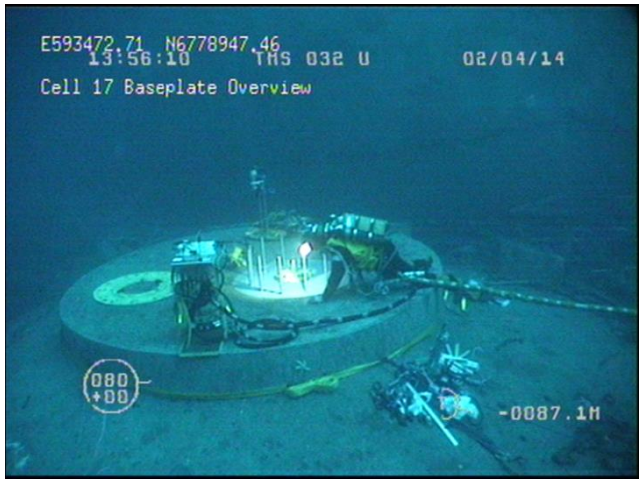
Brent Cell Survey and Sampling

Challenges, Experience, Lessons



John Gillies

Brent Decommissioning Project Execution Manager

Background

Three OSPAR 98/3 derogation candidates:

"The assessment of a proposal for disposal at sea of a disused offshore installation shall be based on descriptions of ……the characteristics of the installation, ***including the substances contained within it"***

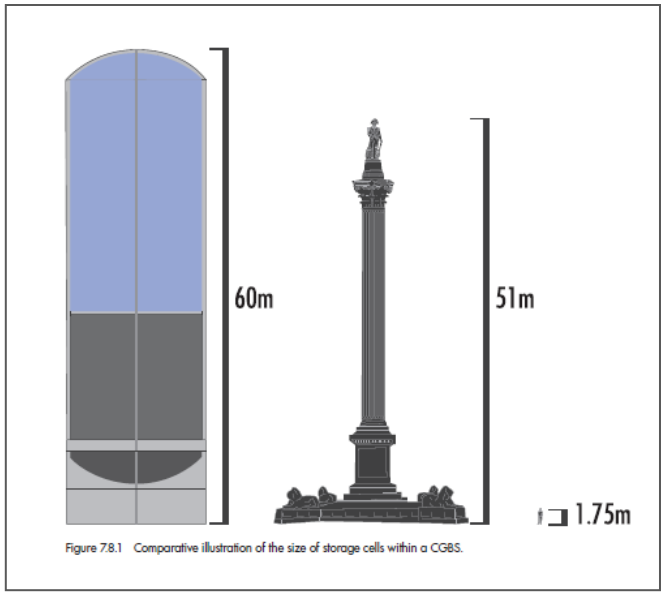
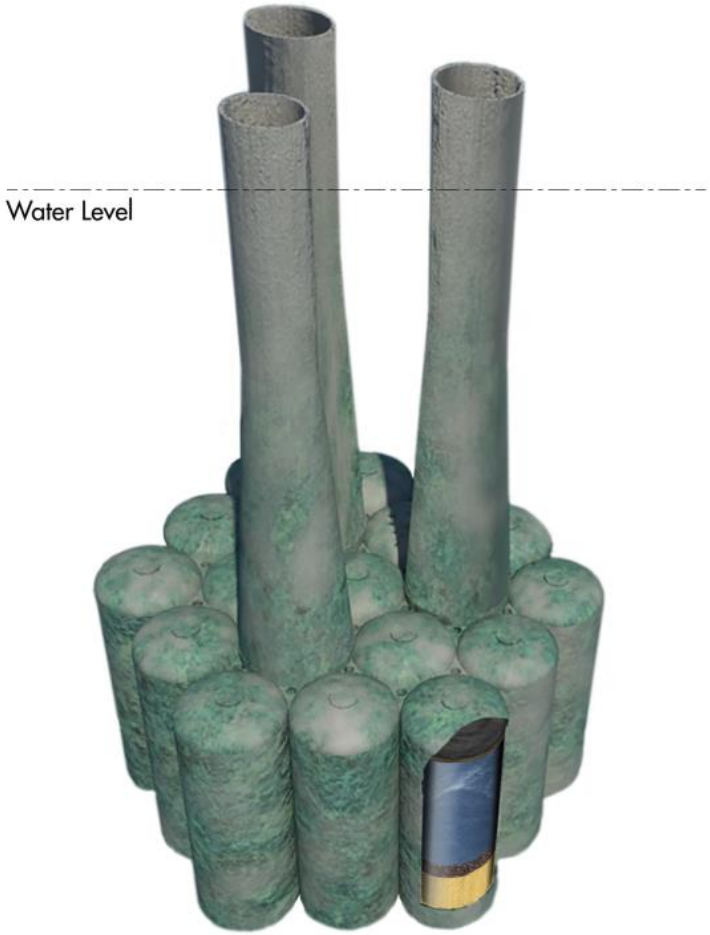


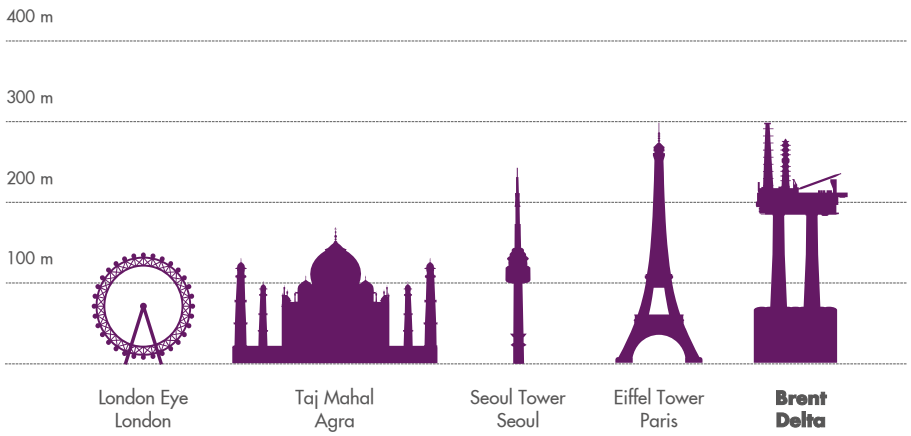
Figure 7.8.1 Comparative illustration of the size of storage cells within a CGBS.

