

50 YEARS

 TAM INTERNATIONAL



Providing effective isolation for abandonments utilizing Inflatable Bridge Plugs, following section milling operations

SPE Well Late Life & Well Abandonment Conference. 27-28 June 2018

EXCELLENCE AT THE WELLSITE®

Agenda

- Overview - Why would you need an Inflatable?
- Typical generic and project specific P&A challenges.
- Case History
 - ❖ Inflatable Bridge Plugs run through section milled casing to P&A the wells.
 - ❖ Additional Inflatable Bridge Plugs for other P&A requirements.
- Summary.



Inflatables – Why / What / How ?

- Expansion ratio.
- Point loading.
- Through restrictions.
- Deployed on Drill Pipe, Coiled Tubing, Slickline or E-line.
- Deployed in cased hole or open hole in a range of deviations.
- Configured as Permanent, Resettable or Retrievable.
- Used as:
 - Cement Retainer
 - ✓ Bridge Plug
 - Squeeze Packer
 - Test Packer



P&A Project Challenges

- SIMOPS.
 - ✓ Well restrictions.
 - ✓ Cost.
- Limited deck space.
 - ✓ Sustained casing pressure (SCP).
 - ✓ Corroded or collapsed tubulars.
 - ✓ Contamination.
 - ✓ High expansion ratio.



Case History – Drill Pipe Deployed

Location: Norwegian-North Sea, 2017/18

Challenge: To reliably set Inflatable Bridge Plugs (IBP) through section milled 9-5/8" casing into 13-3/8" casing, to provide a base for 500-ft cement plug and prevent gas migration through the cement.

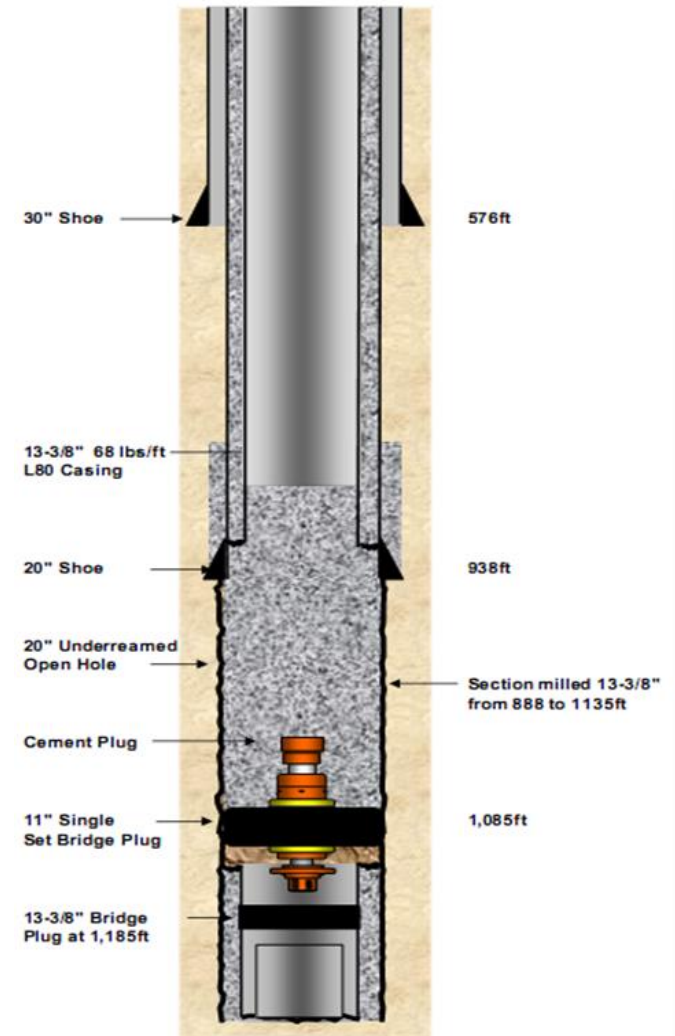
Solution: Drill pipe deployed 7-3/8" OD IBP through 9-5/8" casing into the section milled window in 13-3/8" casing. Pressure test IBP and cement in single run.

Results: 8 x 7-3/8" IBP's have been successfully set in several section milled wells to date.

Additionally, another 2 x 14-1/2" plugs have been successfully set inside 20" casing as a base for the final abandonment plug. Excessive wear inside the 20" casing precluded the use of conventional mechanical cast iron bridge plugs.

There are a further 4 wells to complete, with a contingency section milled option to run an 11" plug through 13-3/8" casing and set it in the 20" casing.

The 14-1/2" bridge plugs are contingency on all the remaining wells due to the condition of the 20" surface casing.



Summary

- Inflatable Solutions can contribute real value to Abandonment Projects and in some scenarios are the only viable solution.
- In P&A we are normally going to be operating in a “*dirty and restrictive*” down-hole environment, with potential unknown's and in a “*cost sensitive*” market. We will continue to learn lessons, improve and design new and innovative P&A solutions.
- P&A related section milling, plug setting and cementing operations can potentially be avoided by eliminating primary and secondary gas migration during well construction (Cementing). A story for another day!



End of Presentation

Questions?

www.tamintl.com

Copyright © 2018 TAM International, Inc. All Rights Reserved.

50



TAM INTERNATIONAL