



Standard Guide for Estimating Oil Spill Recovery System Effectiveness¹

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1. Scope

1.1 This guide covers the key factors to consider in estimating the effectiveness of containment and recovery systems that may be used to assist in the control of oil spills on water.

1.2 The purpose of this guide is to provide the user with information on assessing the effective use of spill-cleanup equipment. It is intended for use by those involved in planning for and responding to oil spills.

1.3 Sections of this guide describe calculation procedures for estimating recovery system effectiveness. It should be understood that any such calculations cannot be expected to predict system performance, but are intended to provide a common basis for comparing system performance.

1.4 One of the main reasons that the calculation procedures cannot be used to predict system performance is that the analysis is sensitive to assumptions made on the properties of the oil slick, and particularly the changes in slick thickness and emulsification. It is emphasized that the purpose of this guide is not to provide a standard method for estimating slick property changes, but rather to provide a standard guide for using that information in comparing system performance.

2. Referenced Documents

2.1 ASTM Standards:

F 625 Practice for Classifying Water Bodies for Spill Control Systems²

F 631 Guide for Collecting Skimmer Performance Data in Controlled Environments²

F 808 Guide for Collecting Skimmer Performance Data in Uncontrolled Environments³

F 1523 Guide for Selection of Booms in Accordance with Water Body Classifications²

3. Terminology

3.1 Definitions:

3.1.1 *advancing skimmer, n*—a skimmer that is designed to be used to sweep out the spill area.

3.1.2 *Discussion*—The skimmer may be independent or may be attached to containment boom to increase sweep width. In some cases, the skimmer may not be attached to the boom but is positioned in the pocket of the boom for skimming. As long as the skimmer operates while moving, it is considered to be an advancing skimmer. Some skimmers are used in both an advancing and stationary mode. These are classified according to their application.

3.1.3 *contained spills, n*—a spill that is restricted from spreading by containment boom or natural means.

3.1.4 *oil slick encounter rate, n*—the volume of oil slick per unit time actively encountered by the oil spill recovery system, and therefore available for containment and recovery (m^3/h).

3.1.5 *oil spill recovery system, n*—a combination of devices that operate together to recover spilled oil; the system would include some or all of the following components: (1) containment boom, (2) skimmer, (3) support vessels to deploy and operate the boom and skimmer, (4) discharge/transfer pumps, (5) oil/water separator, (6) temporary storage devices, and (7) shore based storage/disposal.

3.1.6 *recovery system effectiveness, n*—the volume of oil that is removed from the environment by a given recovery system in a given recovery period.

3.1.7 *recovery period, n*—the time available for recovery systems to carry out cleanup operations.

3.1.8 *response time, n*—the time interval between the spill incident and the start of cleanup operations.

3.1.9 *stationary skimmer, n*—a skimmer that is intended to be used in a fixed location and is moved to new accumulations of oil as skimming progresses.

3.1.10 *Discussion*—Some stationary skimmers are used in a containment boom system that moves to collect oil, then pauses to permit the skimmer to recover the oil collected. Even though this system moves periodically, the skimmer is still ranked as a stationary skimmer because it operates when the system is at rest.

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² *Annual Book of ASTM Standards*, Vol 11.04.

³ Discontinued; See 1998 *Annual Book of ASTM Standards*, Vol 11.04.