Challenges

- ~1m thick concrete, 80 metres deep.
- Maintain 4 Barg drawdown
- Constrained market (vessels, people)
- SIMOPS; producing, well P&A, topsides removal preparation

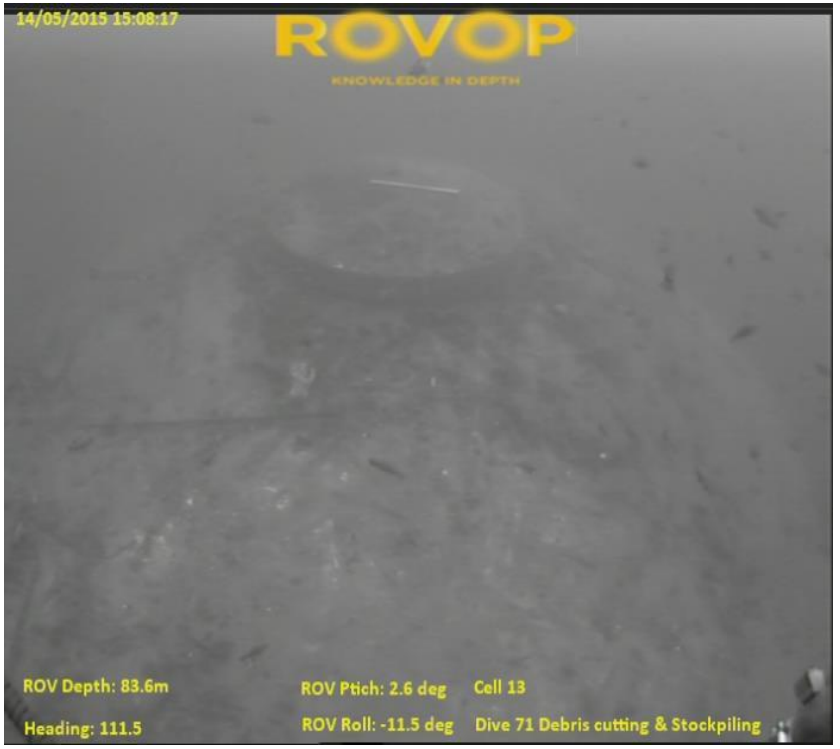


Challenges (distances, depth)



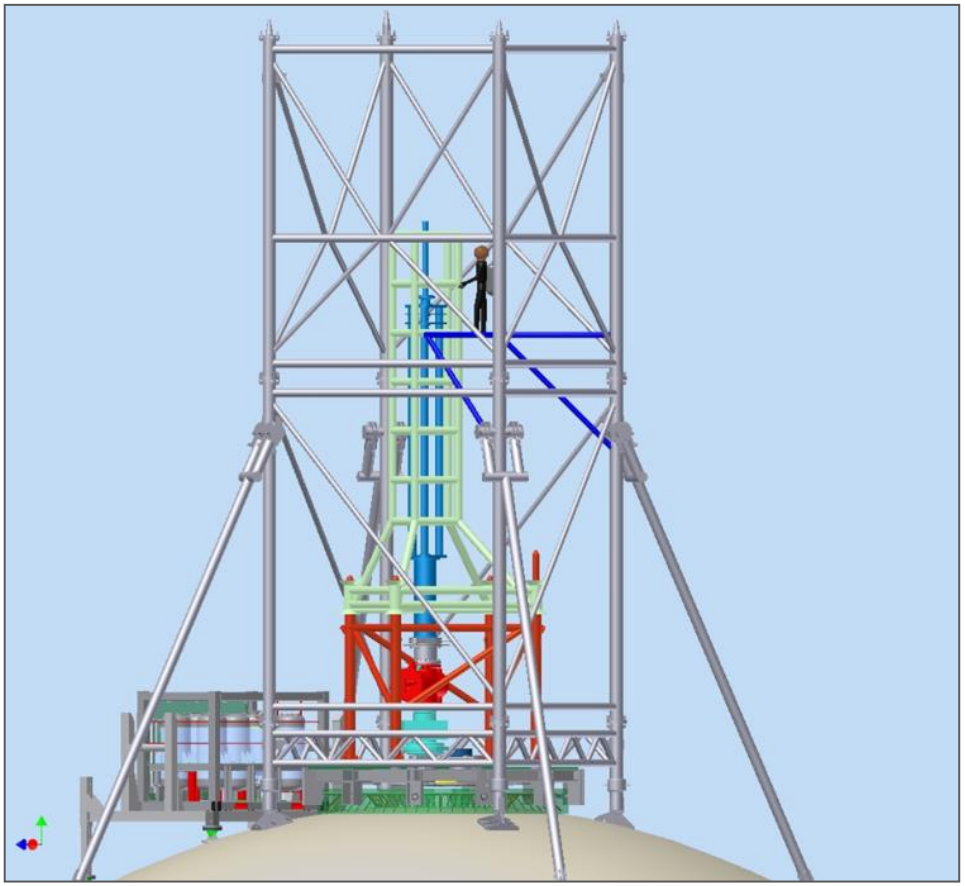
Challenges (overhang, vessel proximity, excursion)

Challenges (debris, drill cuttings)



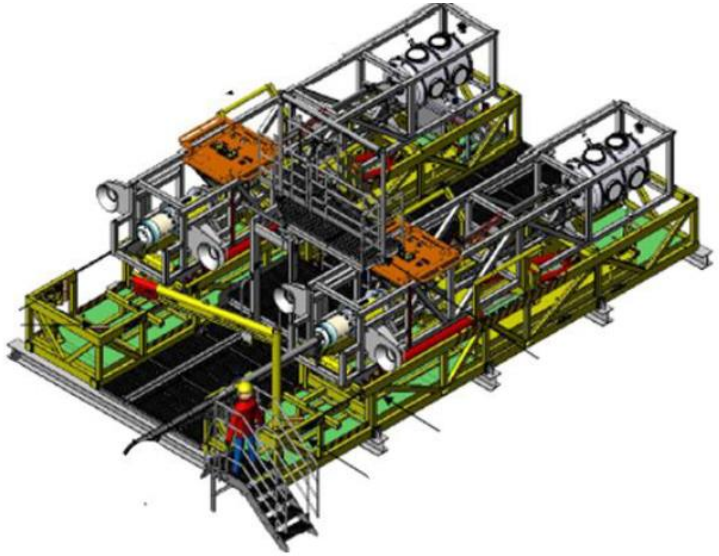
2006-08 Shell/Subsea 7 Study

- 21metre high structure to drill16" diameter hole for tools to be deployed.
- Abandoned; complexity, weight and cost



