



TACTT – TA Cap Test Tool

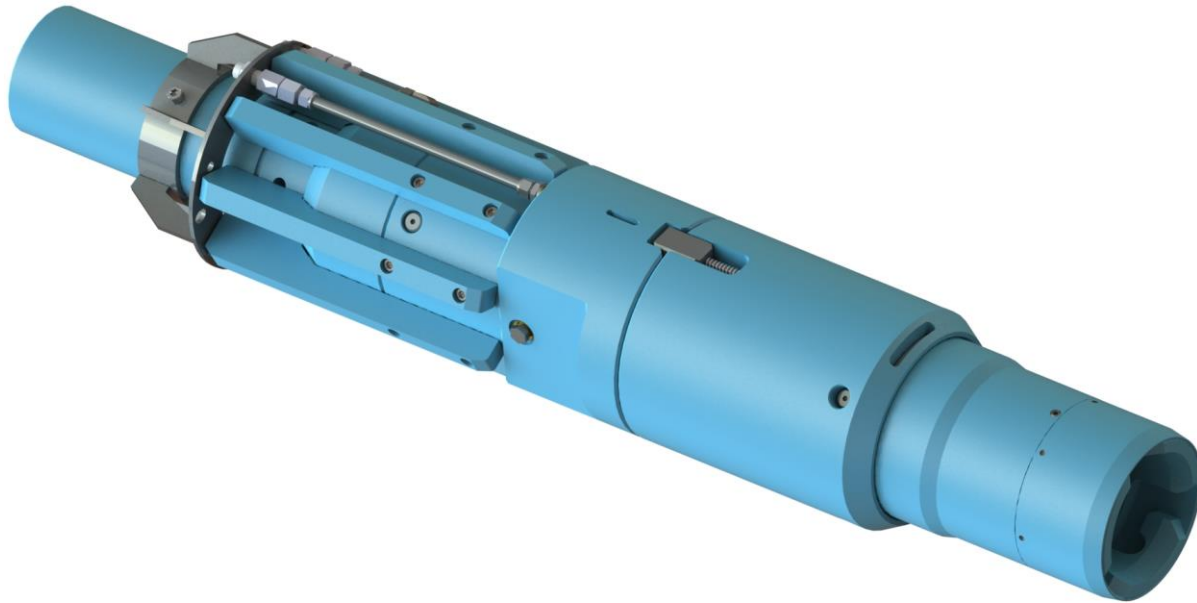
Michael Scott

TACTT – What is it?

- Drill Pipe or Vessel deployable system, that allows testing and (limited) venting of trapped pressure below mudline suspended Temporary Abandonment (TA) caps with BPV's fitted.
- Facilitates the pressure test of deployed seals, prior to stabbing the BPV (5,000 psi capable).
- Allows controllable stabbing of the BPV, with ability to verify that the valve has been stabbed/opened.
- Provide means of leaving a secondary check valve assembly in place should the original not re-seat.



TACTT – Deployment Overview



1. Latch on to TA Cap and confirm engagement with over pull
2. Pressure test to test integrity of seals
3. Stab the TA cap back pressure valve and monitor for pressure build up
4. If there is no pressure; retract the piston and retrieve TACTT to surface
5. If pressure is found; leave bottom section of TACTT in place as additional barrier

TACTT – Early Development – TACTT Mk.1

- In 2014, Spirit were looking for ways to manage pressure trapped below a BPV in TA Caps.
- Concern was that, under certain circumstances, there was a risk of trapped pressure below the BPV with no way of knowing the pressure or volume, and whether the existing BPV would reseal once stabbed.
- Unity engineering developed the TACTT tool. The system had a unique seal assembly that was pressure boosted in either direction. This facilitated verifying the seal integrity between the ~30 y/o TA Cap before stabbing the BPV.



