INSTITUTE OF PETROLEUM

PLANNING FOR THE USE OF OIL SPILL DISPERSANTS

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FOREWORD

This is the third edition of the Institute of Petroleum's *Guidelines on oil spill dispersants*, which were originally published in 1979. This edition has been produced to take account of recent advances in research and development work on the use of oil spill dispersants.

The guidelines are based on general principles that are applicable world-wide and built on the IMO/UNEP *Guidelines on oil spill dispersant application* (IMO 1995). The guidelines are illustrated with specific examples within the regulatory framework from the UK. It must be borne in mind that different regulations covering the application, toxicity and performance requirements of dispersants will often apply outside the UK, and these guidelines must be seen as complementary to such regulations.

Whilst the adoption of these guidelines will assist in combatting oil pollution at sea with dispersants in an efficient manner, the Institute of Petroleum cannot accept any responsibility for injury to persons or damage to or loss of property however arising out of, or in conjunction with, the application of these guidelines.

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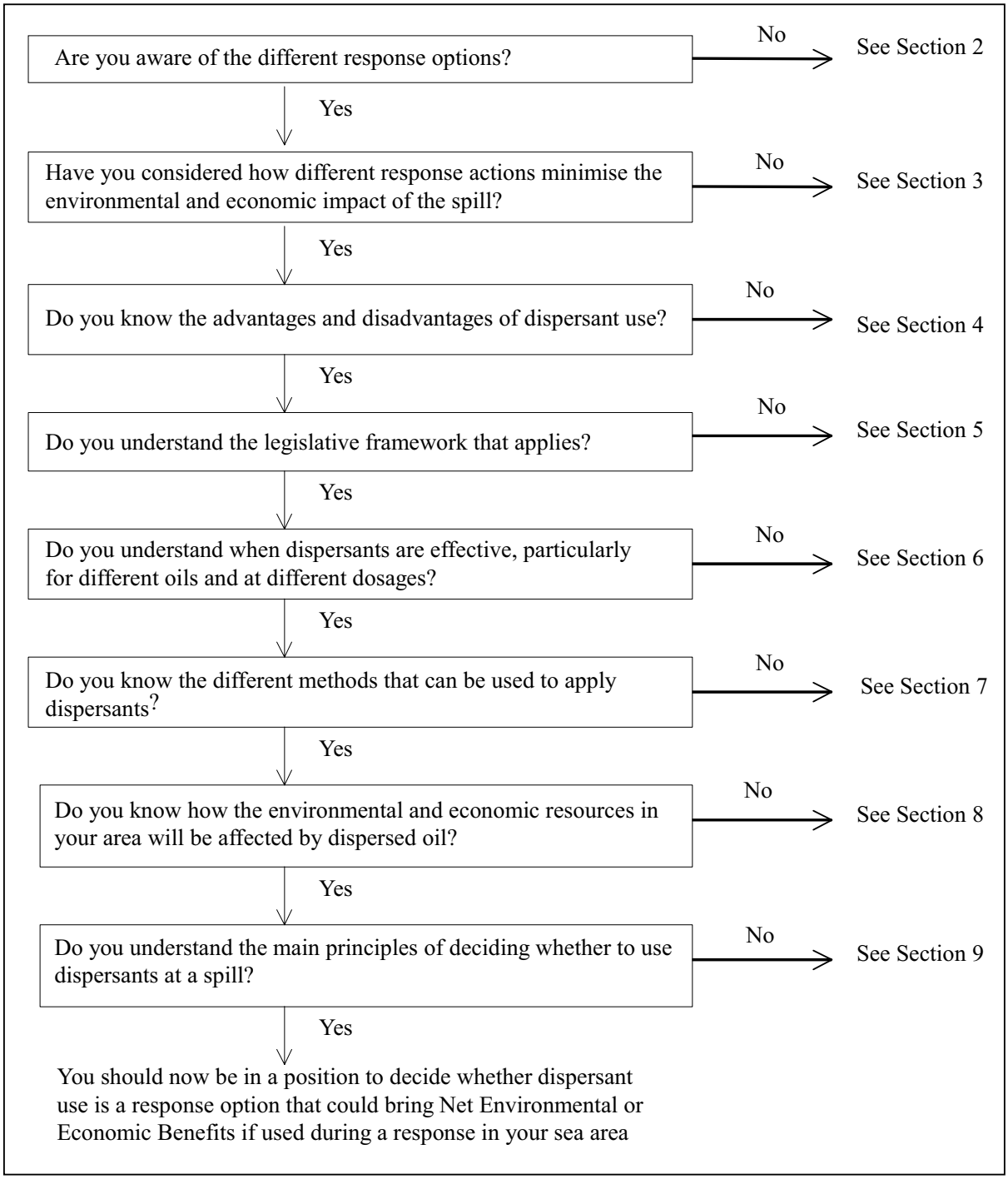

Flowchart - Should you consider planning to use dispersants as part of your response plan?