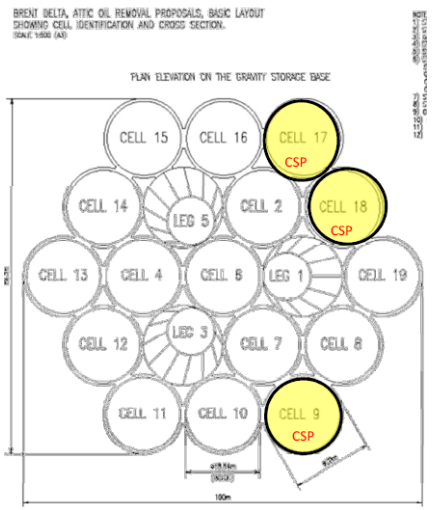
2009-2012 Geoprober/Oceaneering/Fortis

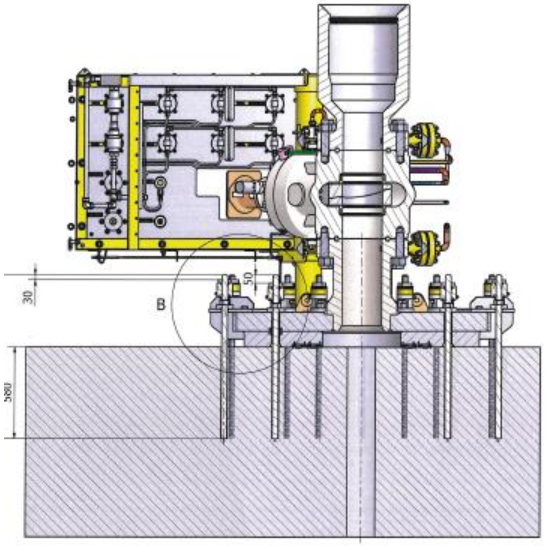
- 7″ hole (minimum Fortis sonar)
- 15 tonne, vessel deployed
- 10 tonne baseplate; Hilti resin anchors
- Abandoned end 2012…weight, complexity, cost, deployability



Geoprober Baseplates (Re-used)

- Resin anchor secured (580mm deep)
- HNBR waffle seal on machine conditioned surface
- 14 diving days to install on three cells





2012-14 Interwell (STL) Riserless Well Intervention

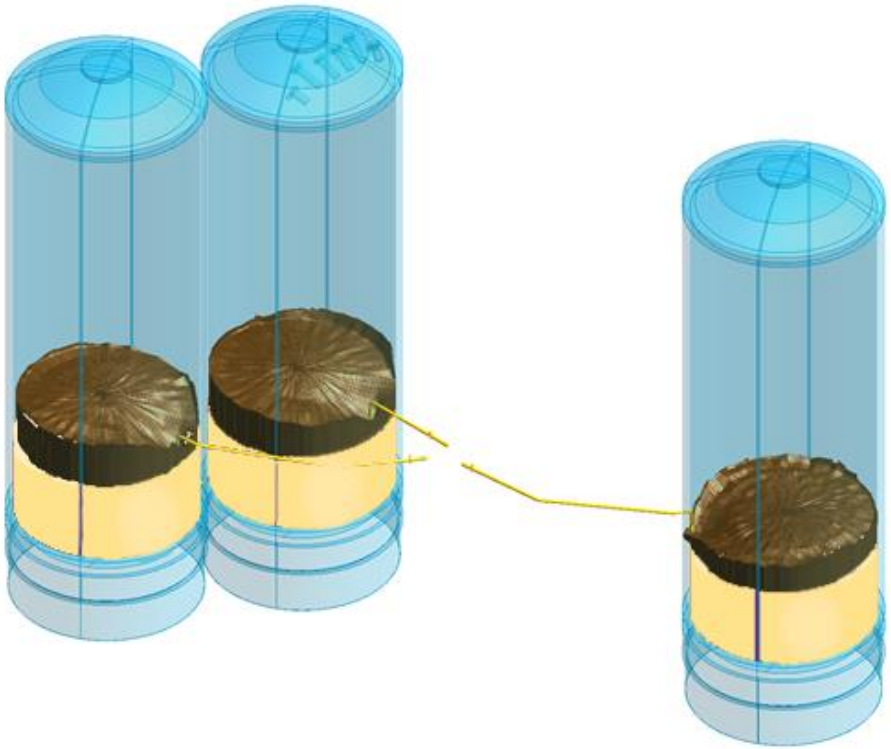
- Subsea wireline lubricator & Geoprober baseplates
- Platform wireline unit, conventional e-line tools
  - Welltec drill (e-line scale mill) 10 metre long
  - Socon Sonar (2.9″)
  - Expro sample (well sampling)

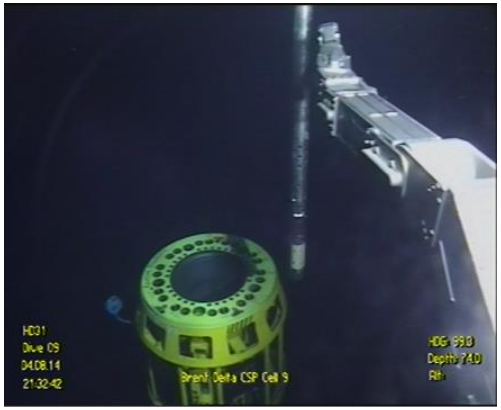
- Platform based WROV (ROVOP)

- Contract awarded May 2013.
- Baseplates deployed April 2014
- Operations Summer 2014

Results

- Generally in line with pre-survey assumptions (average 4m sediment depth), water and sediment samples recovered





Optimise or Redesign?

- Slender, unstable (to accommodate long wireline tools)
  - limited to ~2m Hs deployment after stiffening
- High cost, Shell policy to avoid saturation diving
- 10 tonne equipment for 0.5 litre samples, at limit of platform crane capacity
- High cost specialist well services companies

Technical limits, weather sensitive, high cost; unsuitable for sixteen cell access to recover attic oil and potential application to three GBS structures.

