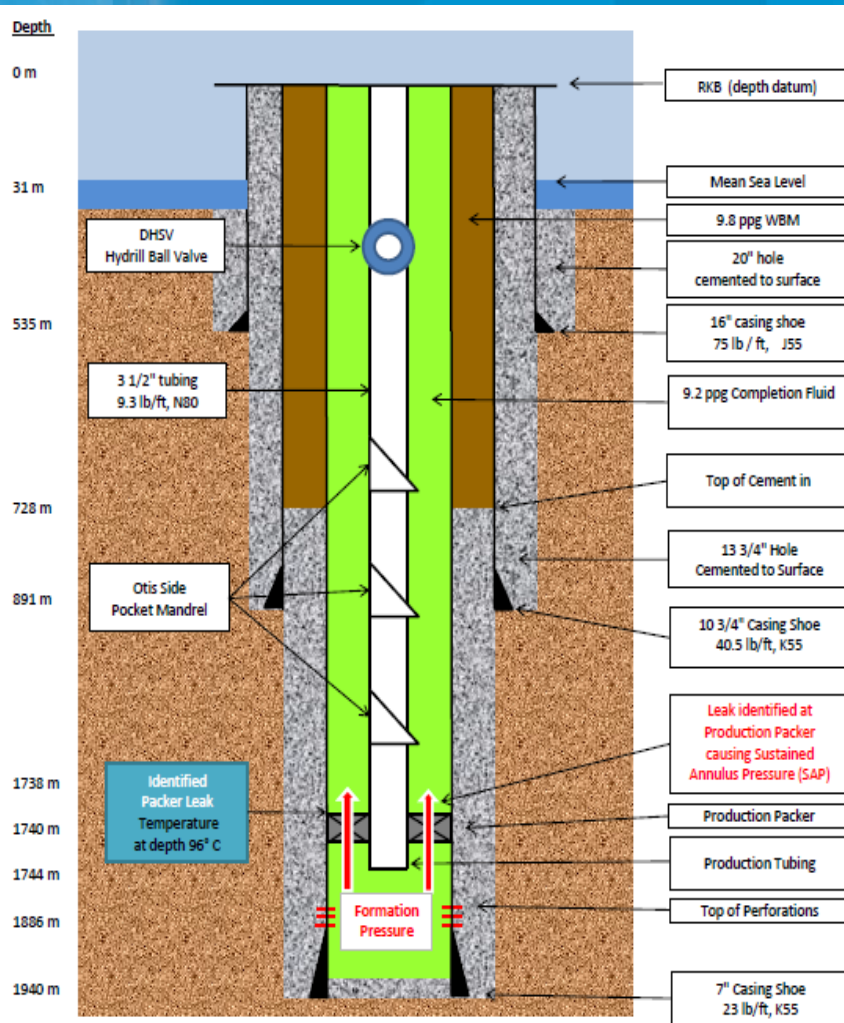
***“Successful Offshore Rigless Production  
Packer Isolation Trial With KCI’s IBS-SB”***

