

New Innovative Toolbox for Oil Removal - Hot Tapping Tool



BONUS

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION



Wrecks Of the World III
Gothenburg, Sweden
Kari Rinne, Alfons Håkans Oy

Alfons Håkans - solutions
also for cold arctic conditions.





TOWAGE

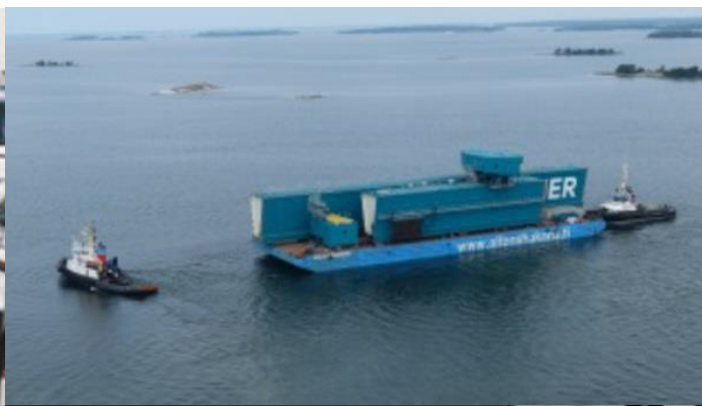
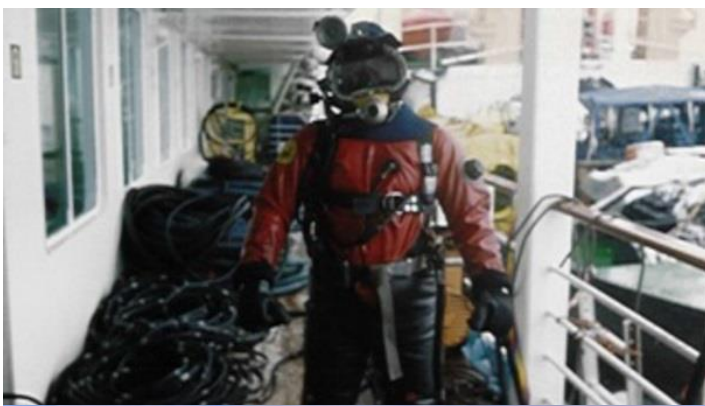
More than 50 vessels in the Baltic Sea



SUOMENLINNA SHIPYARD



SALVAGE HEAVY TRANSPORT





SAL
VA
GE



There are more
than 8500 of these
wrecks worldwide



ALFONS HÅKANS
POLLUTION RECOVERY

WRECKS WHICH HAVE THE POTENTIAL TO CAUSE POLLUTION

The oil will leak sooner or later



ALFONS HÅKANS
POLLUTION RECOVERY

WRECKS WHICH HAVE THE POTENTIAL TO CAUSE POLLUTION

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)



ALFONS HAKANS
POLLUTION RECOVERY

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)

Profiles of the wreck,
side scanning of the
seabed by sonar



ALFONS HÅKANS
POLLUTION RECOVERY

WRECK IDENTIFICATION

Profiles of the wreck,
side scanning of the
seabed by sonar



ALFONS HAKANS
POLLUTION RECOVERY

WRECK IDENTIFICATION

Inspection on site;
Scanning of the wreck
with photogrammetry



ALFONS HÅKANS

POLLUTION RECOVERY

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)