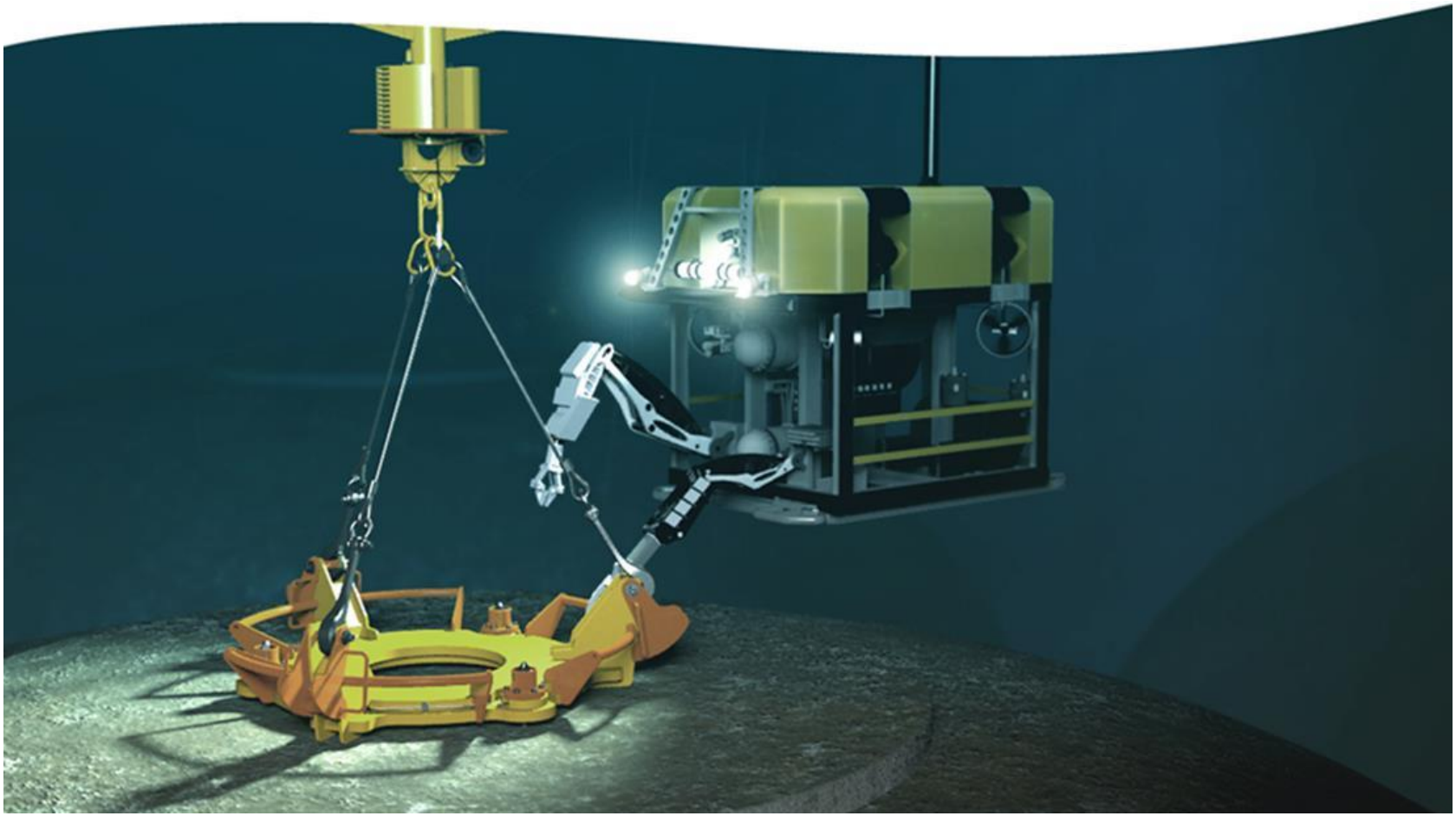
2014-Enpro Subsea Anchor Hub

- Diverless, topsides WROV deployed
- 10 year storm capable foundation
- Seal inside bore of blind cored hole
- Interface to drill, map, sample, recover attic oil

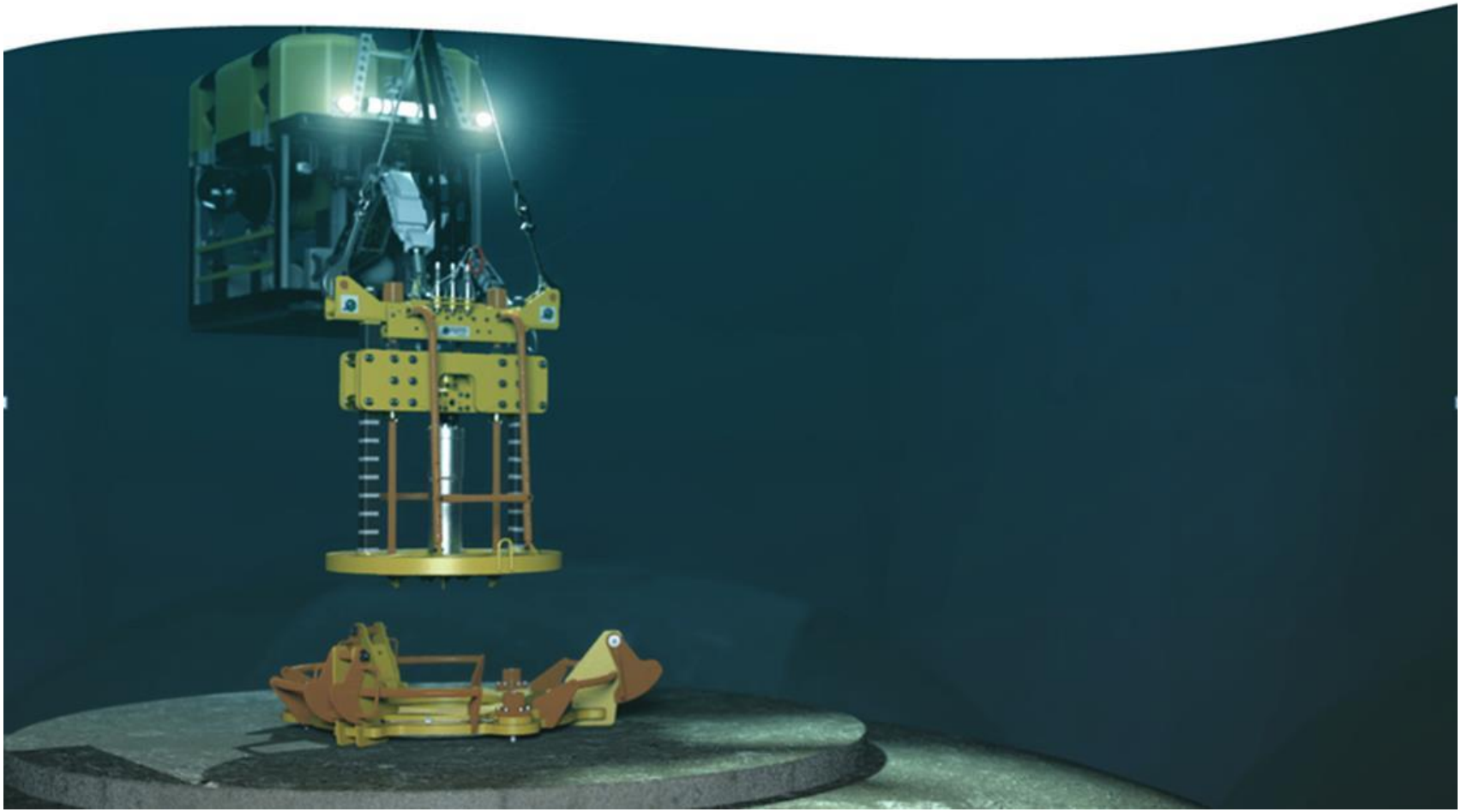
- Contract awarded Dec. 2014.
- Offshore Sept 2015- June 16

