

WELL FLOW MANAGEMENT™

/ Expro Excellence Well Abandonment

Innovation drives efficiency in rigless well abandonment in Southern North Sea



Objectives/background

- Major North Sea operator to permanently abandon all wells and decommission their facility (first production 1996)
- Five well campaign planned for 70 days
- Delivered via rigless thru-tubing abandonment supported by a self-erecting jack-up barge
- · Challenges included potential salt accumulations in wells restricting wellbore access

Expro Excellence

- Multi barrier perforation: a combination of existing technology (and Expro proven track record of perforating through multiple barriers using standard deep penetrating or big hole perforating charges) and new technology developed and tested
- New technology: successful design, development, testing, build and delivery of three new PAC[™] gun systems within 82 days of award

- Delivered on slickline vs e-line
- All guns (5 x 2.125" guns; 12 x 3.125" guns) run and successfully fired
- A total of 12 cement plugs squeezed through the perforating zones to fully comply with abandonment regulations
- Three successful tubing cuts performed, including cutting a triple encapsulated injection line to ensure no conduit was left through cement plugs
- · Client commendation received for performance

Value to client

- No rig required: tubing remained in the well
- No requirement for e-line: one PCE rig up per well which saved time
- · Reduced personnel costs: 3-man, multidisciplined, intervention crew
- Safe, cost effective, technology-driven solutions



3 ¹ /2" tubing	
41/2" tubing	4,50
51/2" tubing	223
95/8" casing	4.79 \$\phi 13.38
133/8" casing	(1350) (1350) (1350) (1350)
20" casing	
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New technology: Owen's PAC™ (Plug & Abandonment – Circulation)

A long-term working relationship between Expro and Owen Oil Tools contributed to the accelerated design, development and delivery of the three new PAC[™] gun systems:

- Superior option to standard tubing/casing perforators
- 0-360° coverage
- Large diameter exit holes
- Designed and developed to produce limited damage to secondary string regardless of primary to secondary string orientation
- Multiple tubing/casing string penetration



Successful test, injection line cut at same point as tubing



Sample charge test: 95/8" casing with 133/8" witness plate



Contact

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