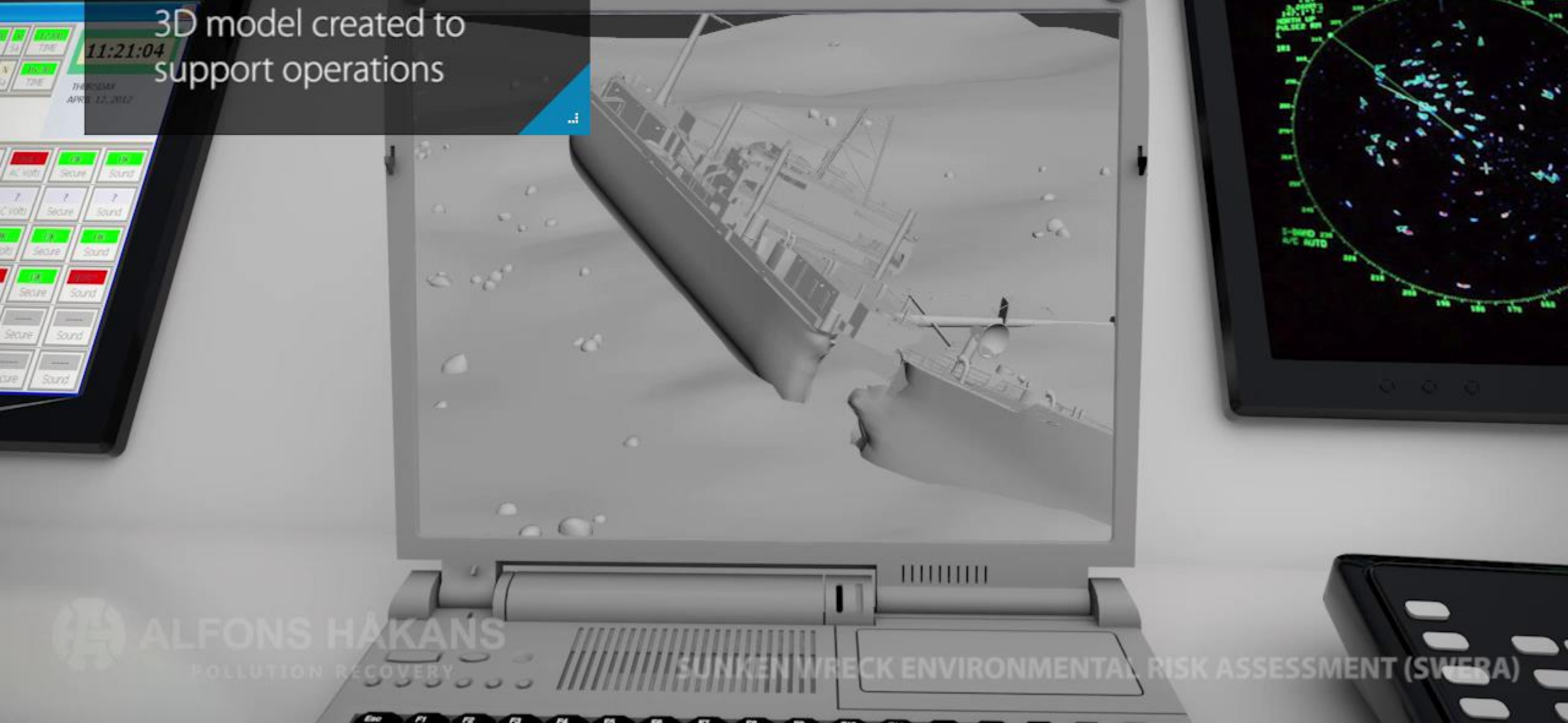
Inspection on site;
3D multibeam
sonar scanning



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POLLUTION RECOVERY

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)


Inspection on site;
3D model created to
support operations





Inspection on site;
Risk material quantity and
quality analysis of the wreck



An aerial view of a large, rusted shipwreck lying on the ocean floor. The ship's hull is heavily corroded and covered in green algae. A small yellow and white ROV is positioned near the bow, emitting a bright light. The surrounding seabed is sandy with scattered rocks and patches of green vegetation. A black semi-transparent box with a blue triangle is in the top left corner.

Profiles of the wreck;
ROV inspection




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WRECK IDENTIFICATION



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POLLUTION RECOVERY




Inspection on site:
Cargo inspection included



ALONG HAWAII
RECOVERY

ENVIRONMENTAL RISK ASSESSMENT (SWERA)


A yellow ROV with 'ALFONS HAKANS' branding is shown cleaning the hull of a ship. The ROV has a large brush and a bright light. A yellow cable is attached to it. In the background, another ROV is visible. The hull is covered in green algae and rust. The scene is set at night or in low light.

Inspection on site;
The hull surface is cleaned in preparation
for measurement and penetration