First contract for Enpro Subsea

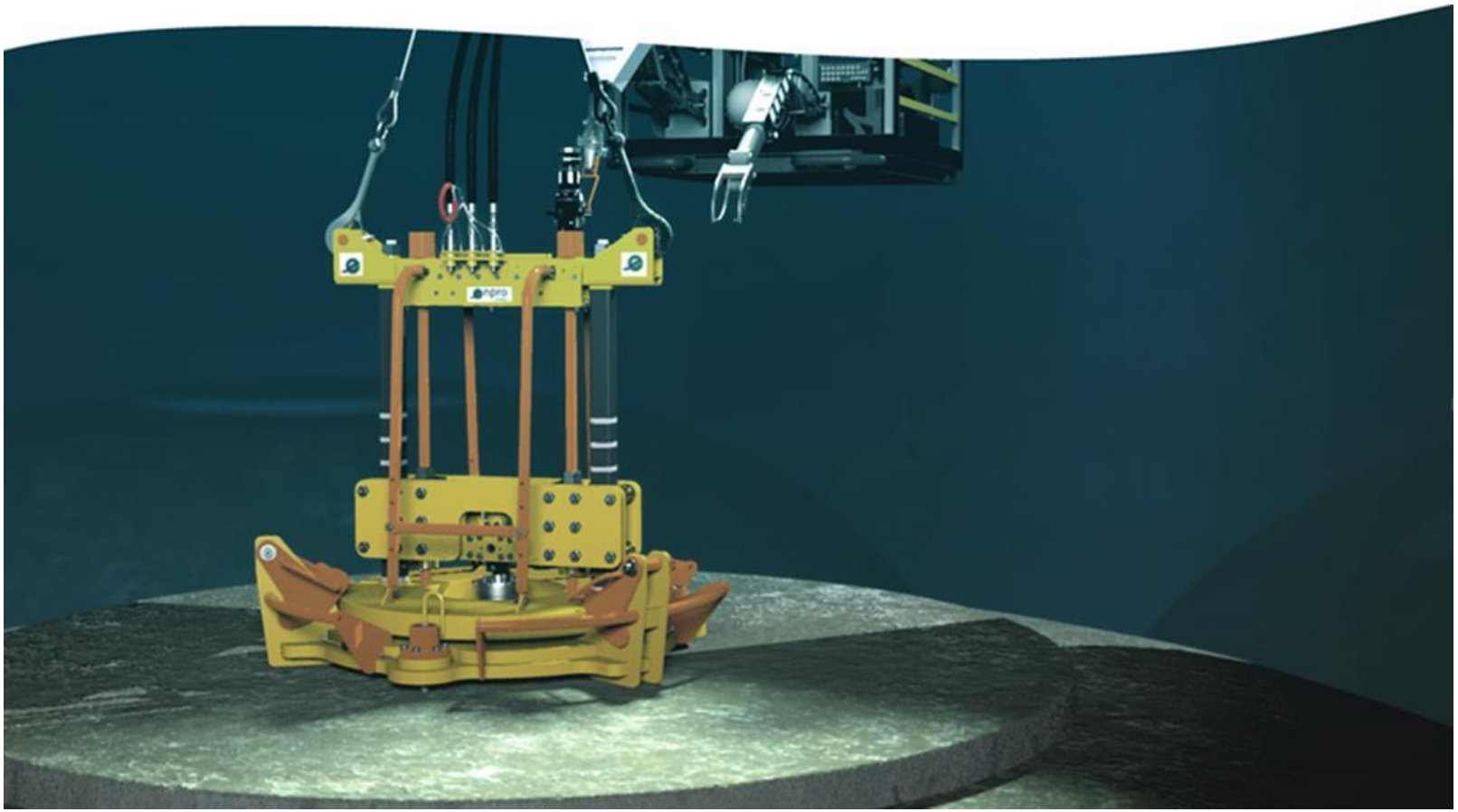
ROV Locates Temporary Baseplate



