

Multi-Criteria Decision-Making Evaluations for Oily Waste Management of Marine Oil Spill

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Abstract : Nowadays, oily solid waste management has become an important issue for many countries due to frequent oil spill accidents and the increase of industrial oily wastewater. The historical oil spill data show that marine oil spills that affect the shoreline can, in extreme cases, produce up to 30 or 40 times more waste than the volume of oil initially released. Hence, responsive authorities aim to develop the most effective oily waste management solution in a timely manner to manage and minimize the waste generated. In this study initially, we tried to develop the roadmap of oily waste management for three-tiered spill scenarios for Atlantic Canada. For that purpose, three oily waste disposal scenarios are evaluated via six criteria which are determined according to the opinions of the experts from the field. Consequently, through sustainable response strategies, the most appropriate and feasible scenario is determined. The results of this study will assist to develop an integrated oily waste management system for identifying the optimal waste-generation-allocation-disposal schemes and generating the optimal management alternatives based on the holistic consideration of environmental, technological, economic, social, and regulatory factors.

Keywords : oily waste management, marine oil spill, multi-criteria decision making, oil spill response

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