TACTT Mk. 1 – Retrieved TA Cap



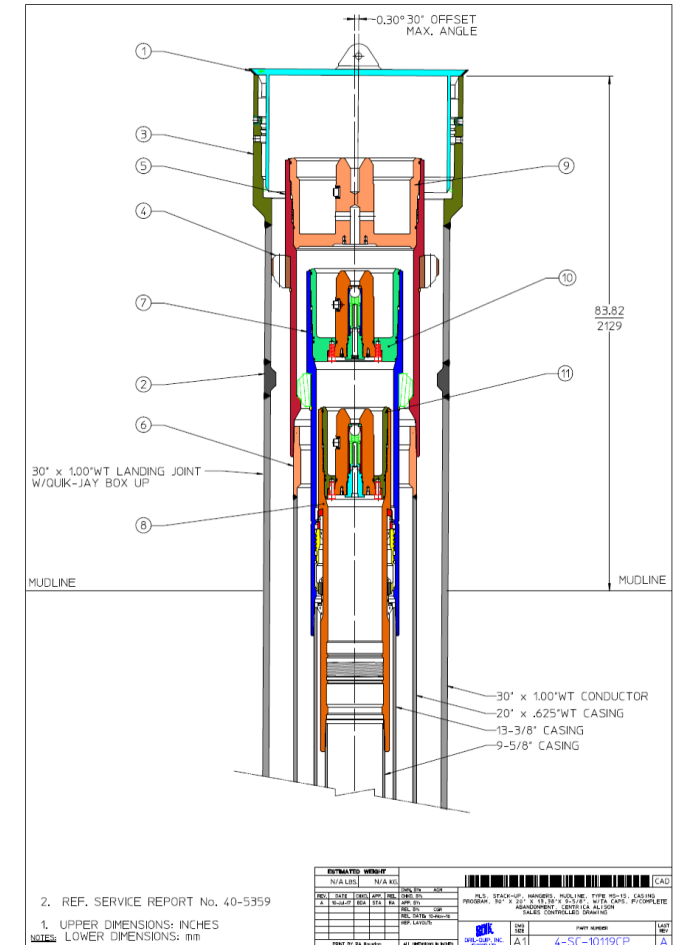
TACTT Mk. 1 - Lessons Learned

- Tool worked well and as expected, 4,000 psi seal obtained with no sealant required.
- Centralisation (or lack of) can make all the difference!
- DH Camera's worth every penny!
- Retrieved BPV was tested in Unity's workshop to verify operation. The BPV did **not** reseal once stabbed, validating the initial concern that it would not reseal once disturbed.
- Based on the success of the TACTT Mk1, Spirit subsequently asked Unity to develop a system for vessel deployment.

