PERSISTENT VS NON-PERSISTENT OILS: WHAT YOU NEED TO KNOW

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Article in: "Beacon" (Skuld Newsletter) July 2001

Background

Marine oil spills have the potential to cause serious impacts to natural resources and the livelihoods that depend on them. The extent of impact however is influenced by a number of factors such as the type and amount of oil spilled, the physical characteristics of the affected area, the weather conditions at the time of the spill and the type and effectiveness of the response methods employed.

The concept of persistence in relation to oil spills probably originated after the *Torrey Canyon* incident in 1967. This is the time when discussions first arose regarding various new measures to protect the marine environment and to manage marine oil spills, particularly in relation to liability and compensation. During this initial time, the primary concern following an oil pollution incident was in relation to cleanup and so, attention was focused on "black" oils that did not break down readily after a spill and because such oils 'persisted' long enough in the environment to warrant some form of response.

Generally, persistent oils do not dissipate quickly and will therefore pose potential threats to natural resources when released to the environment. Such threats have been evident in the past in terms of impacts to wildlife, smothering of habitats and oiling of amenity beaches. Cleanup techniques in response to persistent oils depend on the nature of the oil and the environment in which the oil has been spilled and include for example, the use of booms and skimmers for containment and recovery, the application of dispersants and manual cleanup of foreshores and coastlines.

In contrast, when released to the environment, non-persistent oils will dissipate rapidly through evaporation. In light of this, spills of these oils rarely require a response but when they do, cleanup methods tend to be limited. Impacts from non-persistent oils may include, for example, effects on paint coatings in marinas and harbours and at high concentrations, acute toxicity to marine organisms.

Definition of Persistent Oils

As most are aware, both the 1969 Civil Liability Convention and the 1971 Fund Convention apply only to spills of "persistent" oil. The Conventions were initially drafted to cover costs of the removal of pollutants from the sea and shore. The concept of persistent and non-persistent oils related therefore to the likelihood of the material dissipating naturally at sea and whether or not cleanup would be required. However, a precise definition of persistent oil is not provided and interpretation has historically relied on the examples given in the Conventions such as crude oil, fuel oil, heavy diesel oil and lubricating oil. The lack of a precise definition led the International Oil Pollution Compensation (IOPC) Fund, as the administrator of the 1971 Fund Convention to seek to clarify the definition and to develop a working model for practical implementation.

As a result, a study was commissioned to establish a working definition of persistent oils. The study based the distinction between persistent and non-persistent oils on the distillation

characteristics of the oil shipped. Non-persistent oils are those that are generally of a volatile nature and are composed of lighter hydrocarbon fractions, which tend to dissipate rapidly through evaporation. In contrast, persistent oils generally contain a considerable proportion of heavy fractions or high-boiling material. In the definition adopted by the IOPC Fund, persistent oils are actually defined by describing what is meant by non-persistent oil:

> "non-persistent oil is oil which, at the time of shipment, consists of hydrocarbon fractions,
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> (a) at least 50% of which, by volume, distils at a temperature of 340°C (645°F).
>
> and
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> (b) at least 95% of which, by volume, distils at a temperature of 370°C (700°F);
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> when tested by the ASTM Method D86/78 or any subsequent revision thereof".

The boundary set by this definition might be considered to be somewhat arbitrary particularly given the continuous spectrum of oil types with varying degrees of persistence. The definition may also give rise to other difficulties. For example, it is interesting to note that the definition developed by the IOPC Fund can not be applied to non-mineral oils (despite the physical persistence of some of these oils) because they can not tolerate the distillation process. On the other hand, whilst the 1969 CLC applies to any type of persistent oil (including non-mineral oils such as whale oil), the definition of oil was revised in the 1971 Fund Convention and in the subsequent '92 CLC and FC to apply only to 'persistent hydrocarbon mineral oils'.

Despite these concerns, it should be recognised that the definition adopted by the IOPC Fund does provide clear guidance on those oils that are covered by the Conventions. The term "persistent" and the chemical definition relied upon by the Conventions and those who apply them ensures consistency in the application of the term and overcomes the variety of terminolgies that may be used on a local or regional basis.

This consistency is very important in the context of the United States where under the *Oil Pollution Act 1990* (US) even though the concept of persistent/non-persistent oil has no direct relevance in the law. However, given the significant potential liability associated with loading or discharging persistent oil cargoes in waters of the US, it has been necessary to apply a weighting on such voyages. The P&I Clubs have adopted the IOPC Fund definition of persistence/non-persistence as a convenient standard by which to apply an additional premium on persistent oil cargoes deemed to represent a greater risk of financial exposure in the event of oil pollution. Thus, the advice is often sought from ITOPF on the determination of the persistence or otherwise of an oil and to interpret the IOPC Fund definition. As described above, the assessment is based on the distillation characteristics of the individual oil.