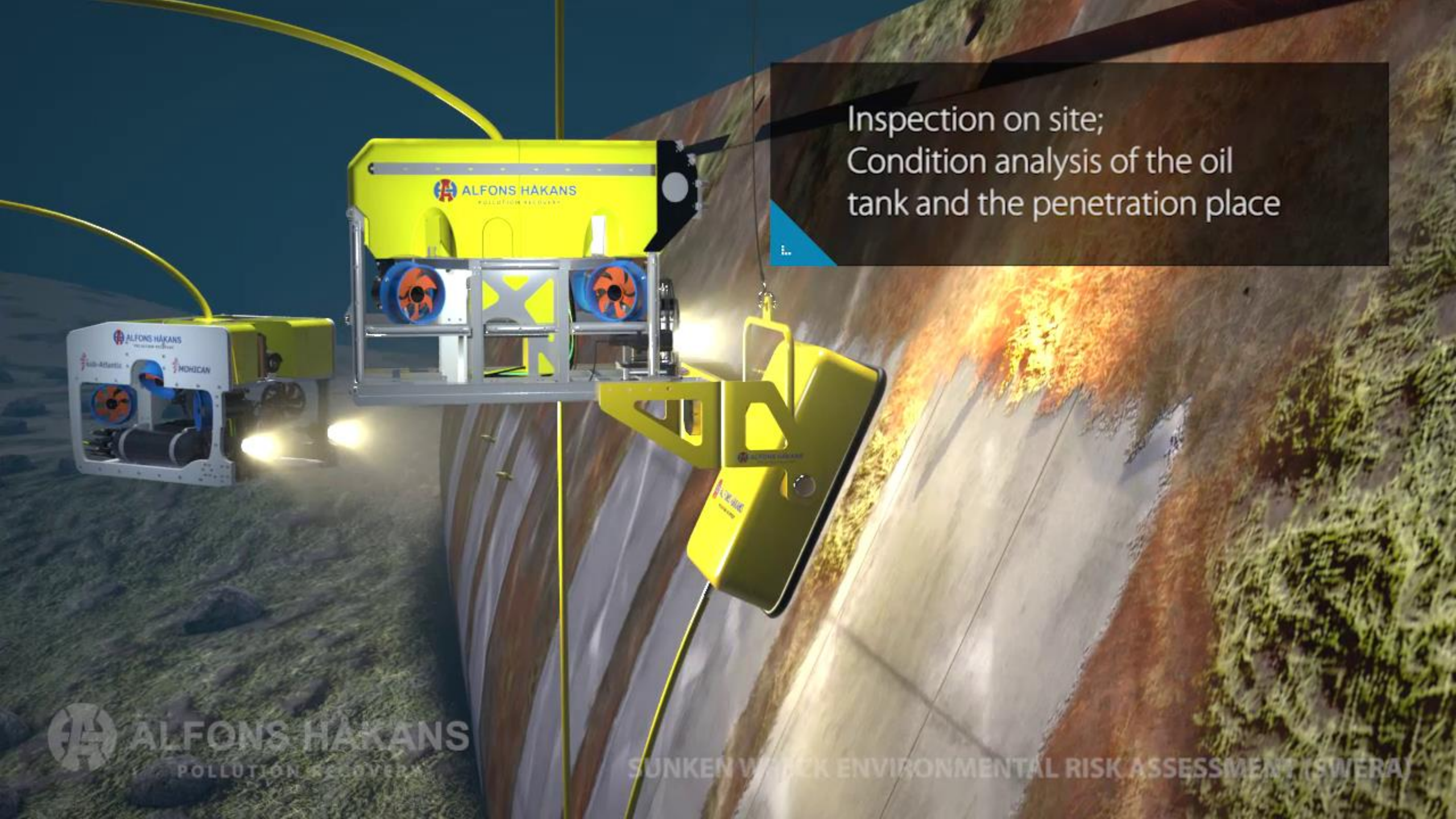
SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)



Inspection on site;
The hull surface is cleaned in preparation
for measurement and penetration



Inspection on site;
The hull surface is cleaned in preparation
for measurement and penetration



Inspection on site;
Condition analysis of the oil
tank and the penetration place

Inspection on site;
Steel thickness
measurements




Inspection on site;
Marking of frame locations
and penetration position



Inspection on site;
Installation of
sample valve





Inspection on site;
Installation of
sample valve



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POLLUTION RECOVERY

WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)





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POLLUTION RECOVERY

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)

WWW.ALFONSHAKANS.FI

SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)

Real time monitoring;
ROV on site monitoring



STINY


OILREMOVAL OPERATION (ORO)





Alfons Håkans onboard Technology





Inspection of the wreck

Remote Controlled Hot
Tapping tool lowered to
the operation area



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POLLUTION RECOVERY

OIL REMOVAL OPERATION (ORO)