TACTT Mk. 2 – Spirit

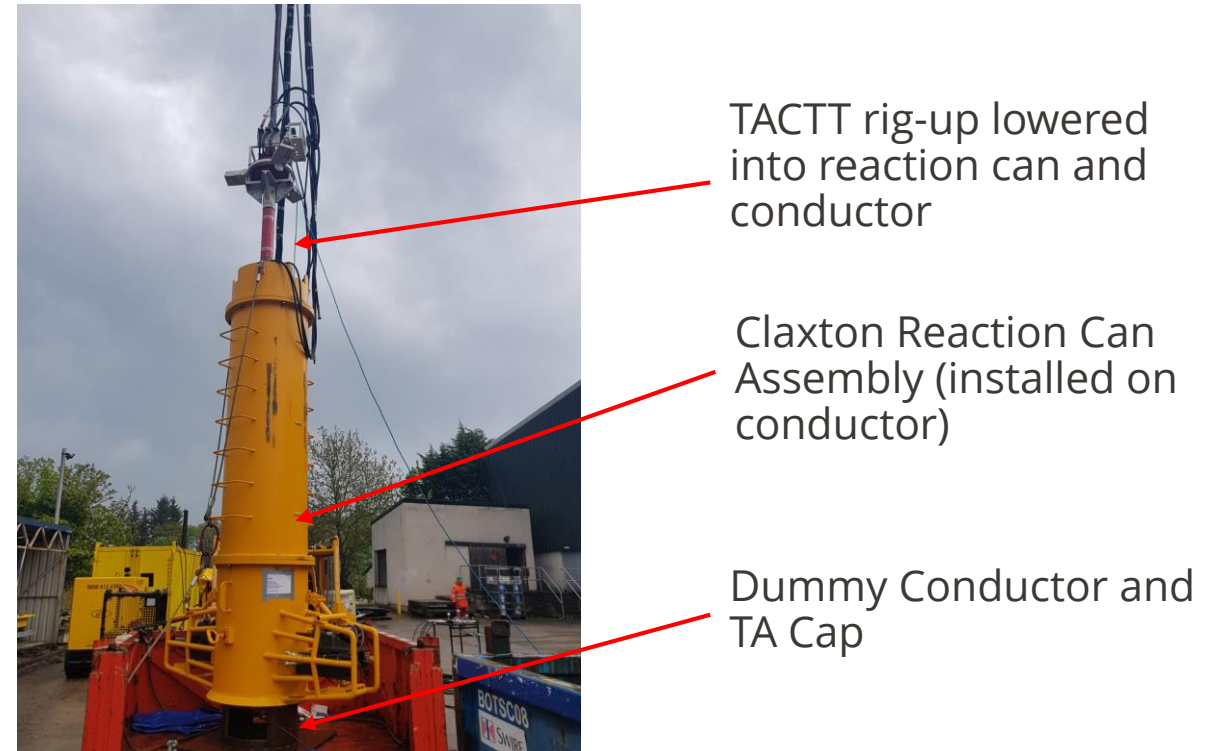
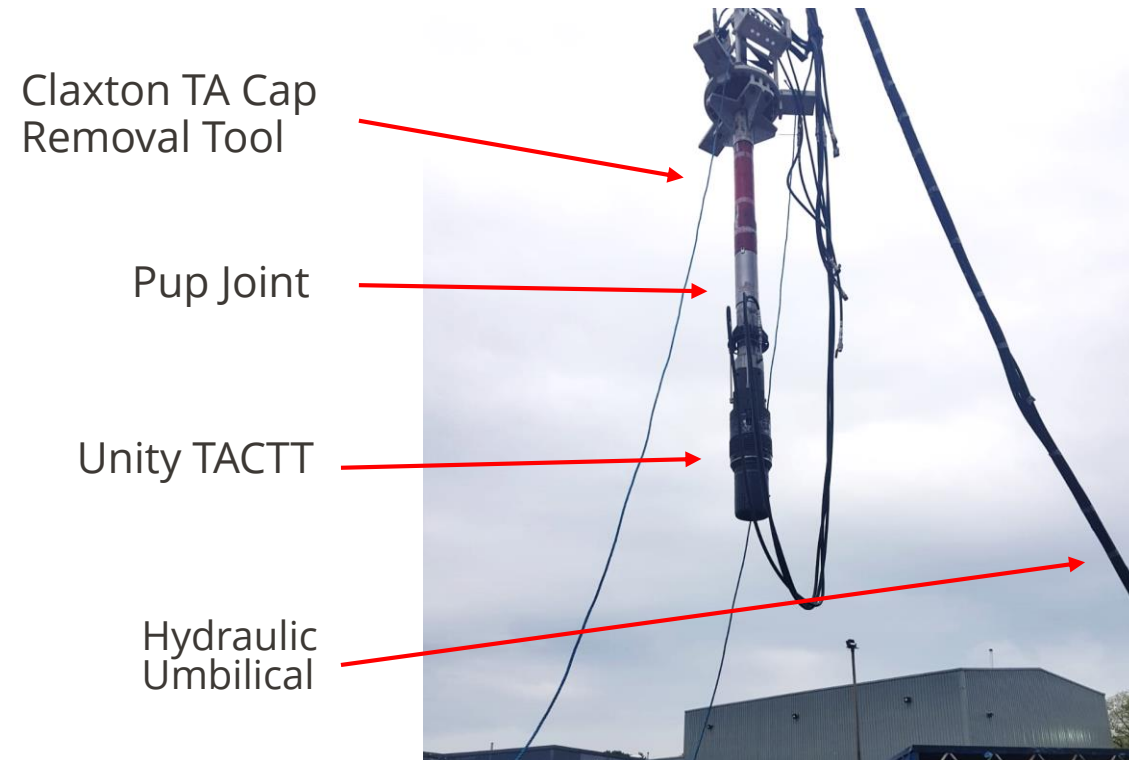
Requirements:

