**Designation: ~~F2067 – 07~~ F2067 – 13**

# Standard Practice for Development and Use of Oil-Spill Trajectory Models[1]

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## 1. Scope

1.1 This practice describes the features and processes that should be included in an oil-spill trajectory and fate model.

1.2 This practice applies only to oil-spill models and does not consider the broader need for models in other fields. This practice considers only computer-based models, and not physical modeling of oil-spill processes.

1.3 This practice is applicable to all types of oil in oceans, lakes, and rivers under a variety of environmental and geographical conditions.

1.4 This practice ~~does not address issues of computer operation. It is assumed that the user of this practice is familiar with the use of a computer and its operating systems.~~applies to two-dimensional models. There are three-dimensional models in the marketplace.

1.5 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

## 2. Terminology

2.1 *Definitions:*

2.1.1 *trajectory model*—a computer-based program that predicts the motion and fate of oil on water as a function of time. ~~Input parameters include oil properties, weather, and oceanographic information. There are four different modes: forecast, hind cast, stochastic, and receptor.~~



[1] This practice is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.16 on Surveillance and Tracking.

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2.1.1.1 *Discussion*—

Input parameters include oil properties, weather, and oceanographic information. There are four different modes: forecast, hindcast, stochastic, and receptor.

2.1.2 *contingency planning*—planning of several types to prepare for oil spills.

2.1.2.1 *Discussion*—

This planning can include modeling such as described in this guide, to predict where oil spills might go and what the fate and properties of that oil would be.

## 3. Significance and Use

3.1 ~~During an oil-spill response, trajectory~~ Trajectory models are used to predict the future movement and fate of oil (forecast ~~mode).~~ mode) in contingency planning, in exercises and during real spill events. This information is used for planning purposes to position equipment and response personnel in order to optimize a spill response. Oil-spill trajectory models are used in the development of scenarios for training and exercises. The use of models allows the scenario designer to develop incidents and situations in a realistic manner.

3.2 Oil-spill trajectory models can be used in a statistical manner (stochastic mode) to identify the areas that may be impacted by oil spills.