

Control Cutter's Subsea and Surface Decommissioning Operations Shell UK's Brent Charlie Platform with Allseas

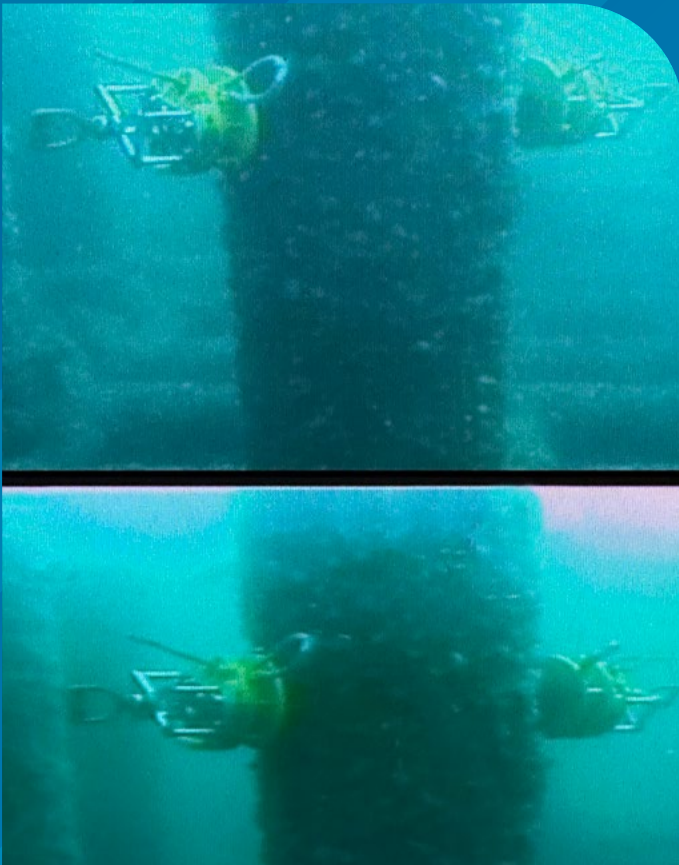
Key Performance Metrics

TOTAL PINS INSTALLED (SUBSEA + SURFACE): 112
TOTAL CUTS COMPLETED: 27
TOTAL CRIMPING OPS (SUBSEA): 12
AVERAGE TIME PER OPERATION: 3–7 minutes
CONSUMABLE REPLACEMENT RATE: < 1%

Project Overview and Background

Control Cutter played a critical role in the decommissioning of the Brent Charlie platform in the East Shetland Basin, approximately 116 miles northeast of Lerwick. This complex conductor recovery campaign covered 40 wells and marked an important phase in the broader Brent field decommissioning effort, which included Alpha, Bravo, Charlie, and Delta platforms.

The Brent Charlie operation was distinct in that it took place from Allseas' heavy lift vessel Pioneering Spirit following removal of the platform topsides. Control Cutter served as a key subcontractor for the conductor recovery scope. Two tooling suites were deployed simultaneously — one for surface operations and the other for subsea recovery — making it the company's most ambitious project to date. Control Cutter also supplied and operated the Dirty Work Pack (DWP), used to operate both Control Cutter's own equipment and additional tools procured by the client throughout the project.



Challenges and Problem-Solving

Subsea and Surface Complexity

The dual nature of this operation — surface and subsea — introduced unique engineering and operational challenges:

- **Subsea Adaptation of Surface Systems:** Surface tooling like the DecomCutter had to be modified for subsea use. This required reengineering sensors and pressure systems to function without standard signal transmission, all while maintaining full control integrity.
- **Combined Securing and Lifting:** The DecomDart Subsea demanded a dual-function pin capable of both inner strings securing and lifting — a design that had to comply with LOLER, BS 7121, and offshore lifting regulations while being ROV-deployable.
- **Third-Party Tool Integration:** Control Cutter’s DWP was engineered to interface seamlessly with a wide range of third-party subsea tooling, with control systems and software dynamically adapted as new equipment was introduced.
- **Fully Remote Surface Operations:** In response to a directive from the end client, Control Cutter engineered a solution to allow all surface operations to be performed fully remotely from 25–35 meters away, mitigating risk and eliminating manual intervention during high-risk stages.

Innovative Engineering Solutions

Several industry-first technologies and methodologies were developed for this project:

- **OmniPin System:** A dual-function pin that served both as a push rod and lifting component. This single-pin solution was certified under offshore lifting regulations and deployable via ROV. It replaced the need for multiple operations, increasing speed and reducing complexity.
- **Custom Lifting Thimbles:** Designed for compatibility with the OmniPin, these included secure engagement indicators and could be installed or removed by ROVs or surface personnel, enhancing flexibility and safety.
- **DecomCutter Subsea Crimping and Cutting:** Required the redesign of knife elements for deformation of small multistring stubs in the conductor guide frame (CGF). The flattening and cutting operations were remotely controlled using adapted software within the DWP and were supported by a retention system to prevent dropped objects.
- **Custom DWP System:** Redesigned to house full control functionality of Control Cutter’s surface tooling, including pressure and signal processing, and extended to operate all client-specified third-party tools subsea.



Technical Details

The project involved recovery of two primary conductor types, each presenting unique technical and operational challenges. A total of 40 conductors were addressed, comprising 25 welded conductors and 15 Talon conductors.

