



WELL-SAFE
SOLUTIONS

CASE STUDY

Ketch & Schooner 21-well decommissioning programme

Well-Safe Solutions successfully harnessed new technologies, batched operations and integrated natural salt barriers to plug and abandon 21 wells for DNO ASA in the North Sea ahead of time and under budget.

The three-year campaign generated key performance data, with collaboration between Well-Safe Solutions, DNO ASA and the supply chain vital to successful completion.

This project gave Well-Safe Solutions the opportunity to realise efficiencies of scale for its client while safely decommissioning assets. This was of vital importance as the field has been earmarked for future carbon capture usage and storage (CCUS) development.

As part of Well-Safe's commitment to safe, smart and efficient well decommissioning operations, the company introduced and project-managed several new technologies concurrently to maximise efficiencies and increase operational safety.

The Claxton Sabre enabled repeated downhole, multi-string cuts to be completed, while the Control Cutter conductor recovery tool reduced total operational time by 56 hours. Quick, effective annulus testing and dual casing milling was achieved by Lee Energy System's Gator Mechanical Perforator.

As a result, the deployment of these new technologies contributed to the considerable time and financial savings realised throughout the scope. These savings provided key data to underpin Well-Safe's market-leading 'learning curve'.

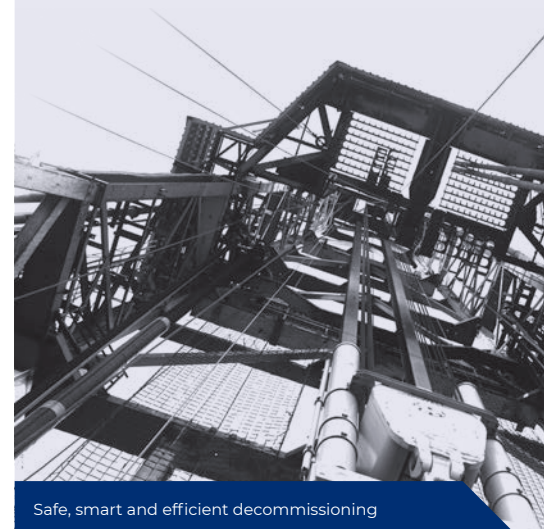
The project also saw the presence of non-standard heavy walled casing and well architecture, designed to mitigate the risk of salt squeeze.

The Ketch & Schooner scope was carried out onboard a third-party asset, spotlighting the expertise of the company's Well Engineering team and its seamless integration with the client's project team.

This project was safely delivered between November 2019 and October 2022, with a years' interruption due to the Covid-19 pandemic.

Key facts:

- November 2019 - October 2022 (1yr hiatus due to Covid-19)
- 21 wells plugged and abandoned
- 41 permanent isolation barriers
- 3 locations with 5 rig moves
- Zero LTI events



Safe, smart and efficient decommissioning

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The team took an innovative approach to well abandonment using salt formation as a barrier for zonal isolation. The salt verification process saw the team log 11-3/4in casing with USIT/CBL, before identifying probable halite squeeze locations around the casing's overall diameter. The salt was then qualified as pressure-sealing, before an internal cement plug was placed.

Our drive to reduce costs and increase the efficiency of decommissioning operations saw two digital slickline units used to support simultaneous operations (SIMOPS). This method sped up the execution phase by combining two services into one cable conveyance. Wellbore data was also enhanced by the digital slickline system's ability to provide real-time toolstring pressure and temperature data.

At well suspension (ABNO) stage, Well-Safe Solutions reduced the time required for wireline-based intervention from 30.3 days on Well 1 to only 5.6 days by Well 10. The conductor cutting and recovery (ABN3) phase also realised tangible savings, from 5.1 days on Well 1 to 0.8 days on Well 10.

With the successful decommissioning of all Ketch and Schooner wells and no less than 41 permanent isolation barriers established, Well-Safe Solutions demonstrated the cumulative benefits of batched operations in campaigns and the introduction of new technology. The learnings from this project have been applied to current and future scopes with clients worldwide.

Learn more about the SIMOPS involved in this project in our dedicated SIMOPS case study on our website, wellsafesolutions.com.



Batching wireline operations saved 703 hours (29.3 days) for the client.

This strategy maximised economies of scale while challenging the standard way of thinking to increase efficiency and safety.



One of the highlights of this project was the team's success in concurrently performing fishing and ABNO-level operations on two wireline operations.

The effective execution of SIMOPS extended to surface wellhead preparations and air gapping, which avoided costly helicopter and walk-to-work campaigns.



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