ROV connects to the tool and guides it to the operation place

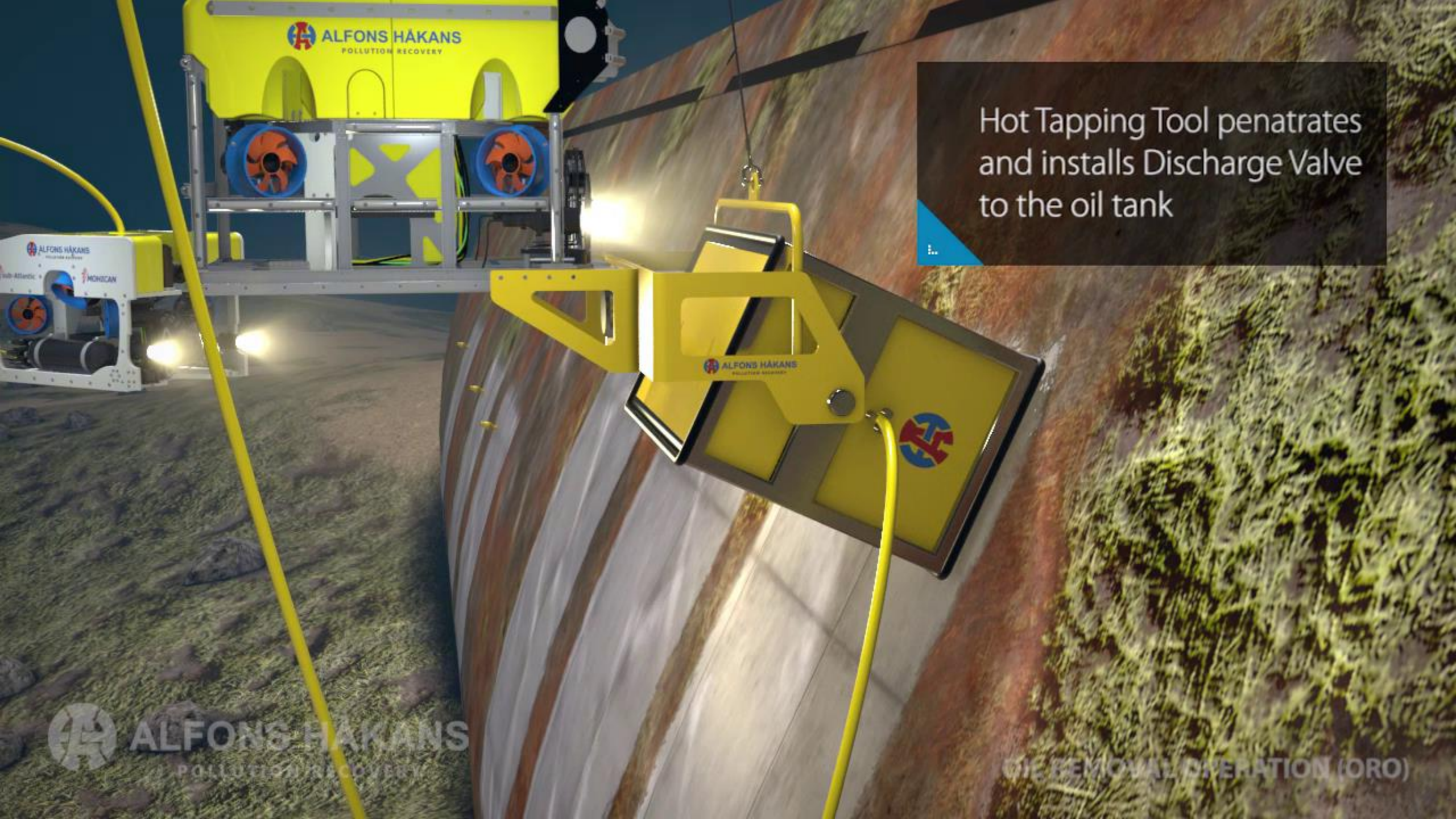


ROV connects to the
tool and guides it to
the operation place




ALFONS HAKANS
POLLUTION RECOVERY

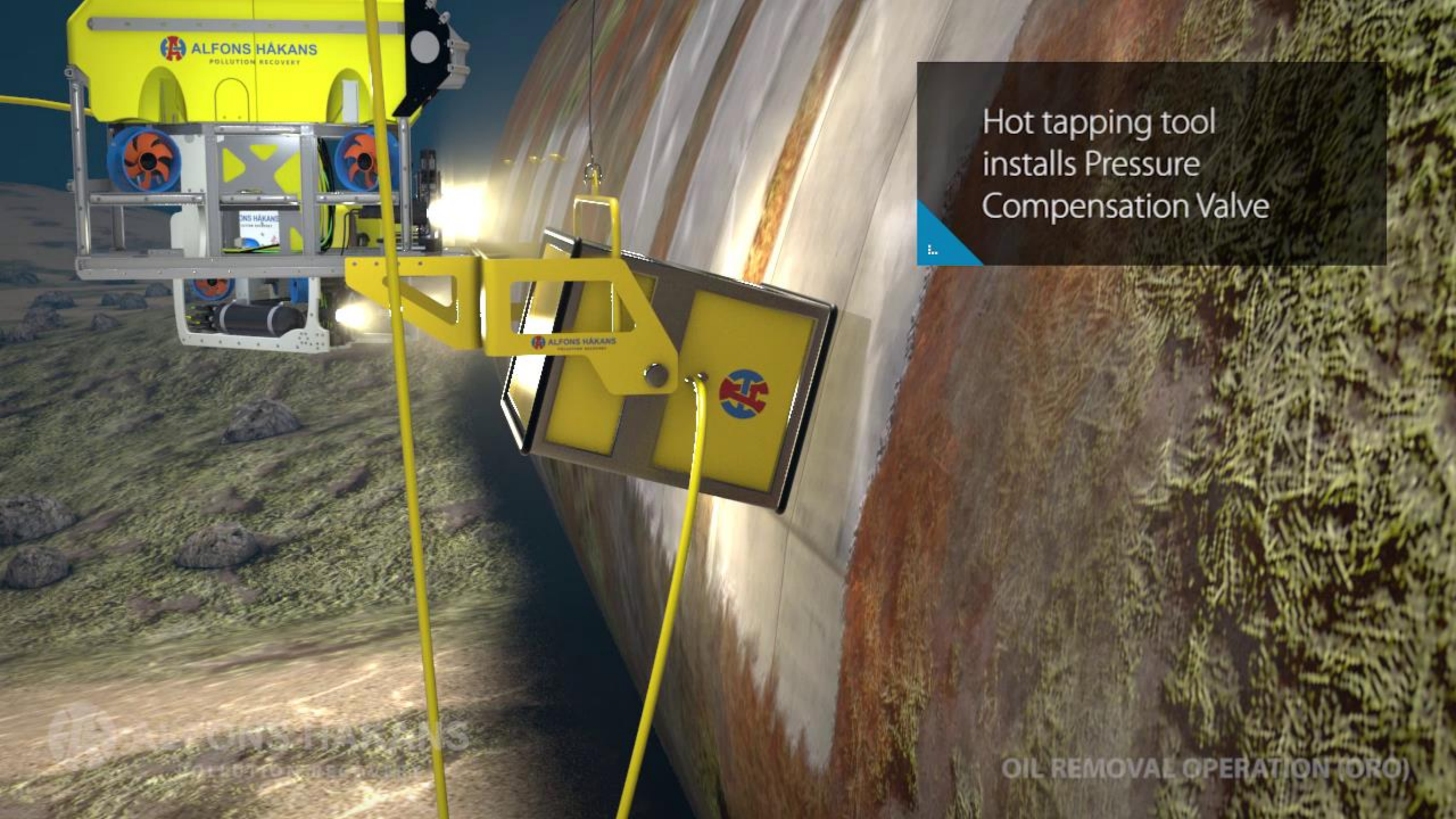
OIL RECOVERY OPERATION (ORO)