# Rigless Packer Isolation with IBS-SB

## Well Schematic Pre IBS-SB Deployment

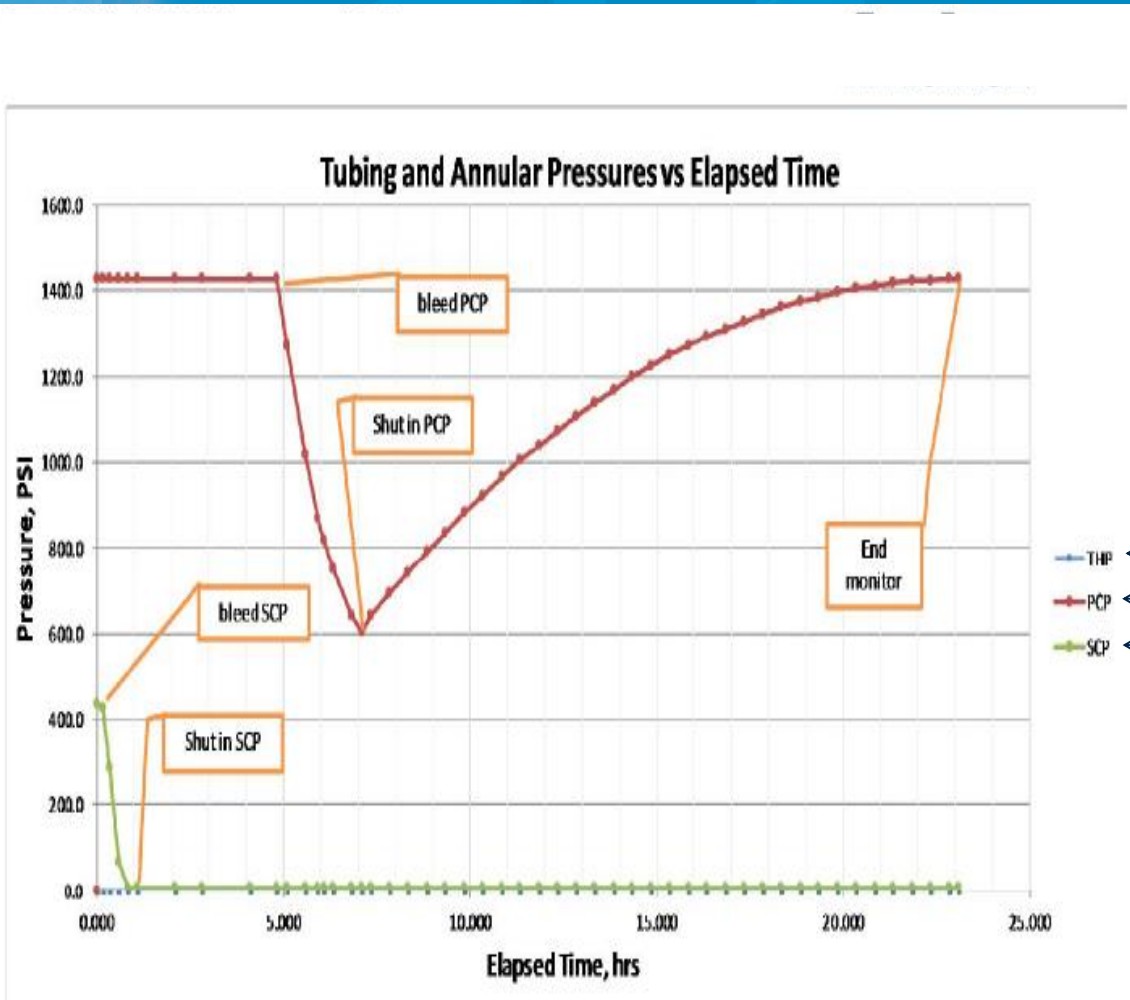
### Background

- 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 suggested 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 effecting 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

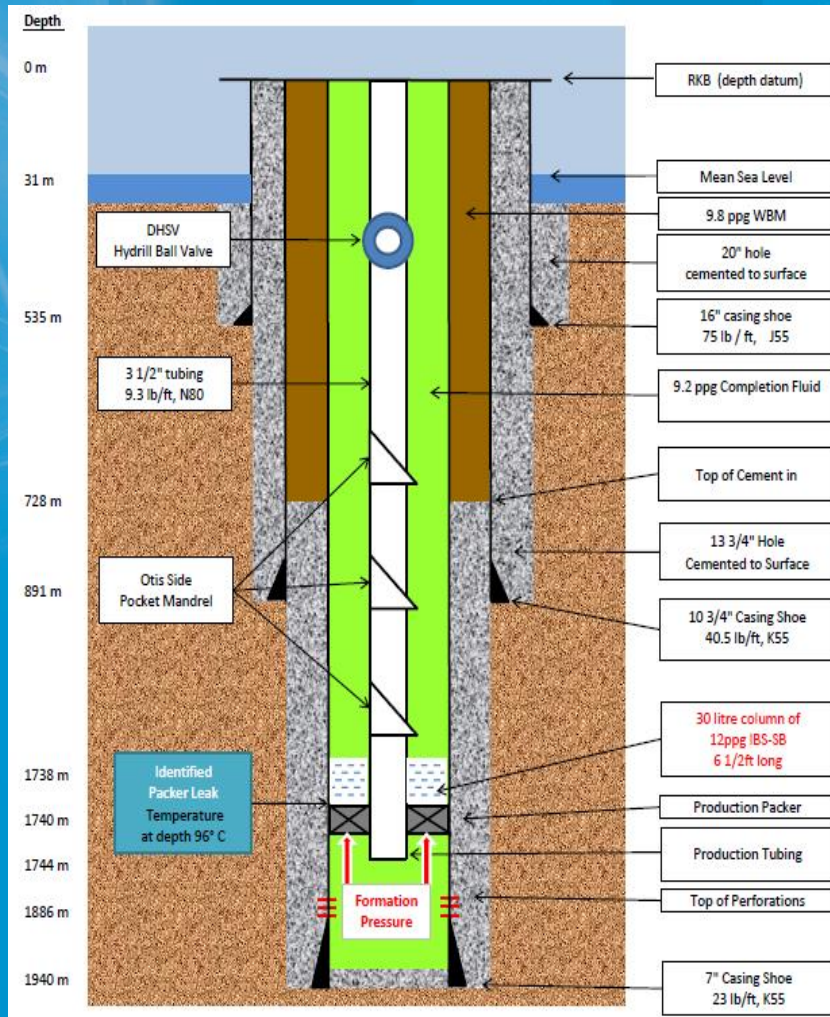
- ❑ Initial “A” Annulus Sustained Pressure of 1440psi
- ❑ “A” Annulus pressure vented from 1440psi to 600psi. Full pressure build up back to 1440psi over 14hrs

