



Use of UVA in DROPS Assessments

Q3 North America DROPS Network Webinar

Wednesday, August 2

WHO WE ARE

Subsea7 is a global leader in the delivery of offshore projects and services for the energy industry.

We make offshore energy transition possible through the continuous evolution of lower-carbon oil and gas and by enabling the growth of renewables and emerging energy.



At a glance



13,000
people



1,000+
projects
delivered
worldwide



**A fleet of
30+
vessels**



**Operating
in 30 plus
countries**

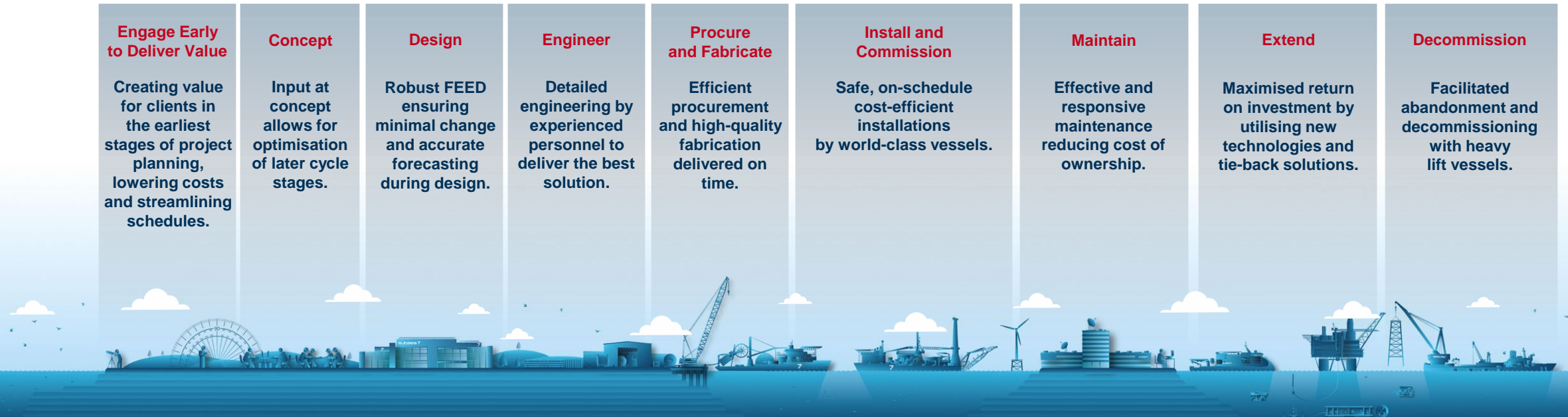


**Large
supplier
network of
7,000+**



**Pipeline
spoolbases,
fabrication
and support
yards**

Capabilities across the Energy Lifecycle



SOLUTIONS THAT DELIVER VALUE TO THE CLIENTS

Early engagement through global alliances and client partnerships optimises the solutions Subsea7 can provide

EXECUTING PROJECTS AND SERVICES THAT MEET CLIENT EXPECTATIONS

An extensive track record of safety executed projects worldwide makes Subsea7 a market-leading provider

subsea 7

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seaway 7

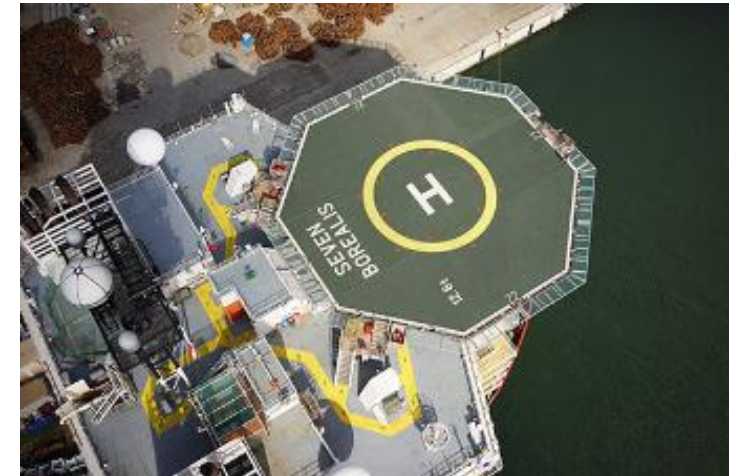
Seaway7, part of the Subsea7 Group, is a global leader in the delivery of fixed offshore wind projects, committed to contributing to an efficient and sustainable energy supply for the future.



