



## 1. Problem Statement

The production from a subsea well went into severe decline and it was thought that the well's sand screens needed to be urgently cleaned. The standard solution would have been to use a semi-submersible drilling rig with coiled tubing, but this is both expensive and slow. So, a new solution had to be explored and developed.

# 2. Aim

Find a cheaper and faster alternative to using a semi-submersible drilling rig to clean a subsea well's sand screens and improve the well's production.

# 3. Method

- Formic acid was chosen to clean the screens.
- To get the fluid down to the formation (a depth of 9,300 ft) it was decided to use a coil hose deployed from a light well intervention vessel (LWIV).
  - A LWIV is a smaller, more manoeuvrable mono-hulled ship. It's often used for subsea well interventions but using wireline (electric cable) or slick line (thin wire).
- Coil hose is very different from coiled tubing in that it can be rigged up using slick line equipment, still allowing pumping to take place.
- 10,000ft of coil hose with an outside diameter of 19mm needed to be deployed the size of the hose meant that the pump rate would be low.
  - To tackle this, several new pieces of hardware had to be designed, manufactured and tested. Numerous programmes and safety reviews were also carried out.

## 4. Impact

- The intervention was completed incident free and initially the well production rate doubled.
- This successful result confirmed our hypothesis that the decline was due to screen plugging. This is useful learning for the future.
- The intervention saw three world firsts:
  - The first time coil hose had been run from a light well intervention vessel,
  - The first time coil hose had been run into a subsea well,
  - And, previously nobody had run coil hose deeper than 2,000 feet we ran it to 9,300 feet.
- Overall timing from concept creation to execution was just four months a significant reduction compared to the alternative method of using a semi-submersible rig.
- The success of this job has allowed us to look at other candidates for cost-effective well intervention to improve production.

#### Reduced project timeline

Total project timeline was 4 months, compared to 6-8 months needed for semi-sub intervention (inc. contract)

### Total savings anticipated

Around 30% saving – compared to the alternative solution of using a semi-sub rig and coiled tubing



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