The welded conductors were planned to be recovered in full lengths of approximately 80 metres. These operations required several critical steps: first, internal strings needed to be secured using the DecomDart, which had been specifically redesigned for subsea use. The pin inserted by the DecomDart was not only responsible for securing the strings but also had to support the lifting of the full multistring assembly. This demanded custom-engineered components that could be safely deployed and operated via ROV. Once secured, the conductors were lifted and then severed into two sections using a diamond wire saw operated through Control Cutter's Dirty Work Pack (DWP) and unique software system.

Talon conductors had to be recovered with the connection maintained in compression throughout the operation. This process involved the use of Control Cutter's subsea DecomDart in conjunction with rigging designed by Allseas and a subsea diamond wire saw, all operated via Control Cutter's integrated DWP and control system. These tailored methods ensured that even the most structurally sensitive components were safely and efficiently recovered.

Execution and Performance

Efficiency Metrics

Control Cutter achieved extraordinary performance metrics during this campaign:

Operation Type	Number of Ops	Average Duration	Conventional Duration
Subsea Pin	70	3–6 minutes	45–75 minutes (with diver)
Subsea Cut	6	4–6 minutes	45–75 minutes
Subsea Crimp	12	5–7 minutes	N/A (unique to Control Cutter)
Surface Pin	42	4–6 minutes	30–50 minutes
Surface Cut	21	4–6 minutes	45–75 minutes



Casing and Material Specifications

- **Original Casings:**
30" x 1" (X52), 20" x 0.625" (K55), 13.375" x 0.48" (K55/N80)
- **Sacrificial Casings Installed:**
30" x 1" (X52), 22" x 1" and 18.625" x 1" (X80)

High-strength reinforcement strings were present in some conductors but posed no operational challenges to Control Cutter's tooling.

Key Figures

- **Water Depth:**
139–142 meters
- **Conductor Recovery Length:**
77.5m – 84m
- **Pipe Grades:**
X52, K55, K55/N80, X80

Regulatory and Safety Compliance

The project adhered to multiple offshore standards, including LOLER, PUWER, MGN 332, BS 7121, DNV GL, and COSHH. All tooling innovations underwent rigorous qualification and testing in close coordination with the client.



Team and Resource Management

The Brent Charlie campaign was one of the most resource-intensive and collaborative projects in Control Cutter's history, demanding a full company effort across departments and geographies. The engineering department stepped up to deliver a high volume of bespoke and novel solutions. Working under tight timelines, engineers were responsible for the design, qualification, and implementation of several first-of-kind systems, including the subsea-adapted DecomDart and DecomCutter technologies.

The project management team was expanded and strengthened internally during the early planning phase to ensure sufficient oversight and coordination. Their efforts were critical in maintaining transparency, managing dependencies, and ensuring alignment between engineering, offshore operations, and client requirements.

Workshop teams in both the UK and Norway were instrumental in delivering equipment on schedule and in implementing new technologies into Control Cutter's tooling suites. Their rapid turnaround in design, fabrication, and testing helped mitigate potential bottlenecks and kept the project timeline on track.

Offshore crews were deeply integrated not only into vessel operations but also in the preparation, testing, and mobilisation of equipment prior to deployment.

Their experience and adaptability were essential to the smooth execution of surface and subsea operations, contributing significantly to the project's overall success.

Operational Milestones

- **July 23, 2024:** World's first subsea pinning with the DecomDart — completed in 3 minutes.
- **July 25, 2024:** First-ever DecomCutter subsea flattening operation — 4 minutes.
- **September 7, 2024:** Subsea cutting milestone achieved with time reduced to 4–6 minutes after initial operation.

Results and Outcomes

Client Objectives Met

All client objectives were successfully achieved during the Brent Charlie campaign. Control Cutter delivered fully remote surface operations, fulfilling a key end-client requirement for enhanced safety and reduced manual intervention.

The subsea deployment of the DecomDart, DecomCutter, and integrated Dirty Work Pack (DWP) was executed, marking a significant milestone in Control Cutter's technological capability.

Comparison to Previous Projects

The Brent Charlie campaign was the most technically complex and logistically demanding project in Control Cutter's history. It featured the largest operational footprint to date, with simultaneous deployment of both surface and subsea tooling suites.

The project marked several industry firsts for Control Cutter, including successful subsea cutting, crimping, and pinning operations.

Safety and Environmental Considerations

Control Cutter implemented a range of proactive measures to ensure safety and environmental protection throughout the Brent Charlie campaign.

All tooling connections were designed to be leak-free, and only biodegradable, low-impact hydraulic fluids were used to minimise environmental risk.

Comprehensive pre- and post-operation checklists were developed and rigorously reviewed by Control Cutter personnel, the ROV supervisor, and client representatives before every dive.

Future Implications

Control Cutter's success on Brent Charlie paves the way for expanded involvement in subsea decommissioning. With validated subsea capabilities and demonstrated efficiency, the company now offers solutions for recovery operations previously thought too complex or resource intensive.

Key developments like the DWP, DecomDart Subsea, and DecomCutter Subsea will be refined and scaled for broader use, positioning Control Cutter as a leader in advanced decommissioning technology.

Conclusion

The Brent Charlie recovery campaign marks a transformative moment for Control Cutter — a project defined by complexity, innovation, and performance. Through deep collaboration with Allseas and cutting-edge engineering, Control Cutter not only met but exceeded expectations, delivering world-first subsea operations and setting new industry benchmarks for safety, speed, and reliability.

For more information

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