- DSV/LWIV run tool on crane/hydraulic umbilical to latch onto, and verify pressure on 13-3/8" DQ MS15 Cap.
- Perform 4,000 psi pressure test once latched on.
- Measure and bleed pressure from below the cap.
- Confirm that the BPV is sealing prior to recovering the cap.
- Provide secondary BPV should existing one fail.



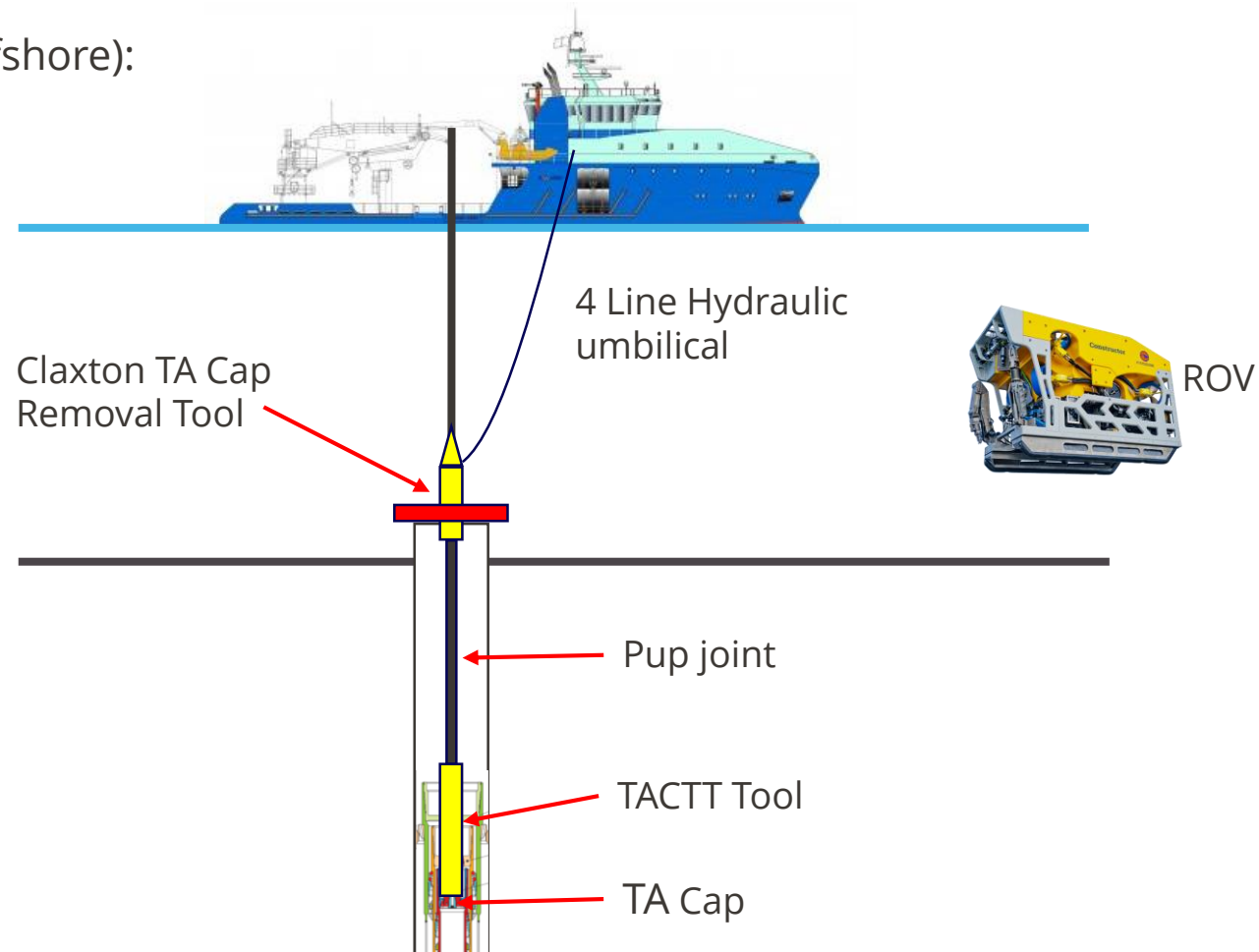
TACTT Mk. 2 – Spirit

Rig-up and deployment (SIT):



TACTT Mk.2 – Spirit

Rig-up and deployment (offshore):



TACTT – Mk. 2 - Lessons Learned

- Tool worked well and as expected, 4,000 psi seal obtained.
- No pressure found below cap.
- Some improvements noted to make deployment more efficient.
 - Improved Control Panel Design