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



# Rigless Packer Isolation with IBS-SB

## Well Schematic Post IBS-SB Deployment



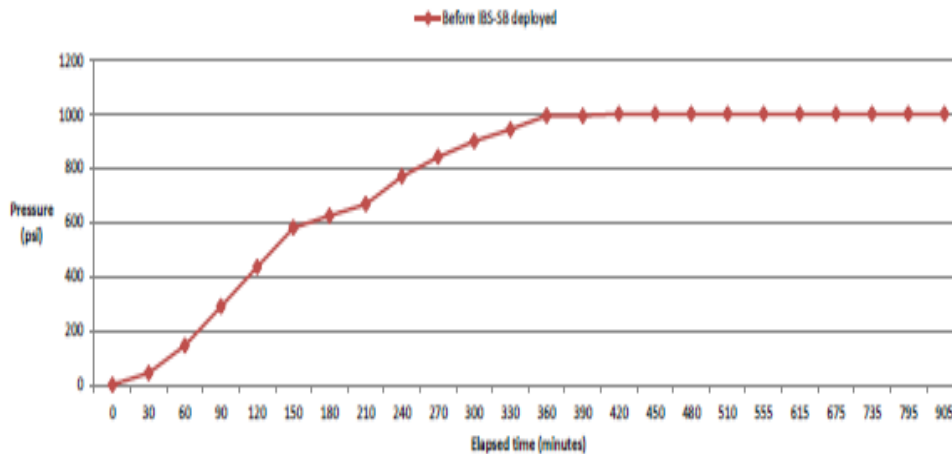
## Well Parameters and deployment detail

- ❑ 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

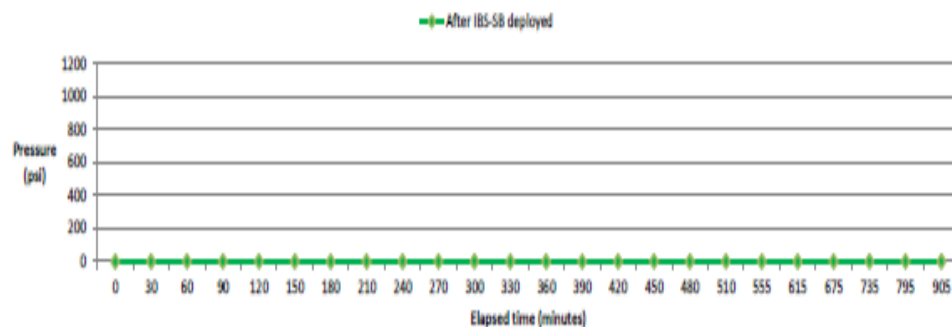
# Rigless Packer Isolation with IBS-SB

## 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 0psi following IBS-SB deployment – **Green Line**
- The “A” Annulus pressure has remained static at 0psi since the IBS-SB deployment
- Production to re-start on this well following the IBS-SB isolation @ 200 bopd