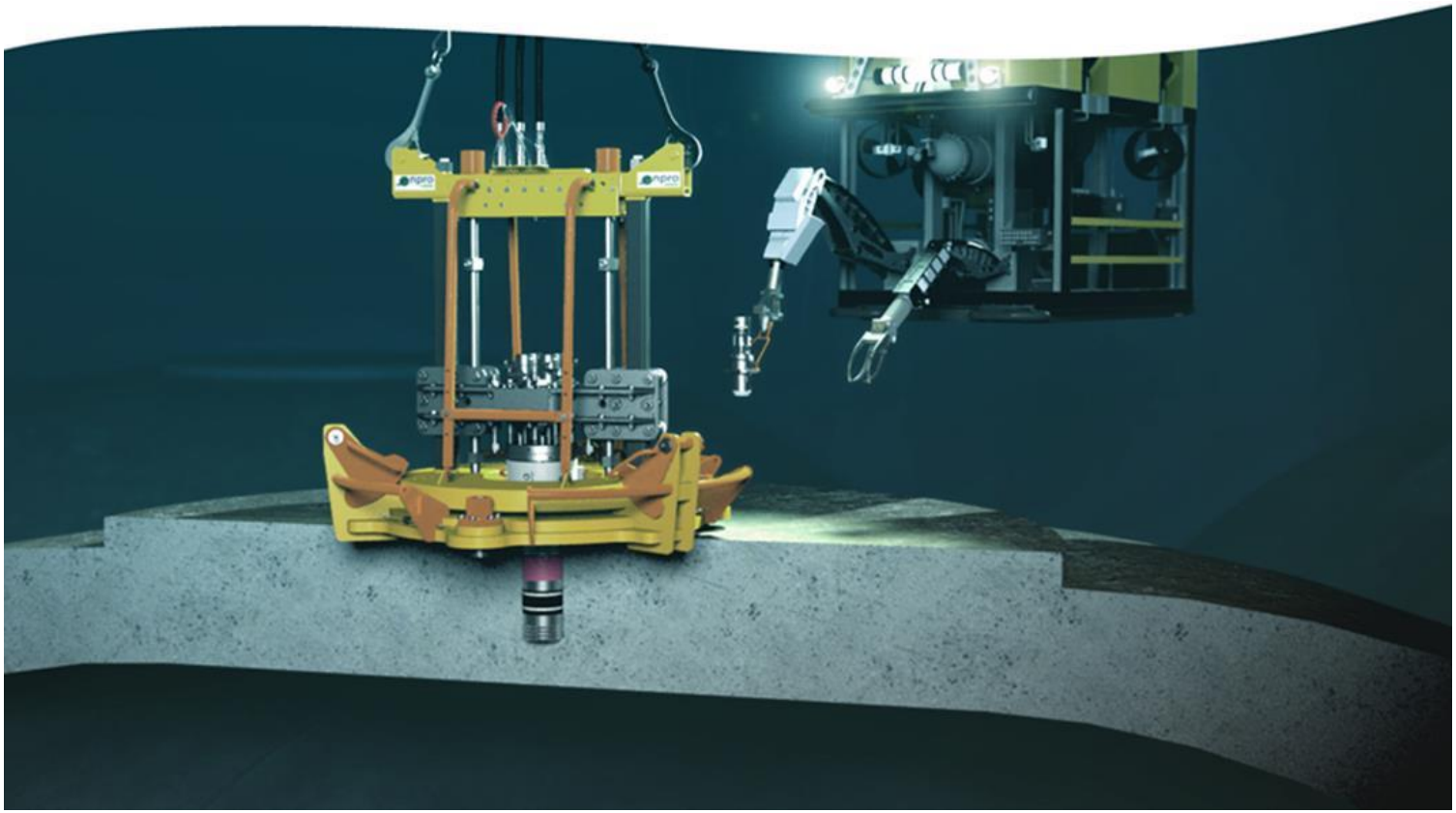
ROV engages core drill



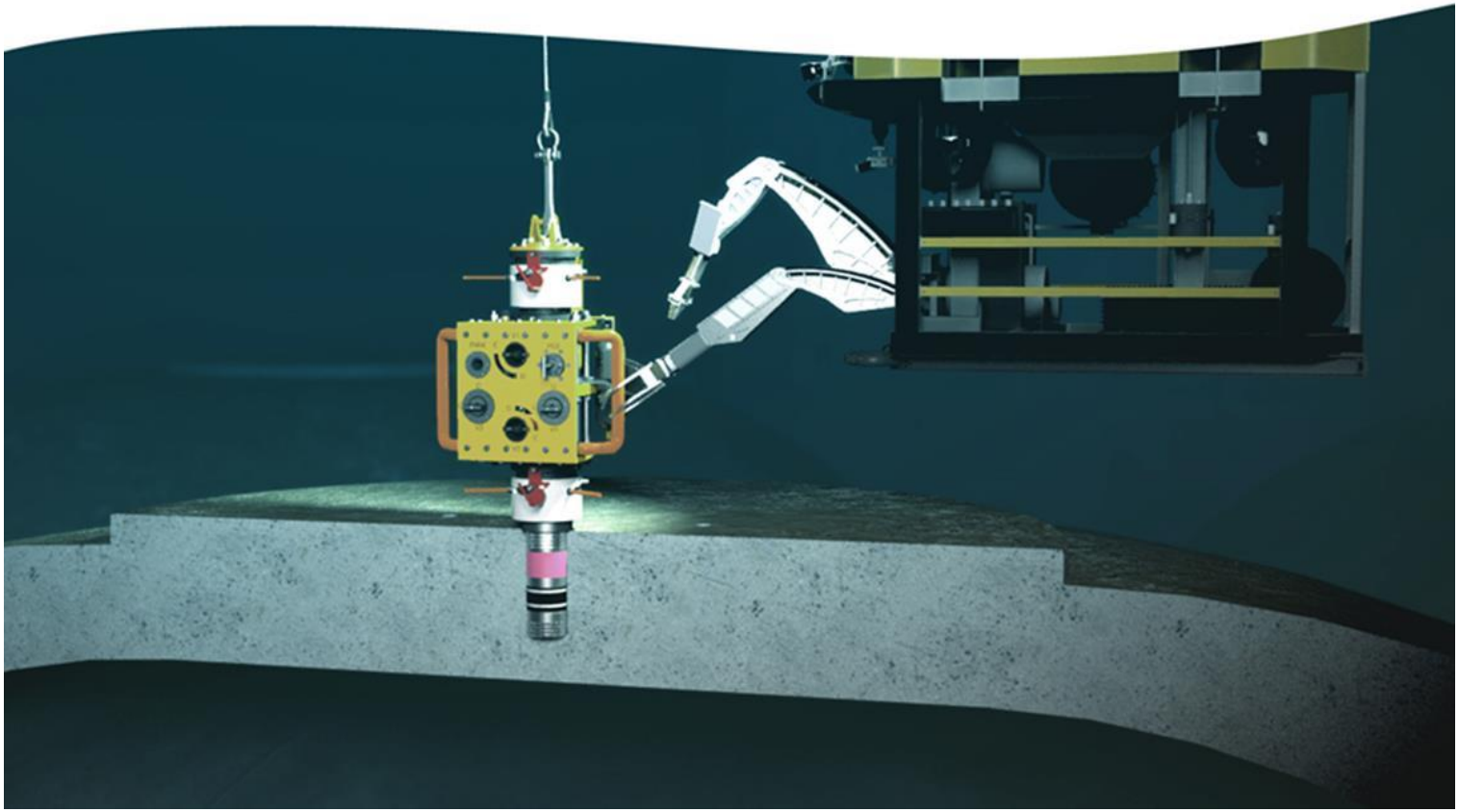
