

Reducing the Lifecycle Emissions of Carbon Capture, Usage, and Storage Projects by Using Advanced Resident Robotics

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Revision: A



Did you know there is an ROV system in operation here?



The Opportunity Case

Rethink the way ROV Services are provided end-to-end

Resident Subsea Robotics
A cost efficient and environmentally friendly alternative to vessel-supported ROVs

OCEANEERING[®]

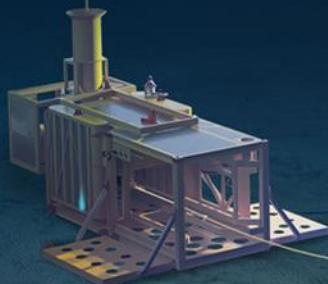
The Liberty™ Resident System

All-in-one deployable mobile docking station for ROV's & AUV's

4G LTE Connection / Satellite



Onshore Remote Operations Center (OROC)



Key Data for Liberty Resident System in Service

- Work Class ROV
- 550 kWh battery capacity
- 1000 m depth rating
- 1000 m excursion



Liberty™ Resident System
A Vehicle agnostic Mobile Docking
Station for ROVs & AUVs

FREEDOM AUV



LIBERTY CONFIGURATION



WORK CLASS ROV



LIGHT INTERVENTION ROV



Liberty™ Enables CO₂ Emission Savings



Vessel Supported ROV

644

MT of CO₂ emitted



Emission Savings

466

MT CO₂



Liberty™ E-ROV

178

MT of CO₂ emitted

CO₂ emissions by vehicle over a 14-day IMR campaign

Liberty Key Benefits

Every day at work is a day saved in vessel cost and CO₂ emissions



Reduced 650 vessel days since service entry in 2019



Reduced 22000 MT of CO₂ emissions since service entry in 2019



Reduces total cost of ROV operations



Reduces POB and HSE risk by purely use of remote operations



At work 24/7, not affected by vessel crew change



Access to ROV without any permanent installations



Flexibility for ROV availability anywhere you want

Do you know the daily cost of an IMR vessel and 1 ton CO₂ allowance?



Service Entry in 2019



Field Proven (TRL 7 API 17N)

Liberty™ Operations Track Record September 2023

Operational Statistics (since service entry June 2019)

Missions	→	193 dives
Operational Time	→	15 894 hrs
Longest Dive	→	1 445 hrs (60 days)

CO2 Emission Savings (comparison to Vessel Supported ROV)

Daily	→	33 MT
14 Day IMR Campaign	→	466 MT
Since Service entry 2019	→	21 854 MT

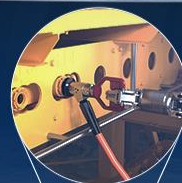
Operational Tasks

Inspection
 Commissioning
 Valve Operation
 Pipeline Isolation & Pigging
 Leak Testing
 Conductor Guiding
 Decommissioning
 UXO

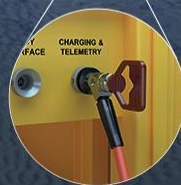
Operational Areas (NCS)

Gullfaks	Troll
Heimdal	Valemon
Johan Sverdrup	Veslefrikk
Oseberg	Vigdis
Sleipner	Åsgard
Snorre	
Statfjord	

**Onshore Remote
Operations Center
(OROC)**



**Field Node for Power and
Communications Interface**



Opportunity for CCUS Greenfields

Prepare subsea infrastructures with power & communication interface to enable seamless integration of resident subsea robotics into the IMR philosophy



Thank you for listening!

For any further information please reach out to;

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