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INTRODUCTION

These guidelines are intended to help **managers** (for example Health and Safety Managers) **plan** for the use of dispersants as part of their response to an oil spill at sea. The guidelines are based on general principles that are applicable world-wide. They build on the IMO/UNEP *Guidelines on oil spill dispersant application* (IMO, 1995), but are illustrated with specific examples and the regulatory framework from the UK. A companion document *Operational guidelines on the use of oil spill dispersants* concentrating on the practical steps needed to implement a dispersant response is also to be published by the IP.

Over recent years, a great deal of effort has been put into preventing accidental oil releases into the sea from activities such as the exploration, drilling, production and transport of crude oil. Such efforts have resulted in a significant reduction in the number of spills. Despite this, oil spills remain an infrequent but inevitable consequence of oil production, storage and transportation. When oil is spilt, it is often necessary to respond to minimise the impact of the spill on the environment.

Small oil spills (less than 10 tonnes) are most frequent and, in general, do not have a major impact on the environment. Historically, most medium and large spills (those greater than 5000 barrels or 700 tonnes) have involved ships. The increased size of oil tankers during the 1960s led to a series of oil spills that caught the attention of the general public. Over the past thirty years there have been several very large oil spills from crude oil tankers, for example the *Torrey Canyon* (1967), *Amoco Cadiz* (1978), *Exxon Valdez* (1989), *Aragon* (1990), *Braer* (1993) and *Sea Empress* (1996). There have also been some very large incidents involving oil production facilities; Ekofisk (1977), Ixtoc (1979) and the Persian Gulf (1991). These incidents have demonstrated that it is very difficult to deal adequately with large spills.

Oil spills may result in environmental, economic and social impacts by affecting natural resources, fisheries, and people who use the shoreline recreationally and commercially. Effects include impacts on sensitive habitats or rare species, on amenity assets such as tourist beaches, or directly on the livelihood of fishermen unable to sell seafood caught from oil polluted waters, or areas perceived to be polluted.

The consequences of oil spills cover an enormous range and depend on many factors:

— **Amount of oil spilled and location**
The size of the oil release and the proximity of sensitive resources are two of the most obvious factors; even fairly large volumes of oil that are released in the open sea at locations remote from the shore or sensitive resources will have little obvious impact. However, small quantities of oil spilled close to a very sensitive resource (for example the habitat of a rare or endangered species, or mariculture facilities) may cause serious damage.

— **Type of oil spilled**
Crude oil is a natural product, but contains components (aromatic compounds) that can be toxic to marine organisms. The properties of crude and refined oils vary widely, some oils evaporate quickly or naturally disperse at a rapid rate, while others are very persistent and may drift for days or weeks before impacting the coast. Heavy Bunker fuel oil washed on to the shore is not only unsightly, but can also smother shore life and may persist for many years unless removed.

— **Prevailing weather and oceanographic conditions**
In very rough sea conditions spilled oil may be rapidly dispersed into the sea by the action of the waves. Spilled oil will drift under the influence of wind and currents, and can contaminate shorelines at great distances from the original spill site.

— **Response to oil spills**
The purpose of any oil spill response methods is to reduce the impact (environmental or economic) of an oil spill. This may be achieved in several ways:
  – Stop and prevent the outflow of oil.
  – Monitor the oil slick movement and behaviour while it is out at sea.
  – Contain and recover the oil by using booms and skimmers.
  – Protect areas of particular economic and environmental significance by diverting oil with booms.
  — Use oil spill dispersants to cause the oil to disperse while at sea.
  — Clean the oil from the shore by mechanical or manual means.

All of the above factors will influence the degree of environmental and economic impact a spill may have. Since the response method is only one factor, it will not always be possible to reduce the degree of environmental or economic impact significantly through a response action. Even an effective response may still see significant environmental and economic impacts occur, while an overly aggressive response can result in more damage than leaving the oil to weather naturally.

These guidelines focus on the use of oil spill dispersants as a response method. Dispersants have the potential to reduce the negative environmental and economic impact of oil spilled in ports, coastal areas and at sea, both in territorial waters and within the wider exclusive economic zone. Successful dispersant use requires a rapid response since many oils become resistant to treatment due to weathering and emulsification, limiting the time during which dispersant use can be effective. For a rapid response to be possible, a comprehensive contingency plan must have been prepared in advance. The plan must consider the advantages and disadvantages of different response options. It should address specific scenarios to facilitate decisions about whether dispersant use is appropriate, and if so, address arrangements for rapid mobilisation, application, and monitoring of dispersant operations.