 - More robust interface between umbilical and TACTT

Case Study – InterMoor - Introduction

- August 2019
- North Sea - Babbage field
- Deployed from AHTS / Light Construction Vessel
- DQ MS15 9-5/8" Cap
 - Suspended in 1984
 - Water depth – 114 ft.
- Pressure test requirement 5,000 psi



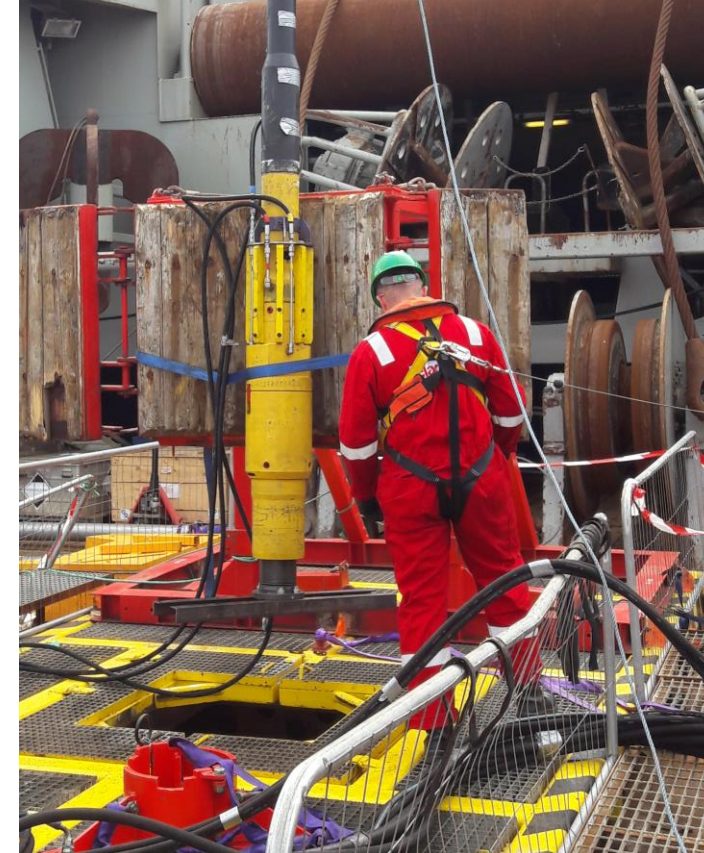
Case Study – InterMoor - SIT

- SIT requested after modification of TACTT
- Simulated running procedure:
 1. Engaged with 9 5/8" TA Cap and confirmed with over-pull
 2. Pressured up TA Cap to simulate well conditions
 3. Stung TA cap and monitored pressure
 4. Simulated leaving secondary BPV in-situ
 5. Re-engaged secondary BPV and disconnected from TA Cap



