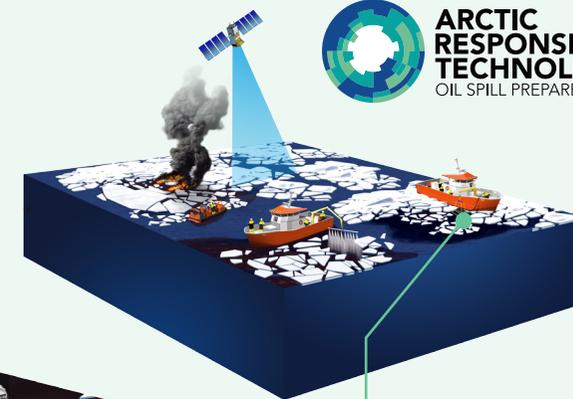


MECHANICAL RECOVERY OF OIL IN ARCTIC CONDITIONS

WHAT IS MECHANICAL RECOVERY?

A key part of the “response toolbox”, mechanical recovery of oil typically involves the use of containment booms in combination with a skimmer to remove oil from the water’s surface. Various equipment types have been developed specifically

for mechanical recovery of oil in the presence of ice. Environmental conditions and the oil’s physical properties are taken into account when determining the best-suited mechanical recovery device for the specific response scenario.



ABOUT THE PROJECT:

The JIP has evaluated several concepts aiming at improving efficiency of mechanical recovery in Arctic waters. This analysis included new recovery vessel design concepts, remote recovery units, as well as on-board oil-water-ice separators and incinerators. A project aimed at improving oil recovery through a development of an Articulated Arm Mechanical Recovery Unit was selected for further development.



Mechanical recovery of oil in ice – Skimmers

Mechanical recovery typically uses skimming devices to remove oil from the surface of water where it is contained by the boom or naturally contained by ice pieces, followed by storing the recovered oil on board the skimming vessel or barge, and then safely disposing the recovered liquids and oil-contaminated materials. In Arctic waters, purpose-designed mechanical recovery equipment includes skimmers outfitted with brush belts, drums or ropes capable of picking up oil, oil emulsion and small ice pieces, as well as heating systems, ice deflection frames and advanced pumping systems. In heavier ice conditions, skimmers can be deployed over the side of a vessel directly into oil pockets. In lighter ice conditions, skimmers can be deployed inside the booms.

Mechanical recovery of oil in ice – Ice deflection and management

Mechanical recovery systems working in the presence of ice may need to deflect the ice in order to gain access to the oil and effectively remove it. Ice deflection in light-to-moderate ice concentrations can create relatively ice-free zones allowing for the continued use of booms. Other tactics involve management of ice with icebreakers to create open areas downstream from the spill source.

Mechanical recovery of oil in ice – Booms

Since skimmers work best in thick oil slicks, booms towed between two vessels or connected to arms alongside a vessel can be used to concentrate oil for recovery. Containment booms used in arctic conditions are made of material suitable for cold weather applications. Several recent innovative designs can allow booms to collect oil at greater speeds thereby allowing faster recovery. In higher ice concentrations, single vessels with built-in skimming systems using short sections of boom can maneuver between large ice floes.

ABOUT THE JIP

To further build on existing research and improve the technologies and methodologies for Arctic oil spill response, nine oil and gas companies established the Arctic Oil Spill Response Technology Joint Industry Programme (JIP). The goal of the JIP is to advance Arctic oil spill response strategies and equipment as well as to increase understanding of potential impacts of oil on the Arctic marine environment.

The Arctic Oil Spill Response Technology JIP is sponsored by nine oil and gas companies:



ConocoPhillips



ExxonMobil



Statoil



<http://www.arcticresponsetechnology.org>

Joseph Mullin, Programme Manager – Joseph.mullin@arcticresponsetechnology.org
MEDIA ENQUIRIES: press@arcticresponsetechnology.org • tel. +44 (0)20 7413 3070