

# Liberty™ E-ROV demonstrates capabilities at Snorre-A

Subsea resident solution provides efficient and cost-effective start-up monitoring



## Project Overview

As Equinor prepared to commence oil production from an asset connected to its Snorre-A platform in early March 2020, they wanted to ensure that operations went to plan and that there were no unplanned incidents during start up through the riser. In order to maintain the highest level of oversight,

Equinor adopted a comprehensive pipeline seabed-to-platform monitoring plan. They selected the versatile and cost-effective Liberty E-ROV system to complete monitoring at depths up to 310m several times a day over the course of 1-2 months, dependent on findings.

## Challenges

Equinor wanted to maintain constant monitoring, but ruled out using a conventional ROV system deployed from the platform or a vessel. A conventional ROV system would have been vulnerable to stoppage during inclement weather windows and would require extensive effort for multiple deployment and recoveries across the monitoring window. If an additional vessel was required, this would have added cost and generated a significant carbon footprint. Leveraging the Liberty E-ROV enabled Equinor to benefit from a field-proven, flexible solution.

## The Oceaneering Solution

The Liberty E-ROV is a self-contained, battery-powered, semi-resident remotely operated vehicle system capable of operating for extended periods of time without being recovered to surface. Comprising an electric work class ROV, 4G connection buoy, and subsea cage, the system reduces cost and risk



without the need for a surface vessel.

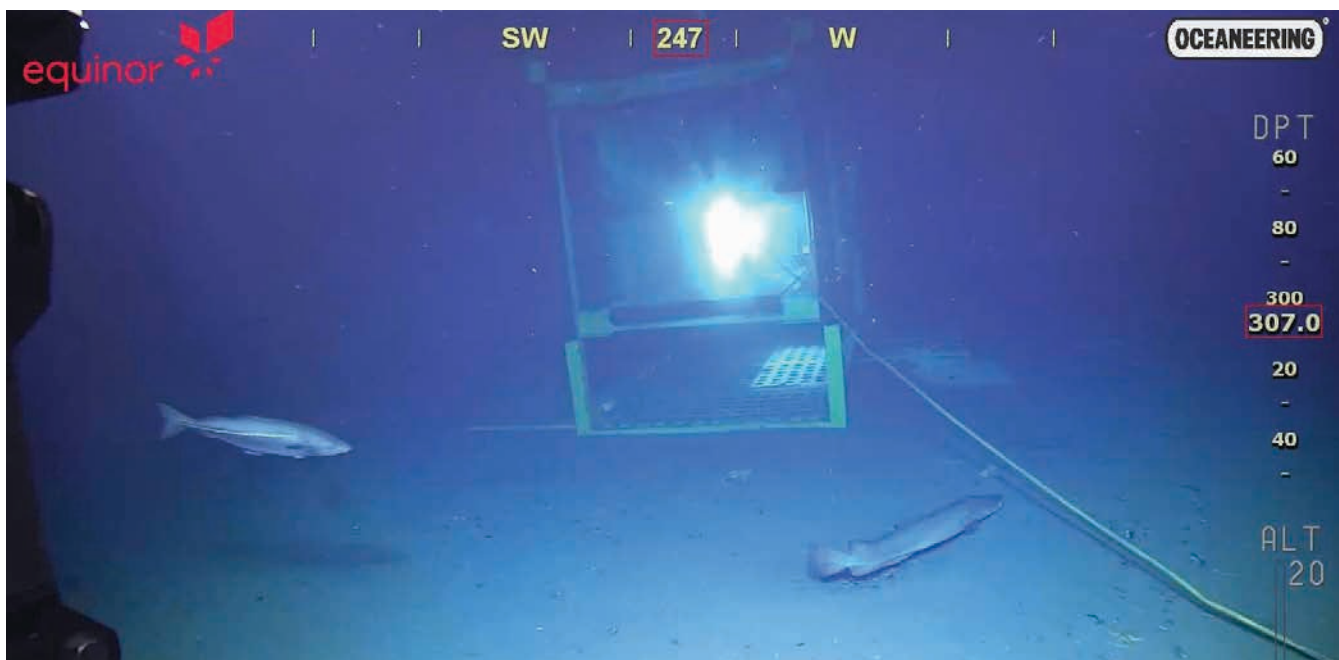
The ROV is piloted from one of Oceaneering's Onshore Remote Operations Centers located in Stavanger. The connectivity required to leverage this remote piloting is supported by

the system's radio buoy located on the water's surface. The buoy uses a 4G mobile broadband connection, and effectively increases the working window while eliminating the requirement for a surface vessel. Following the successful introduction of this revolutionary technology in operations last year, Equinor had full confidence in the system



and its ability to complete the task at hand.

Because the location of the work scope was fixed on the Snorre-A platform area, the Liberty E-ROV was deployed in a tethered configuration. A dedicated control umbilical provided power and data communication connectivity directly from the platform to the ROV. This solution was identified as optimal as it completely eliminated the need to recharge the ROV's batteries and also negated the risk associated with winter storms in the area pushing the radio buoy out of location.



### Execution Plan

The Liberty E-ROV system was mobilized from the Forus site and deployed to the seafloor adjacent to the Snorre-A platform in late February 2020. Monitoring of the riser started immediately and was conducted 3-4 times daily through March until April 2020. The ROV was piloted using Oceaneering Remote Piloting and Control Technology (RPACT) and all video and images were uploaded to the cloud-based Oceaneering Media Vault.

Post start-up monitoring, the ROV was used to perform required annual subsea inspection activities before being recovered.

### Challenges

The project marked the first time the Liberty E-ROV was used in a tethered configuration. In order to accommodate this, the vehicle was reconfigured before being mobilized and a charging unit was installed onboard the Snorre-A platform to facilitate trickle charging of the E-ROV.

### Results

The Liberty E-ROV completed 822 hours of monitoring spread over 110 top-to-bottom trips conducted across 34 days. The vehicle did not need to dock in the subsea garage and did not require any maintenance.

The month-long monitoring activities did not detect any issues with the commencing of production on the Snorre-A platform and provided Equinor with the assurance that operations were started successfully.

The Liberty E-ROV had already been field-proven across more traditional ROV operations, but this project scope enabled the vehicle to demonstrate its capability over longer, continuous deployments. It enabled Equinor to benefit not only from peace of mind, but also a more economical, efficient, and emissions-friendly approach to ROV monitoring.



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