



Oil Adhesion to Novel Skimmer Surfaces under Cold Climate Conditions

Organization The oil adhesion to novel skimmer surfaces under cold climate conditions is a joint testing collaboration that includes The Bren School of Environmental Science & Management, University of California Santa Barbara (UCSB); Department of the Interior's Minerals Management Service (MMS); and the Oil & Hazardous Materials Simulated Environmental Test Tank (OHMSETT). The host test facility is the U.S. Army's Engineer Research and Development Center's Cold Regions Research & Engineering Laboratory's (CRREL) Material Evaluation Facility (MEF) located in Hanover, N.H.

Background According to the Environmental Protection Agency approximately 14,000 oil spills are reported each year in the United States alone. The considerable increase of oil exploration and transport in Arctic waters will increase the risk of an oil spill occurring in cold and ice-infested waters. The mechanical oil spill recovery equipment currently used in warmer waters was not designed to collect much more viscous oils, or oil-ice mixtures. Novel drum skimmer surface geometry and materials, tailored to the conditions present under cold climates, are expected to significantly increase the rate of oil recovery, reducing cost and risk. The goal of these tests is to provide initial evaluative data as to the effects of oil adhesion on different drums on oil skimmers under varying conditions (e.g., oil types, ice/no ice, drum rotational speeds, etc.).

Vision A full-scale oil spill recovery test will be conducted at CRREL with three different oils and materials. Based on these subfreezing conditions tests, materials and surface patterns with the highest oil recovery potential will be selected. Additionally, this knowledge will help develop and/or improve existing mechanical response equipment that can be more efficiently used under these conditions.

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