



Designation: F 1209 – 89 (Reapproved 2007)

Standard Guide for Ecological Considerations for the Use of Oilspill Dispersants in Freshwater and Other Inland Environments, Ponds and Sloughs¹

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1. Scope

1.1 This guide covers the use of oilspill dispersants to assist in the control of oil spills. The guide is written with the goal of minimizing the environmental impacts of oil spills; this goal is the basis on which the recommendations are made. Aesthetic and socio-economic factors are not considered, although these and other factors are often important in spill response.

1.2 Spill responders have available several means to control or clean-up spilled oil. In this guide, the use of dispersants is given equal consideration with other spill countermeasures. It is not considered as a “last resort” after all other methods have failed.

1.3 This is a general guide only. It assumes the oil to be dispersible and the dispersant to be effective, available, applied correctly, and in compliance with relevant government regulations. In the assessment of environmental sensitivity, it is assumed that the dispersant is nonpersistent in the natural environment. Oil, as used in this guide, includes crude oils and refined petroleum products. Differences between individual dispersants or between different oil products are not considered.

1.4 The guide is organized by habitat type, for example, small ponds and lakes, rivers and streams, and land. It considers the use of dispersants primarily to protect habitats from impact (or to minimize impacts) and to clean them after a spill takes place.

1.5 This guide applies only to freshwater and other inland environments. It does not consider the direct application of dispersants to subsurface waters.

1.6 In making dispersant use decisions, appropriate government authorities should be consulted as required by law.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ This guide is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.13 on Treatment.

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2. Significance and Use

2.1 This guide is meant to aid local and regional response teams who may use it during spill response planning and spill events.

2.2 This guide should be adapted to site specific circumstance.

3. Environment Covered—Ponds and Sloughs

3.1 Ponds and sloughs are small isolated water bodies that are not part of major water systems. They have a dynamic ecology, and a wide mixture of animal and plant species. In northern regions, these water bodies may freeze to the bottom and do not sustain a wide variety of aquatic species.

3.2 While most of these bodies are naturally occurring and exist throughout the year, some may be man-made. In arid climates, the existence of these bodies may be seasonal.

3.3 The characteristics of these water bodies are:

3.3.1 Open water area of less than 10 hectares,

3.3.2 Shallow water with a maximum depth of 1 to 1.5 m,

3.3.3 Soft bottom with a high organic content,

3.3.4 May have alkaline or acidic water,

3.3.5 No well defined inlet or outlet, and

3.3.6 Poorly defined shoreline consisting of floating mats of vegetation.

4. Background

4.1 The effects of oil and dispersed oil on these aquatic environments have been the subject of numerous studies. The studies have involved both intentional experimental spills and studies undertaken during actual spill situations **(1-5)**.²

4.2 There have been a number of studies on the impact of oil and oil/dispersant mixtures on microbiological systems **(6-15)**.

4.3 The principal biotic components of such water bodies are a variety of fauna and flora. The aquatic flora include bacteria, algae, (planktonic and attached), and floating or submerged vascular plants. Terrestrial flora include grasses, moss, lichens, herbs, forbs, and woody plants.

4.4 The fauna include invertebrates, (zooplankton, molluscs, crustaceans, worms, and other similar species), fish, a

² The boldface numbers in parentheses refer to the list of references at the end of this guide.