Hot Tapping Tool penetrates
and installs Discharge Valve
to the oil tank



Hot Tapping Tool penetrates
and installs Discharge Valve
to the oil tank



Hot tapping tool
installs Pressure
Compensation Valve

ROV double checks
the valve installation



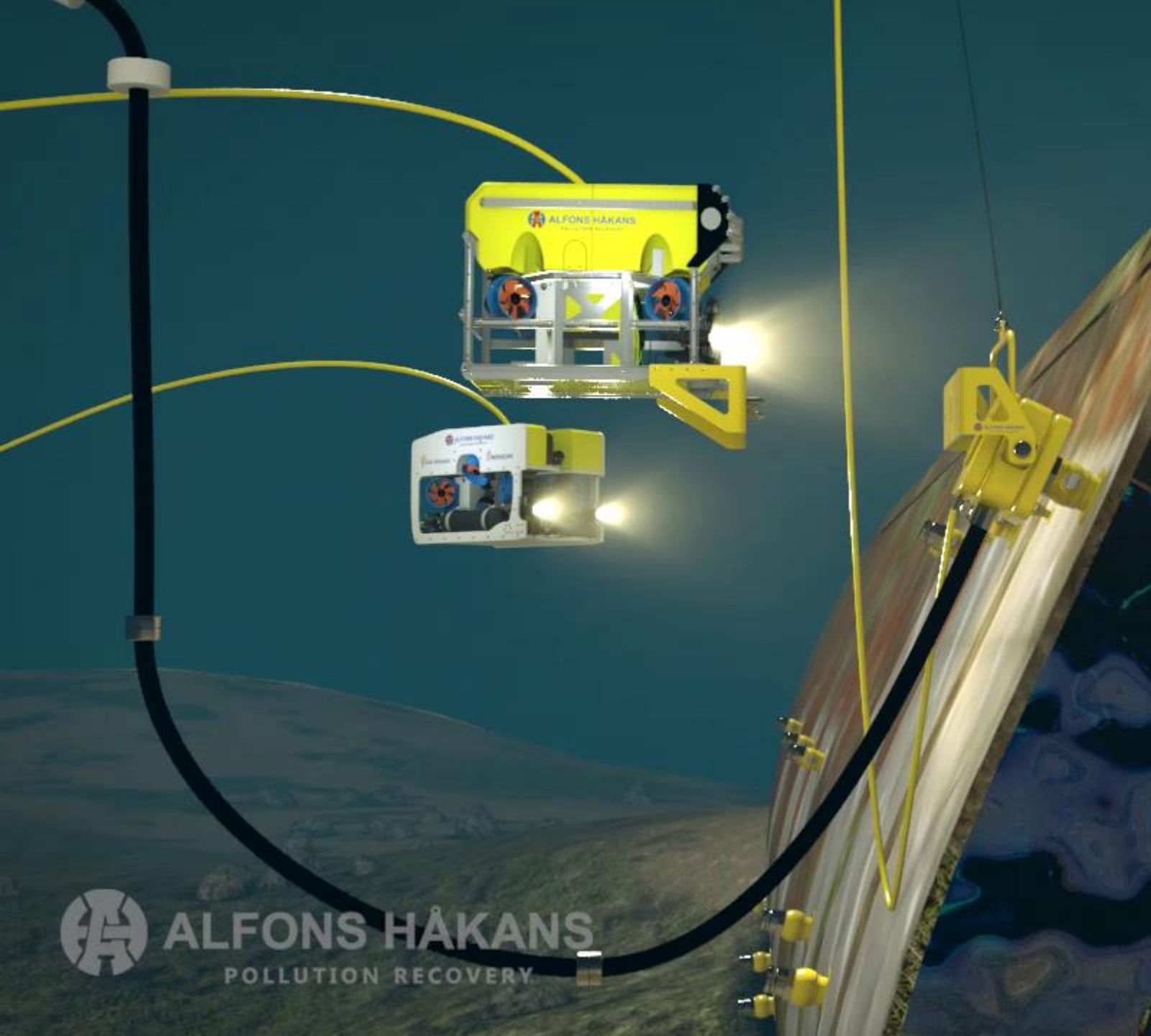
ALFONS HAKANS

OIL REMOVAL OPERATION (ORO)




ROV assists a self-locking
Subsea Wreck Discharge
Unit to the Discharge Valve

Option;
Double Bottom Tool




Option;
Booster Discharge
Pump Unit



The background image shows a large-scale oil spill cleanup operation. A massive, rusted metal structure, likely part of an offshore oil platform, is partially submerged in dark, oily water. A yellow crane or hoist system is suspended from above, with two yellow and white control units hanging from it. A thick black cable runs from the top left, loops around the control units, and extends towards the structure. The sky is a clear, pale blue. In the bottom left corner, there is a logo for 'ALFONS HÅKANS POLLUTION RECOVERY'. In the bottom right corner, the text 'OIL REMOVAL OPERATION (ORO)' is visible.

Option;
Oil Viscosity
