Chapter 1

Introduction

1.1 Purpose

The purpose of this directory is to provide an in-depth compilation and description of atmospheric transport and dispersion models that are available to those with consequence assessment responsibilities. These responsibilities include, but are not limited to:

- Consequence assessment response (or drills and exercises) to real-time radiological, chemical, or biological weapon emergencies;
- Development of assessments to support the preparation of Safety Analysis Reports (SAR), Basis for Interim Operations (BIO), and Justification for Continuing Operations (JCO) authorization basis documentation;
- Development of assessments to support the requirements of the National Environmental Policy Act (NEPA) [e.g., Environmental Impact Statements (EIS's), Environmental Assessments (EA's)]; and,
- Analytical evaluations to support the development of Hazard Assessments and Risk Management Evaluations.

Additionally, this directory is intended to improve interagency coordination and thereby help reduce or eliminate redundancy in future developments.

1.2 Scope

This directory represents an updated version of two earlier directories. One published by the Office of the Federal Coordinator (OFCM) in 1993 entitled, "Directory of Atmospheric Transport and Diffusion Models, Equipment, and Projects" (FCM-I3-1993) and another published by the Department of Energy's (DOE) Subcommittee on Consequence Assessments and Protective Actions (SCAPA). This later directory was published in 1995 and is entitled, "Atmospheric Dispersion Modeling Resources".

Besides updating the previous directories, this new directory is more comprehensive than its predecessors. The scope was broadened to include all types of consequence assessments models. Therefore, models which evaluate consequences from fires, explosions, detonations, and deflagrations as well as models addressing impacts from biological and chemical threats are included. Additionally, based on the efforts of a DOE project entitled, Accident Phenomenology and Consequences (APAC) Methodology Evaluation, the scope of the questionnaires was modified to include a larger number of modeling elements, surety criteria (e.g., verification & validation, quality

assurance) along with other considerations. Because response to the call for information was incomplete, the APAC Methodology Evaluation provided information which was used to complete surrogate questionnaires on 39 models contained in this directory.