Overview

APPROACH & DEPLOYMENT

- Six (6) Monthly Surveys based on DROPS Recommended Practice
- Adopting DROPS Best Practice Recommendations for the securing of equipment and tools
- Annual 3rd Party RAT Inspection / Survey
- Post Major Works e.g., Dry Dock, equipment refit/mobilisation Inspection / Survey
- Unmanned Aerial Vehicle (UAV) Inspection for complex Mission Equipment
- Development of internal UAV capability



BENEFITS

- Collaborative approach in developing Preventive Maintenance System strategy
- Scheduled outside “fresh pair of eyes”
- Learnings from Suppliers’ Body of Knowledge and Experience
- Develop Crew competence and capability development
- Further enhance, trend and analysis data across vessels and fleet
- Incident & HiPo reduction



Why UVAs and why inspection is difficult?



Challenging access to equipment where the only way to inspect it is to use visual inspection using an external Rope Access Technicians (RATs)

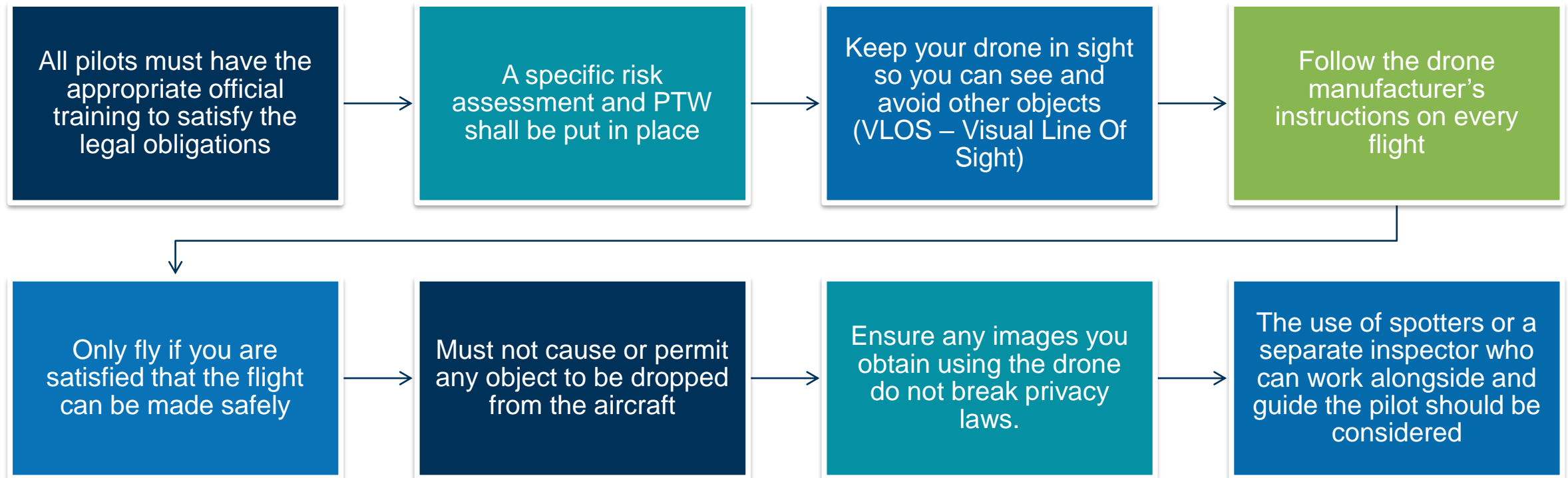
Assessment gives a 'snapshot in time only' health inspection.

