

Mechanical Recovery of Low Sulphur Fuel Oils – Results from IMAROS 2 trails

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Spills of marine Low Sulphur Fuel Oils (LSFOs) may result in challenging clean-up operations, at sea as well as on shorelines. Experiences from recent studies and incidents underline that fuel oil composition has changed considerably in the past years, and that this may result in new challenges for responders. The global sulphur cap and the designation of SECA areas as laid out in MARPOL Annex VI has led to considerable changes in the bunker fuel market over the past years. VLSFO is now an important product worldwide, while ULSFOs are niche products used by some ships in SECA areas, especially in the North Sea / Baltic Sea. The IMAROS project revealed a wide range of different physical and chemical properties among the tested oil samples. High pour point has been identified as a particular challenge for mechanical recovery of some LSFOs, in addition to brittle appearance of oil. This is resulting in increased complexity for responders. By the conclusion of the IMAROS project, it was not possible to recommend one certain way of responding, rather the advice was to prepare for bringing the “whole toolbox” – and even that could be insufficient. Responders should expect the unexpected and prepare for a range of different scenarios.

The IMAROS 2 (**IM**puts **And** **R**esponse **O**ptions regarding low sulphur marine fuel oil **S**pills) project's main objectives are to:

- improve understanding of oil spill behaviour of LSFOs, and consequently decision making on all levels of response operations
- Improve capacities of mechanical recovery and shoreline response

To improve capacities of mechanical recovery manufacturers of oil spill response equipment were invited to participate in practical recovery trials in test facilities in Norway and Finland, aiming to encourage manufacturers to develop relevant technical solutions. A call for participation in the mechanical recovery trials was published and resulted in 11 companies applying to participate. Five companies with different technical solutions were selected for participation in the different trails.

Recovery trials on three different LSFOs are carried out in an indoor test facility in Horten, Norway. Equipment for mechanical recovery is tested in the 7 x 30 m indoor seawater test basin, allowing to simulate operations under controlled conditions, including the application of current and waves. Recovery of three test oils (2 VLSFOs and 1 ULSFO) with different properties is tested.

Additionally, tests will also be carried out in an outdoor test facility in Kotka, Finland, in winter, to test mechanical recovery of a VLSFO under cold conditions and in ice-infested waters.

Preliminary results from the mechanical recovery trials will be presented, outlining some of the challenges related to mechanical recovery of LSFOs and addressing approaches to find new solutions. Building additional knowledge across industry, responders and their scientific advisors is one of the key stones of the IMAROS 2 project.

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