Control System



A large-scale industrial operation at night. A massive, rusted metal structure, likely an oil tanker's hull, is being worked on. A yellow crane or hoist system is suspended from above, holding a large, rectangular, perforated metal tray or skimmer. This tray is positioned over a dark, oily surface, possibly a tank or a body of water. A thick black hose or cable runs from the top left, loops around, and connects to the equipment. A small, illuminated platform or basket is also visible, suspended by yellow cables. The scene is lit by bright work lights, creating strong highlights and deep shadows. The background is a dark, hazy landscape under a night sky.

Oil Removal Operation
from the tank



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OIL REMOVAL OPERATION (ORO)



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Submersible

MONITOR

ALFONS HAKANS



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POLLUTION RECOVERY

OIL REMOVAL OPERATION (ORO)



Mission Completed



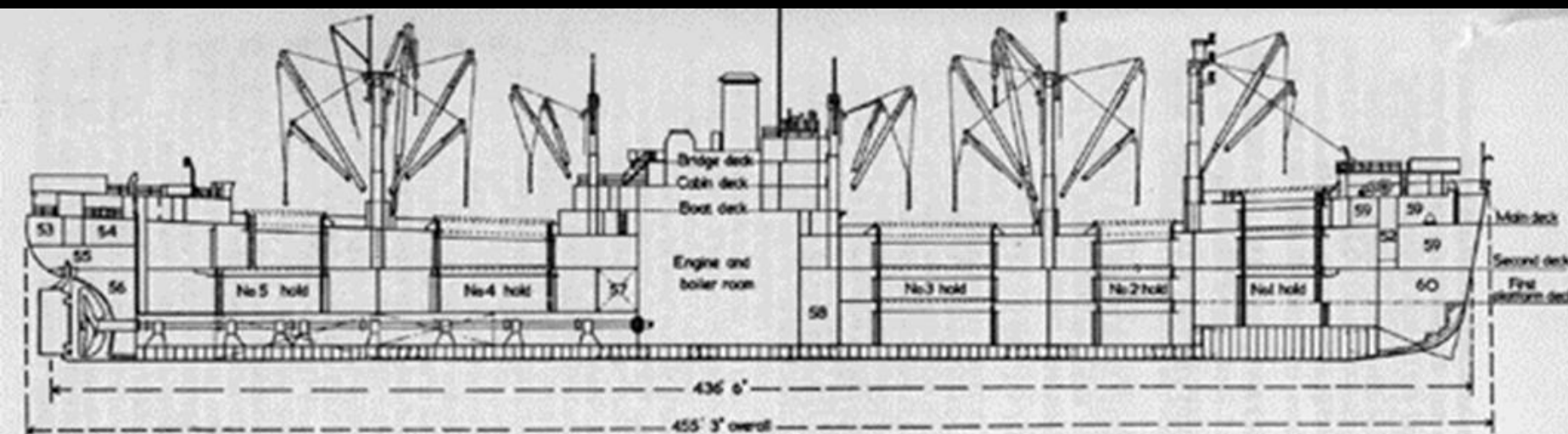
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POLLUTION RECOVERY

