

# Full-scale infrastructure for verifying the performance of P&A technologies

SPE ABERDEEN

WELL DECOMMISSIONING 2022

– THE FUTURE!

Dave Gardner



# NORCE & P&A



## P&A Innovation Program



- JIP – 6 partners
- Full-scale testing and verification
- Applied Research
- Manager; Liv Almås Carlsen



## Norwegian P&A Laboratories

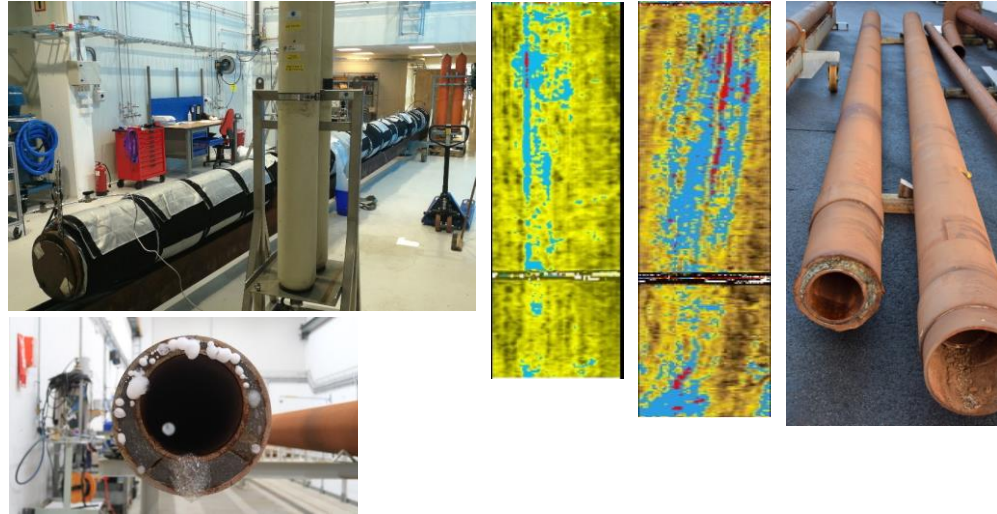


- P&A test well
- Full-scale lab for testing at downhole conditions
- NORCE Manager; Sigmund Stokka

# P&A Innovation Program



### Barrier verification



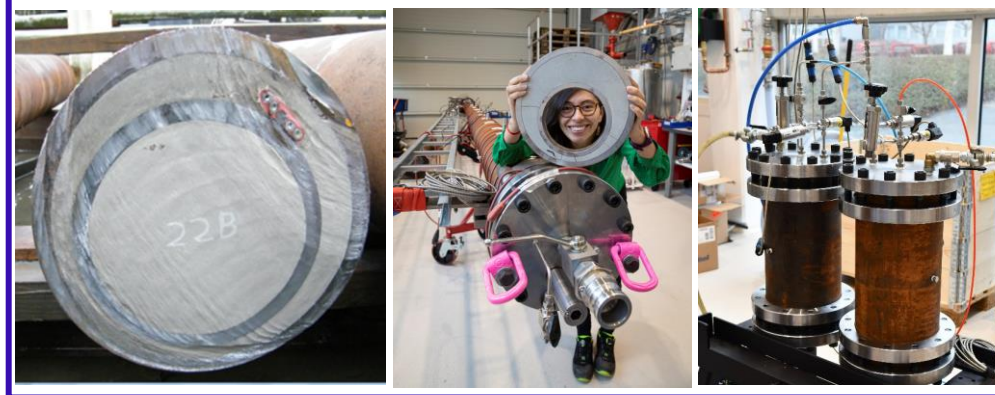
### Fluid migration modelling & treatment



