DISPERSANT TESTING FOR EFFECTIVENESS: THE NEW ZEALAND EXPERIENCE

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ABSTRACT

Oil spill response in New Zealand (NZ) relies in part on the appropriate use of oil dispersants to limit the adverse environmental impacts of the spilt oil. Recently the Maritime Safety Authority (MSA) of NZ tested the effectiveness of existing dispersants stockpiled in NZ for the first time.

Testing addressed two issues. Firstly, age-related degradation was assessed by comparing the efficacy of existing stocks to freshly manufactured dispersant using a standard test oil. Secondly, the response capacity of MSA owned dispersants was evaluated by testing existing dispersants against five crude oils and nine fresh IFO-380 fuel oils (HFOs) considered by the MSA to pose a high risk if spilled in NZ waters. Testing followed the Warren Spring Laboratory (WSL) LR 448 protocol.

Results identified age-related degradation was apparent with some existing MSA dispersant stocks. The testing of response capacity showed that while most of the un-weathered crude oils and some un-weathered IFO-380 HFOs tested could be dispersed, dispersion rates for the HFOs were relatively low, and some HFOs were unable to be dispersed with existing MSA stocks.

Subsequently, two alternative high performance dispersants, Corexit 9500 and Slickgone EW, were tested on the same crude oils and HFOs used previously, and across a range of temperatures and dispersant to oil ratios, to see if they offered a better response capability.

The results of these investigations are presented and discussed with particular reference to how they have been applied to enhance the overall response capability in NZ.