ROV recovers blind hole core



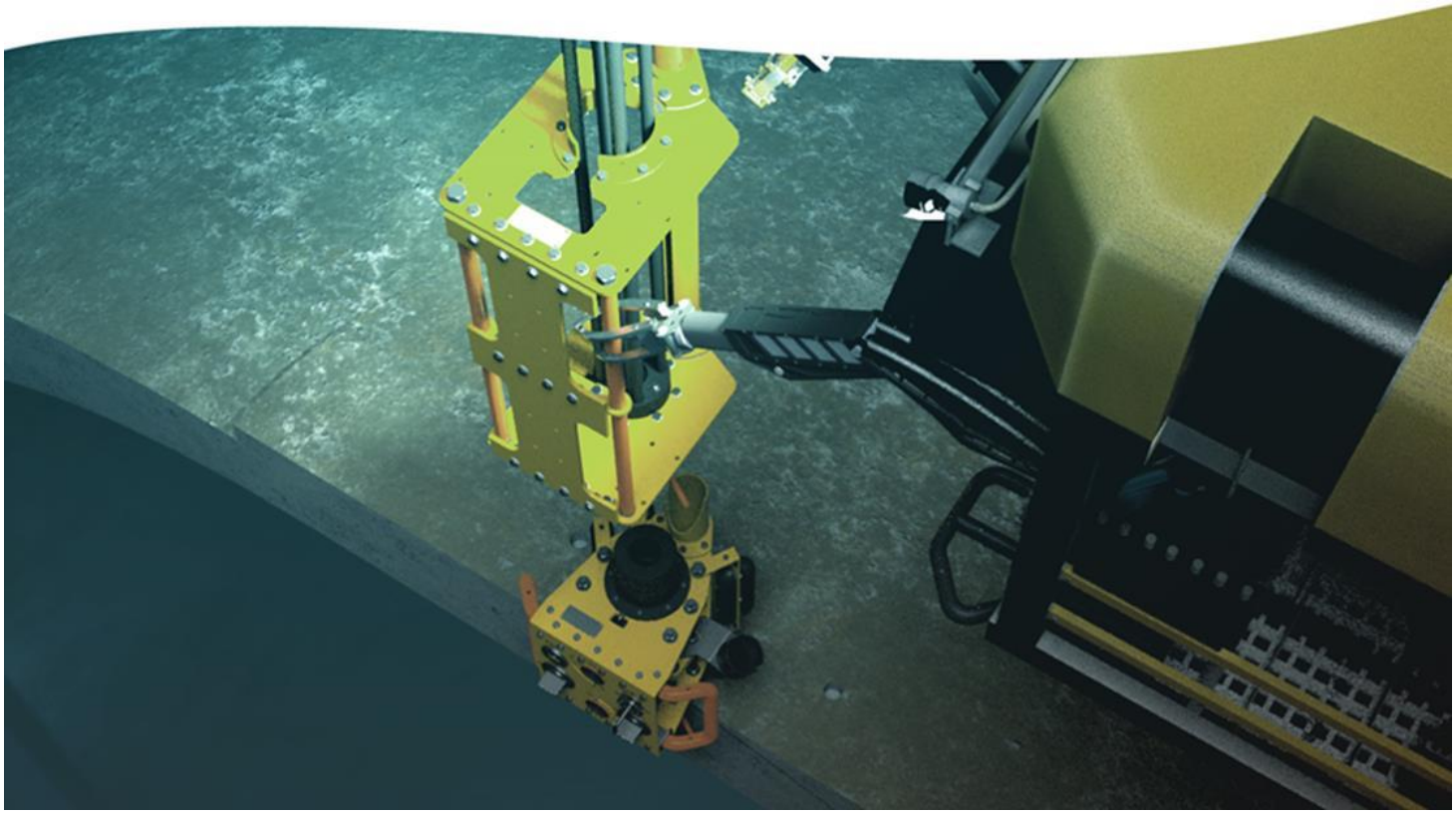
Anchor Hub set, resin injected and tested