### Rig-less P&A Technologies



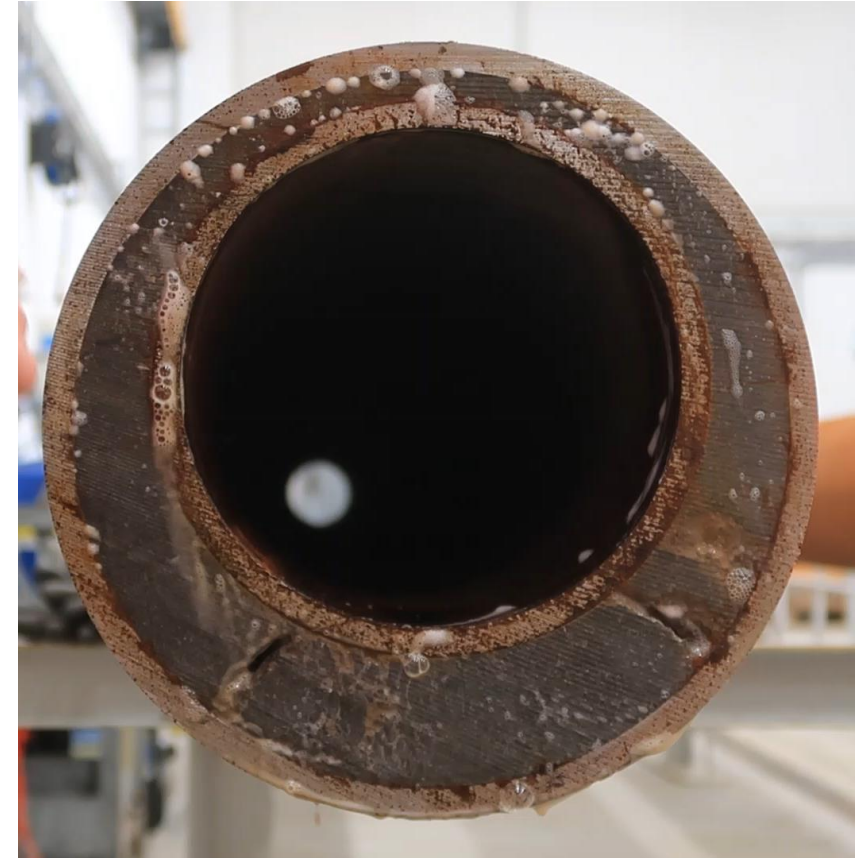
### P&A plug testing



# Barrier verification sections and cells

*Used as a reference; compare logs to physical measurements of the seal quality and compare logs to logs*

1. 9 5/8" x 13 3/8" sandwich sections recovered from a Valhall well
2. 7" x 9 5/8" reference cells; good cement, channels, micro-annuli, ...
3. 7" x 9 5/8" x 22" Multi-casing fixtures, 5 configurations



# Ullrigg U7; CBL reference well



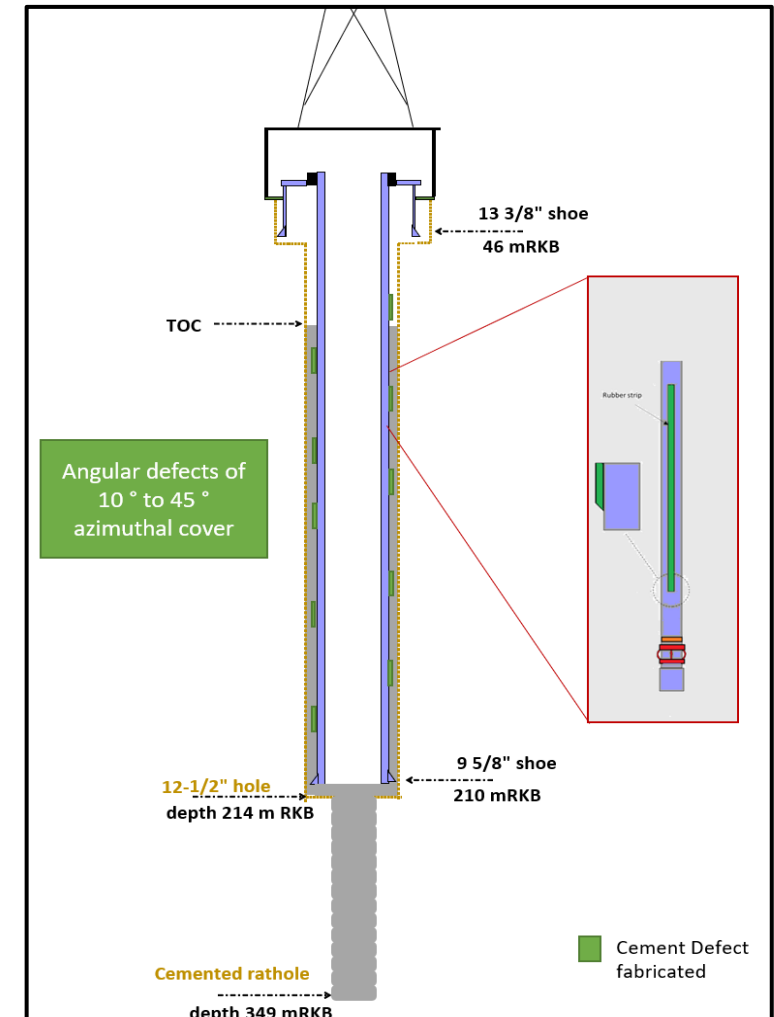
## ➤ Evaluate cement logging tools - through tubing

- 3 Service Co's. since 2021, 2+ planned in 2022
- 9 5/8 casing with 1,92 sg Class G cement
- Cement "channels" of varying length & azimuthal coverage; 10°, 20°, 30° and 45°
- Defects mimic water filled channels

Well Construction funded by



SPE-208699; Construction of a reference well to support the qualification of cement evaluation logging tools and data processing



# Norwegian P&A Laboratories

Pressure and leakage test laboratory – NORCE P&A Lab



Measure the sealing capacity of barrier materials under downhole conditions (P & T):

1. “Offshore” equivalent batch mixer, extensive instrumentation & field lab for QC
2. Construction of test cells for experiments and technology verification
3. Testing of leakage properties using high precision piston pumps & N<sub>2</sub> pressure controller



# Norwegian P&A Laboratories

## U8 P&A test well



- Large-diameter well for testing new P&A methods with a focus on Rigless
- Repeated “permanent” well abandonment & completion recovery
- 12 ¼” TD @ ≈ 1000 m planned for Q3 2022