OIL REMOVAL OPERATION (ORO)



Lessons to learn...
Case; SS Park Victory

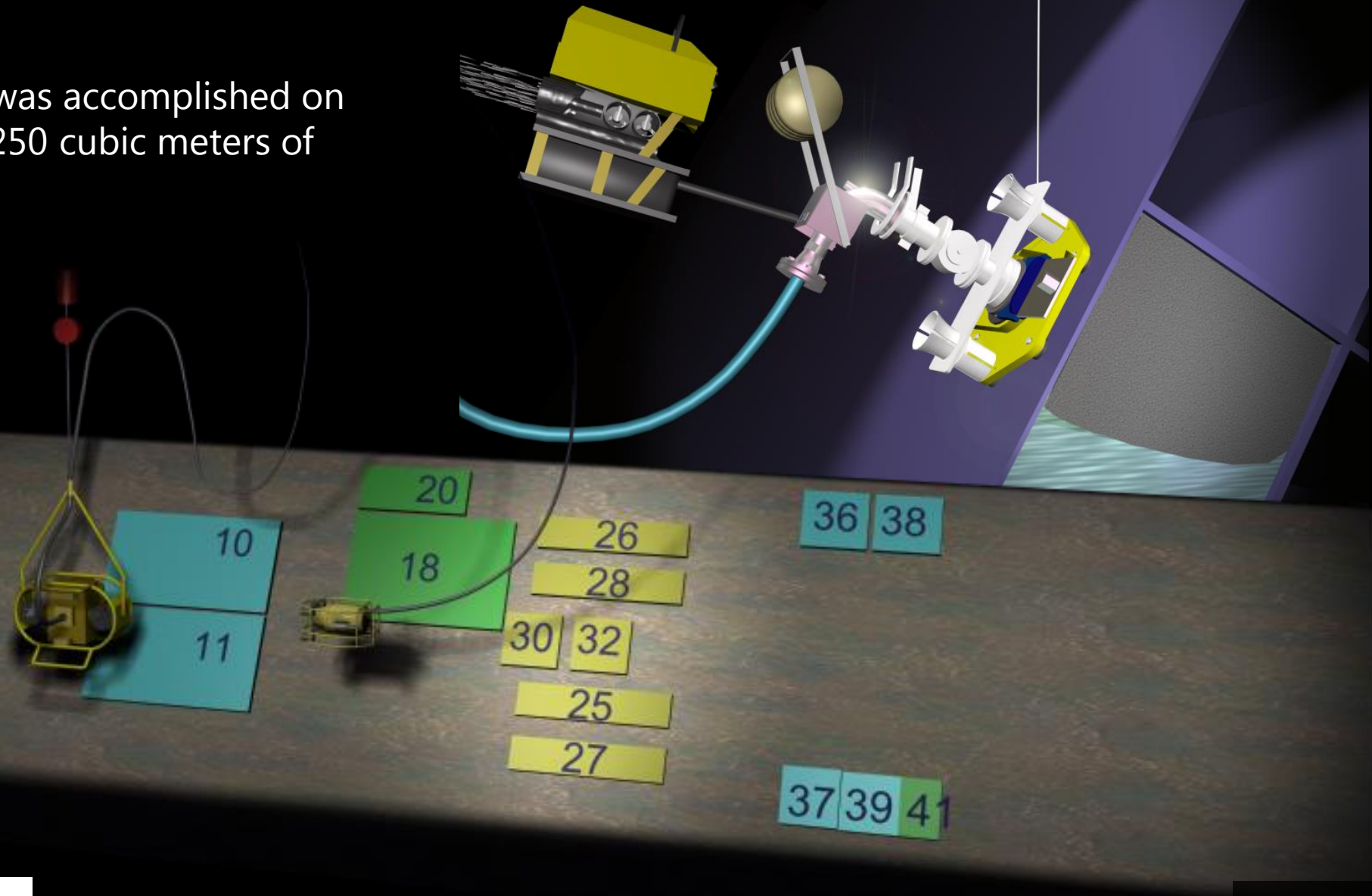
Oil Recovery Operation's working hours 1994-2000;
Oil recovery vessels Halli and Hylje total 5000 h.
Finnish Navy Divers, total 1400 dives and 1200 working hours.
Observation class ROV, 1700 working hours.