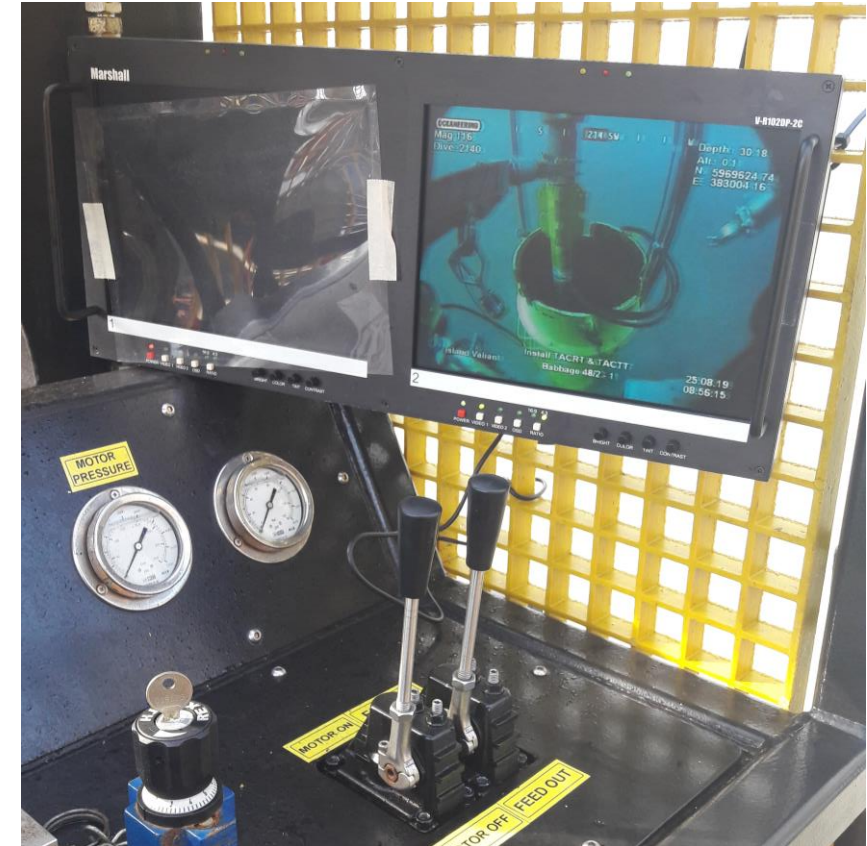
Case Study – InterMoor – Offshore Operations

- Reaction can deployed onto conductor
- Rotary connected to Unity TACTT. On deck pressure test with test TA cap prior to deployment. This confirmed integrity of the stack up
- Rotary and Unity TACTT deployed through moon pool using vessel crane



Case Study – InterMoor – Offshore Operations

- ROV used to manipulate TACTT and umbilical as the assembly was lowered through reaction can.
- The TACTT was rotated anti-clockwise until a physical drop of the tool was observed. A clockwise rotation was made until a pressure build up was detected. An over pull on the crane confirmed the tool was latched.
- The assembly was pressured up to confirm seal integrity against TA Cap.
- The TA cap was stung. No pressure was recorded.
- TACTT disengaged from TA cap and returned to deck



InterMoor –Lessons Learned

- The top of the conductor was at an angle in the “as found” condition
 - For vessel based deployments, it is important that the top of the conductor is as parallel as possible.
 - 9 5/8” tolerances were close and the angle made it difficult to locate the tool and latch on to the TA Cap.



Summary

- TACTT is a unique tool that allows clients to reduce risk and provide the only means of providing a testable containment, prior to disturbing a BPV.
- Tool can be adapted to suit different TA cap (or similar) types.
- Under development to provide a 1-trip system with various upgrades and updates.



TACTT – Thank you