Why UVAs and why inspection is difficult?

- UVAs should be considered for the following:
 - Conduct video surveys to aid with DROPS inspection (6 monthly)
 - Carry out DROPS sweeps so we can identify tools/equipment mistakenly left behind pre and post jobs
 - Identify equipment loosened by extreme weather
 - Conduct damage assessments on cranes or other equipment
 - Improve understanding of operations by filming over-boarding of structures



General Rules for UVA Use



UAV Survey – Seven Borealis

Texo were invited by Subsea 7 to conduct a Detailed Visual Inspection of the J-Lay pipe laying system.

Texo mobilised one (1) Inspection Engineer and one UAV pilot to conduct the agreed work scope.

Scope included all critical structural area as highlighted in the GA drawings:

- Main Structure Top Tower Section
- Centre and Gimbal Section
- Main Structure Stinger Section

DROPS Sweep conducted and findings documented.



Seven Borealis - Rhenus Terminal, Rotterdam, Netherlands

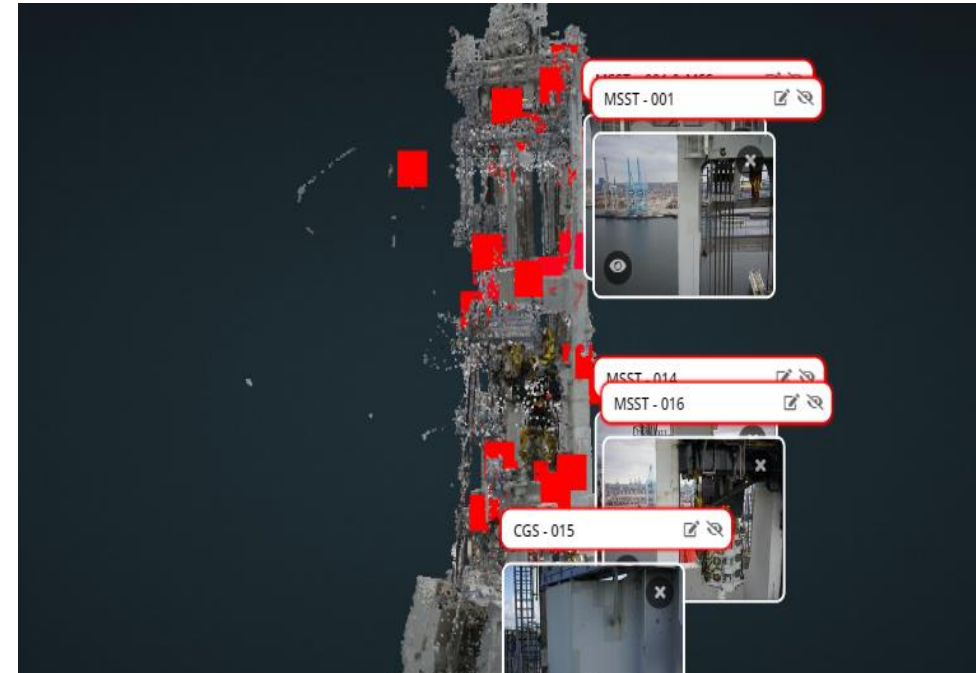




Use of UVA in DROPS Assessments

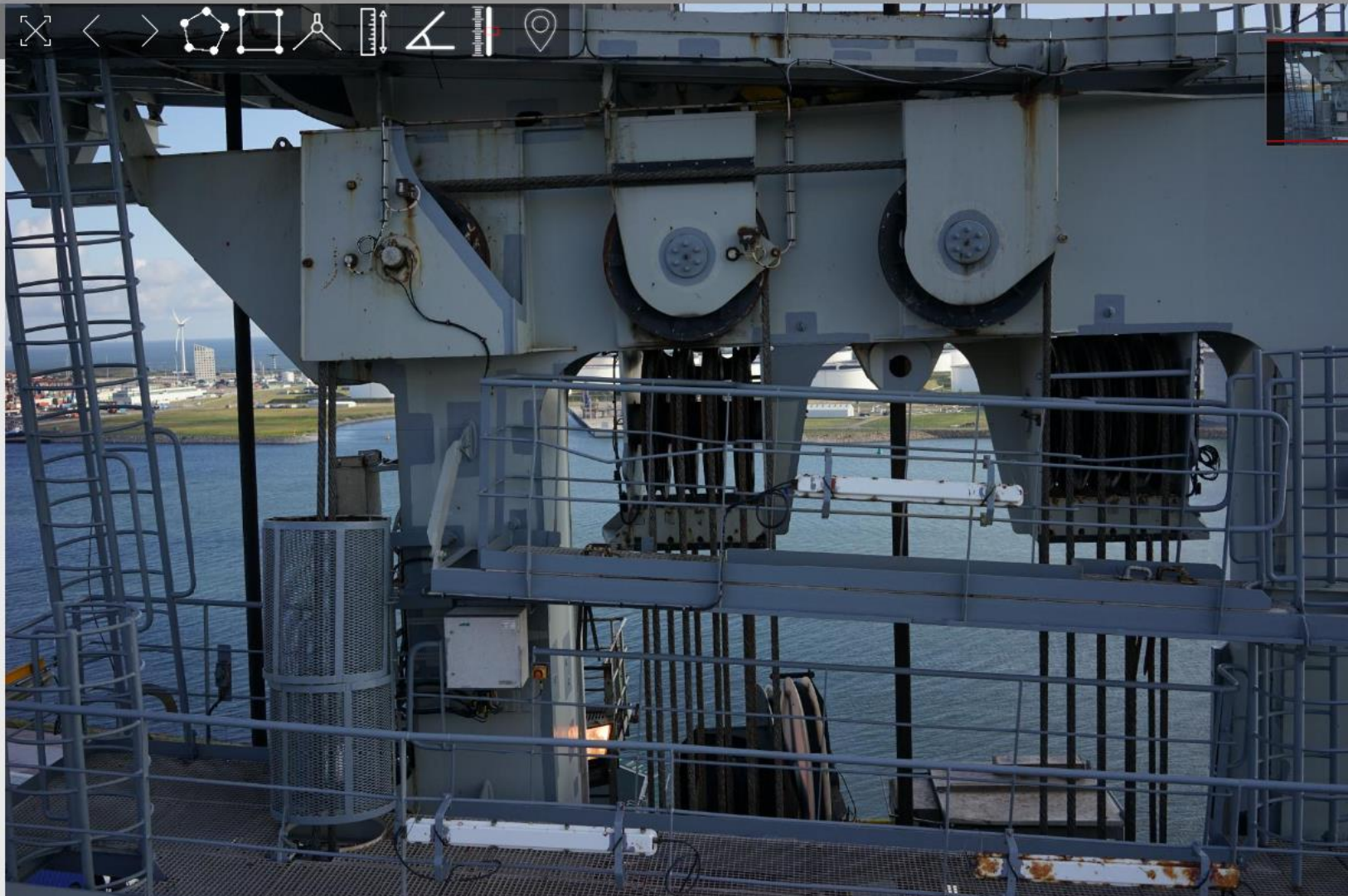