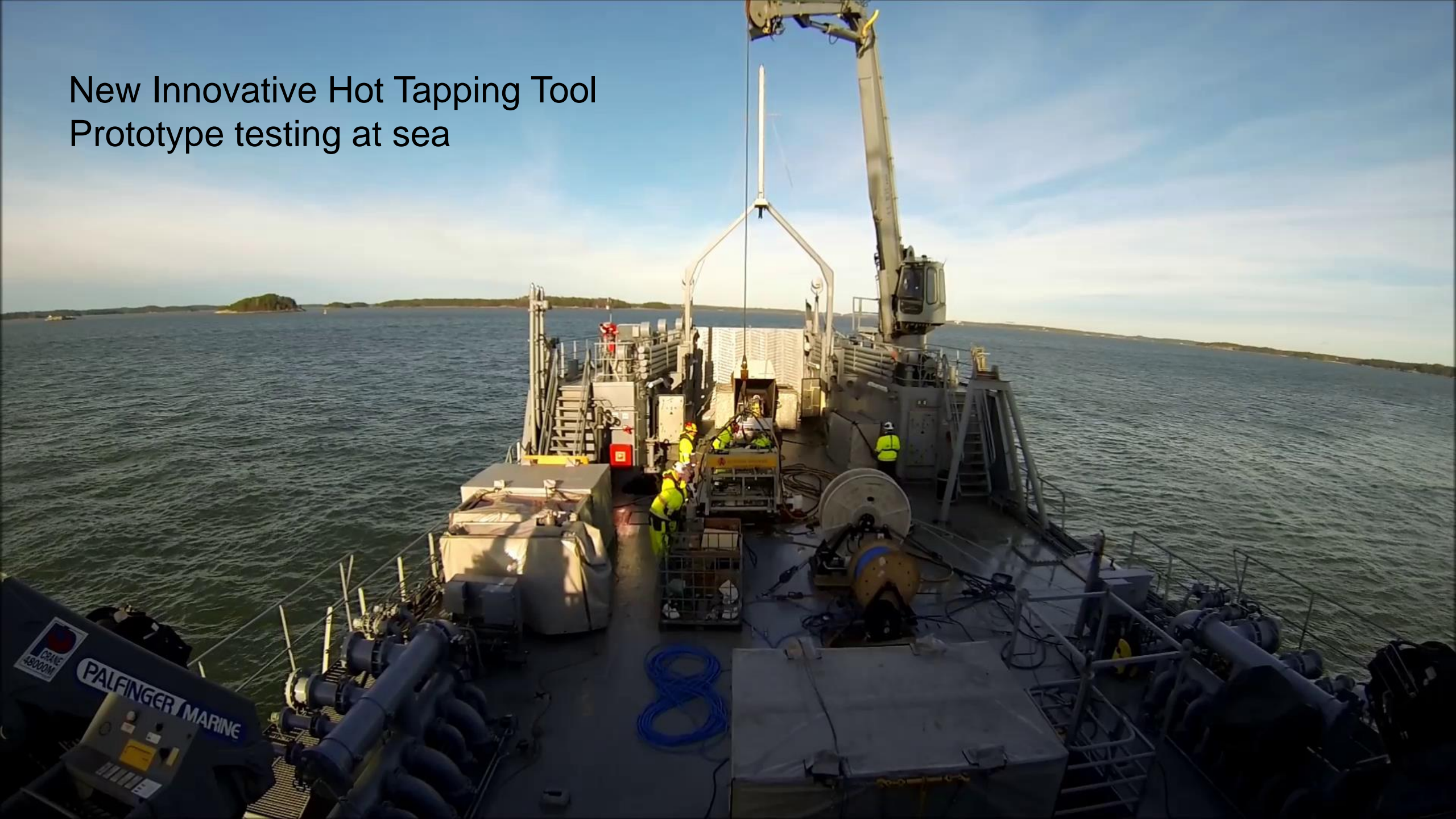
Syke

Case; MS Estonia, 2006

SYKE; "When oil removal was accomplished on June 20, 2006 altogether 230-250 cubic meters of various oils were removed."



New Innovative Hot Tapping Tool Prototype testing at sea



www.alfonshakans.fi/pollution-recovery

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OIL REMOVAL OPERATION (ORO)