202 Trajectory Analysis

202.1 Introduction

The OSPR regulations require that tankers and barges conduct trajectory analyses for the significant hazards identified in the Navigational Hazards Analysis (Section 201). All marine facilities are also required to conduct a trajectory analysis. The results of these trajectory analyses are used to determine the environmental consequences of an oil spill. The regulations state that trajectories be predicted as the basis for determining those areas and shoreline types for which resource strategies must be developed. According to the regulations, a trajectory analysis shall

- apply to the reasonable worst-case oil spill volume;
- determine the potential direction, rate of flow, and time of travel of the reasonable worst-case oil spill;
- determine the outer perimeter of a spill;
- be based on regional extremes of climate, tides, currents, and wind;
- consider seasonal differences; and
- assume pessimistic water and air dispersion and other adverse environmental conditions.

This section describes the trajectory analysis performed for Clean Bay. Spill envelopes were developed that defined the potential limit of a spill under regional extremes of a variety of meteorological and oceanographic conditions. For purposes of this document, a spill envelope encompasses a segment of coastline over which spilled oil may impact the coast over time based on these extreme environmental conditions, and the chemical and mechanical properties of the substance spilled.

It should be noted that the spill envelopes presented here do not represent the trajectory of any one oil spill. In fact, no single spill could possibly impact the coastline over the entire spill envelope, since the envelopes were calculated by considering the entire range of possible spill trajectories. A single spill could not simultaneously move along all of the trajectories used to develop the spill envelope.