

Managing Dispersant Usage in Oil Spill Incident in the Straits of Malacca and Singapore

The Straits of Malacca and Singapore is one of the busiest shipping lanes in the world which currently facing major threat from marine pollution particularly oil spill incident from ships. Currently, more than 120,000 vessels carrying approximately a third of world's traded goods and one sixth of the world's total oil supply traversing the Straits of Malacca and Singapore. The concern is the steady increase of Very Large Crude Carrier (VLCC)/deep draft vessels, tankers, and bulk carrier traffic transiting the Straits of Malacca and Singapore which may impact the safety of navigation and marine environment. Recently, shipping accidents involving oil spilled into the straits occurred more frequently, which is attributed to heavy traffic in the straits with shallow, narrow channels and shoals. Despite these hazards, economic efficiency dictates that vessels continue to use the straits. Thus, it is a challenge to the Littoral States which comprises of Indonesia, Malaysia and Singapore to ensure the straits remain safe and clean.

Since most of oil pollution incidents mainly as a result of shipping accidents involving massive oil tankers, there is a dire need to control the oil spilled at sea. Dispersant is one of several possible response techniques that remove spilled oil from ships and marine installation at sea. Despite certain limitations, dispersant can be an effective way to prevent oil spill from reaching coastal habitats and shorelines by accelerating the natural dispersion of oil and enhance the natural biodegradation processes that break down oil. Dispersant also has capabilities that make it particularly useful in responding to larger oil spills at sea either at the water surface by aerial or vessel spray application or by using subsea injection at the source of a subsea spill. In this light, the Littoral States has adopted national policies on managing dispersant usage in the Straits of Malacca and Singapore respectively.

Indonesia for example, in practical case and according to its procedure with regard to the use of dispersant, responder may use dispersant listed in permitted dangerous substance as stipulated in Indonesia's laws and regulations. Prior to approving chemical substances allowed to be used as dispersant, NEBA needs to be conducted in order to measure the impact of the chemical substances to the marine environment. Moreover, in oil spill incident, the readiness of the Directorate General of Sea Transportation in terms of available facilities and infrastructures, capability of the oil spill response team, as well as the conduct of annual exercises further address the marine pollution control in Indonesian waters.

As of Malaysia, the usage of dispersant in oil spill incident is based on the Guidelines on the Use of Oil Spill Dispersant. The use of Department of Environment Malaysia

approved dispersant as oil spill counter measure need to be in accordance with the National Oil Spill Contingency Plan (NOSCP), including the national regulation, and the need to produce the Net Environmental Benefit Analysis (NEBA) outcome that show the advantages of dispersant outweighing the disadvantages. All dispersant products are required to pass toxicity and effectiveness testing before Department of Environment Malaysia consideration for approval and included in the approved list of dispersants. Presently there are only five approved dispersants. One of the biggest challenges presently is the requirement for high performance dispersant with low to no impact to the marine environment.

For Singapore, dispersant application is one of the response options that Maritime and Port Authority of Singapore undertakes as part of its contingency plan. The usage of dispersant however must serve to protect human health and safety, minimise environmental impacts and restore the environment. To ensure efficacy and toxicity, only approved dispersant is allowed. It was also elaborated that regulatory requirement on the dispersant stockpile and role of oil spill response agencies and oil industry, as well as having agreement with the response agencies were in place for additional resources. Other policies include leveraging on international cooperation and arrangements as well as compensation regime under the Revolving Fund Standard Operating Procedures (SOP) for the Joint Oil Spill Combat in the SOMS. In Singapore, only dispersant approved based on the Prevention of Pollution of the Sea Regulation (Oil Spill Preparedness, Response and Cooperation Regulations) is allowed. Thus, dispersant must meet the test specifications based on prescribed testing methodology and supported by laboratory reports and documentations before it is submitted to Maritime and Port Authority of Singapore for assessment and approval.

As world trade continues to expand and shipping traffic increases, the task of maintaining safety of navigation and preserving the marine environment in the SOMS grows in tandem. While this is primarily the responsibility of the Littoral States and users of the Straits, there is a need for wider cooperation to ensure that the channel remains safe and open to traffic. The following are some recommendations to provide for a better understanding on the appropriate use of dispersants during an oil spill response and to improve best practices in dispersant use, technology, and application.

- a. Encourage Littoral States to enhance the mechanisms or procedures for approval of dispersants product to minimise impacts to the marine environment, such as NEBA as one of the tools to show the advantages of dispersant outweigh the disadvantages.
- b. Better communication to promote understanding of the benefits and limitations of dispersants during a response effort, as well as the safety and effectiveness of dispersant products. This will assist industry and government officials in educating

the public and community stakeholders about what dispersants are, how they work, when they should be used, and any associated environmental trade-offs and potential human health effects.

- c. In addition, workshops should be conducted regularly to facilitate communication with local stakeholders on dispersant use for oil spill response in specifically sensitive coastal environments. These stakeholders typically operate outside the traditional spill preparedness activities, and there is generally less interaction with the oil spill response team on the ground. These workshops may serve as a model for increasing engagement with stakeholders in other areas and to enhance future oil spill preparedness and response.
- d. There is also a need to explore future research and development with the academia which can offer more options in the dispersant usage. In addition to direct interaction of researchers, there is a need to review, evaluate, and possibly sharing research results in a timely manner. Toward this end, professionals could be referred on data collection for spill impact assessments and evaluation of ecological recovery rates for offshore, near-shore, coastal, and estuarine areas impacted by spills.

In conclusion, the understanding on the use of dispersant management in the Littoral States may assist oil spill operators, contractors or agencies to further enhance their capability to combat oil spill in the Straits of Malacca and Singapore based on the use of dispersant requirement of each Littoral States respectively.