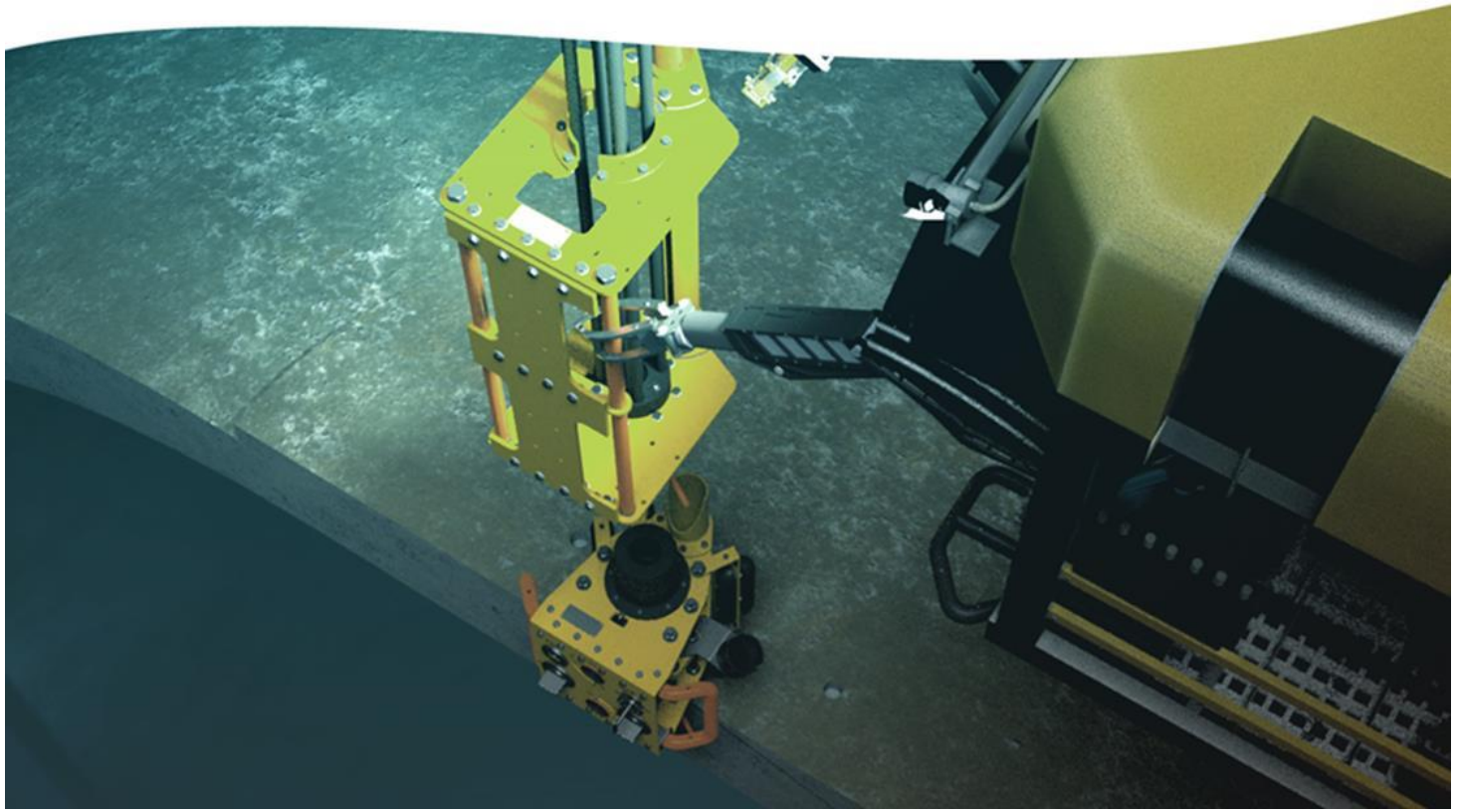
Valve block attached



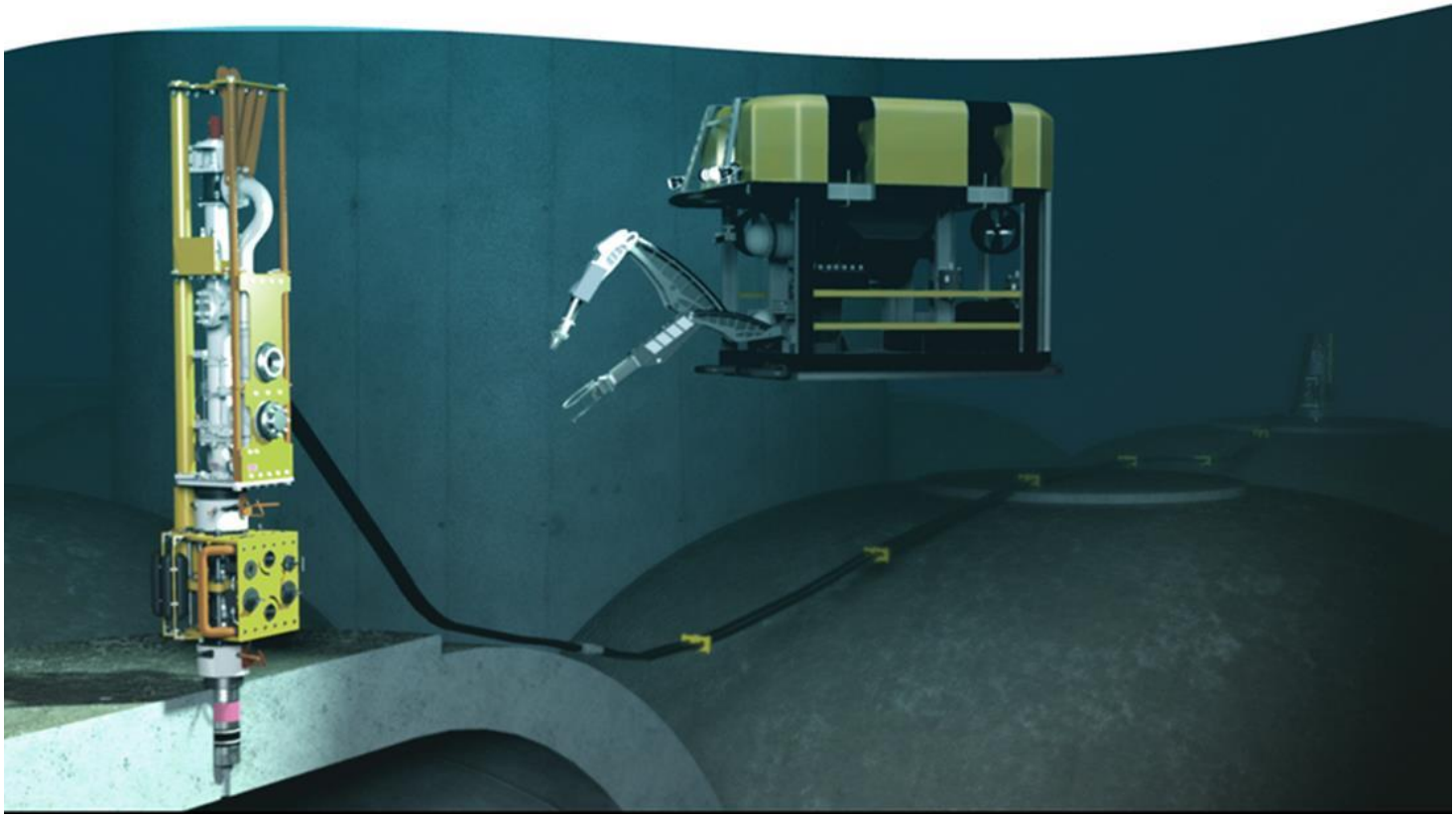
Through drilling



Through drilling



Pumping or Sampling



Lessons

1. Don't re-invent what exists (e.g. concrete coring, small bore sonar)
2. Use proven technology/capability but beware force fits
3. "copy and paste" services wont solve novel problems
4. Good execution as important as good ideas