

Advancements to a Rapidly Deployable Fire Monitor Based Dispersant Application System

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Introduction

As part of contingency planning, strategic and tactical actions are considered in efforts to mitigate the effects of spilled oil. The use of mechanical recovery and containment may provide a robust response in most cases. However, for a number of operational reasons, other applied response technologies, such as in-situ burning and dispersants, are also considered. Dispersant application by vessel-mounted multi-point spray arms has been an industry standard for a number of years. Additionally, the development of single-point application systems has been refined and many are in use globally. Recent work to further enhance a single-point fire monitor-based system that easily integrates into systems already in place on supply vessels worldwide was carried out.

The work focused on the demonstration and validation of the use of a modified fire monitor equipped with an eductor-based system to apply dispersant to a surface slick. Trials were conducted at the United States Bureau of Safety and Environment Enforcement's wave tank facility in New Jersey (Ohmsett) in 2016/2017. Objectives were to measure the effectiveness of the system relative to natural dispersion and targeted dispersant application by backpack sprayer. To determine the effectiveness of the dispersing methods, two measurements were collected. First, remaining surface oil at the conclusion of the test was collected and stored in

metal drums. After two weeks the volume of oil was measured and that volume was subtracted from the initial volume released into the tank during the test.

Second, a Laser In-Situ Scattering and Transmissometry (LISST) particle size analyzer measured particle size (i.e., oil droplets in the water column) and concentration. These measurements provided the necessary data to make an assessment on the effectiveness of the modified-fire monitor application system.

Following the tests, the research conducted supports the continued global deployment of the system. In general, the system is rugged, easily installed and operated on offshore supply boats and could serve to provide rapid response to oil spills where dispersant diluted with water would be an effective tool.