Point Cloud digital data
called out on each inspection point



Digital Twin created to aid analysis

- ▼ Subsea 7 Borealis
- ▼ Jobs
- ▼ Borealis J-Lay Drops
- ▼ All Inspection Imagery
- ▼ 25th July 2020 Data Capture
 - Flight 1 Test 37
 - Flight 2 J-Lay Fwd 1 52
 - Flight 3 J-Lay Fwd 2 128
 - Flight 4 J-Lay Upper & ... 39
 - Flight 5 J-Lay Stbd 1 55
 - Flight 6 J-Lay Stbd 2 53
 - Flight 7 J-Lay Port 129
 - Flight 8 J-Lay Fwd Lo... 209
- ▼ 26th July 2020 Data Capture
 - Flight 1 J-Lay Aft Up... 188
 - Flight 2 J-Lay Aft Low... 195
 - Flight 3 Stinger 65
 - Flight 4 Lifeboat Stbd ... 121
 - Flight 5 Standoff J-Lay ... 52
 - Flight 6 Stinger Rear 38
 - Flight 7 Lumix (Flir) 65
 - Detailed Visual Inspection Re... 1
- ▼ Promotional Imagery
 - 360 Imagery 130
 - Stand-Off Images from Port 65
 - Stand-Off Images from Stbd 50
 - Various Promotional Ima... 164



Edit label

Description for label

CGS - 015

Tags: 1 2 3 4 5 6 7 8

Hide folders

- ☒ Subsea 7 Borealis
- ☒ Jobs
 - ☒ Borealis J-Lay Drops
 - ☒ All Inspection Imagery
 - ☒ 25th July 2020 Data Capture
 - ☒ Flight 1 Test 37
 - ☒ Flight 2 J-Lay Fwd 1 52
 - ☒ Flight 3 J-Lay Fwd 2 128
 - ☒ Flight 4 J-Lay Upper & O/head 39
 - ☒ Flight 5 J-Lay Stbd 1 55
 - ☒ Flight 6 J-Lay Stbd 2 53
 - ☒ Flight 7 J-Lay Port 129
 - ☒ Flight 8 J-Lay Fwd Lower & Overview 209
 - ☒ 26th July 2020 Data Capture
 - ☒ Flight 1 J-Lay Aft Upper to Lower Mid 188
 - ☒ Flight 2 J-Lay Aft Lower & General 195
 - ☒ Flight 3 Stinger 65
 - ☒ Flight 4 Lifeboat Stbd Standoff 121
 - ☒ Flight 5 Standoff J-Lay Tower 52

Select All

Remove all



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Annotations

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Update

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Improving Dropped Object Management



Dropped Object Mitigation

Radio tagging of objects and video analysis to identify and prevent drops



Goal:

- Improve our ability to identify and mitigate against dropped objects by employment of UVA technology.

Method:

- Use qualified inspection company to conduct dropped object survey without the need for extensive Rope Access Work.
- Solution includes video footage combined with smart analysis software stored on the Cloud

Outcome:

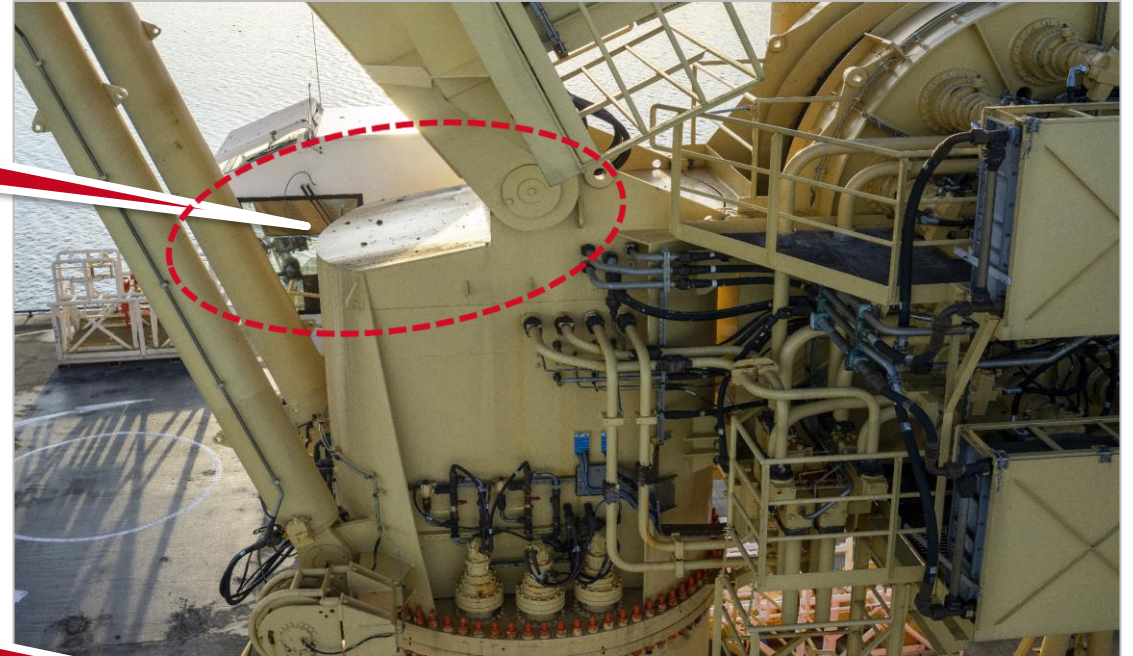
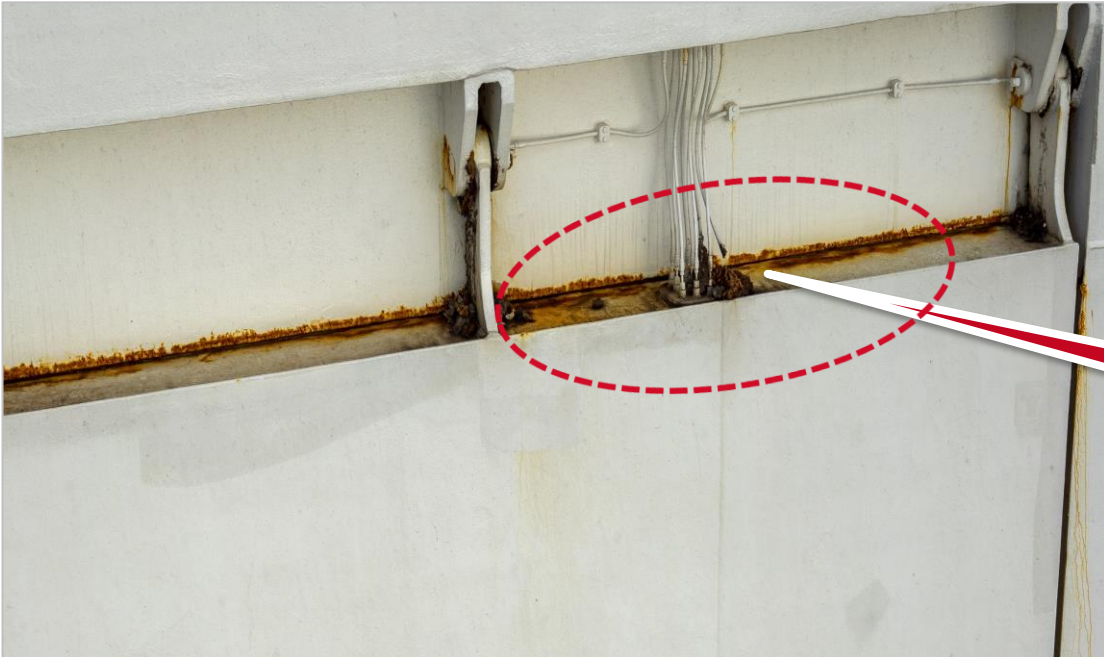
- Reduction in risk of dropped objects from height
- Improve efficiency and reduce cost of dropped object surveys

Status:

- Full survey conducted on Normand Subsea during crew change 27/28th Jan
- 7 hours operation time to complete the survey

Improving Dropped Object Management

Clips spotted on crane pedestal



Parted Cable and Grease Residue

THANK YOU



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Global presence

CORPORATE / SUPPORT OFFICES

Aberdeen	London	Luxembourg
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OFFICES

Abu Dhabi	Houston	Malabo
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Dakar	Leer	St John's
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