New Innovative Toolbox for Oil Removal
- Hot Tapping Tool

Wrecks Of the World III
Gothenburg, Sweden
Kari Rinne, Alfons Håkans Oy
Alfons Håkans - solutions also for cold artic conditions.
TOWAGE
More than 50 vessels in the Baltic Sea
There are more than 8500 of these wrecks worldwide.
The oil will leak sooner or later
SUNKEN WRECK ENVIRONMENTAL RISK ASSESSMENT (SWERA)
Profiles of the wreck, side scanning of the seabed by sonar
Profiles of the wreck, side scanning of the seabed by sonar.
Inspection on site; Scanning of the wreck with photogrammetry
Inspection on site; 3D multibeam sonar scanning
Inspection on site; 3D model created to support operations
Inspection on site;
Risk material quantity and quality analysis of the wreck
Profiles of the wreck; ROV inspection
Inspection on site: Cargo inspection included
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;
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
Real time monitoring; ROV on site monitoring
OILREMOVAL OPERATION (ORO)
Remote Controlled Hot Tapping tool lowered to the operation area
ROV connects to the tool and guides it to the operation place.
ROV connects to the tool and guides it to the operation place.
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
ROV assists a self-locking Subsea Wreck Discharge Unit to the Discharge Valve
Option:
Double Bottom Tool
Option; Booster Discharge Pump Unit
Oil Removal Operation from the tank
Oil Removal Operation from the tank
Mission Completed
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.

Lessons to learn...
Case; SS Park Victory
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

Contacts:
Captain Joakim Håkans, joakim.hakans@alfonshakans.fi
Kari Rinne, kari.rinne@alfonshakans.fi