

PREDECISIONAL DRAFT

Protocol Topic: Transportation Planning

I. Introduction

This protocol addresses the transportation planning related activities that take place after the need for the movement of radioactive material has been identified but prior to actual transportation operations. DOE programs identify their need to move radioactive materials and, when appropriate, assure that the proposed shipments are adequately considered under the National Environmental Policy Act (NEPA). Opportunities exist for stakeholder input concerning transportation planning as part of the NEPA process. Where appropriate, other opportunities for stakeholder involvement in transportation planning activities are provided through outreach activities conducted by the DOE programs responsible for the materials to be transported. In addition, DOE programs obtain input on their transportation activities from a broad range of stakeholder organizations through the Transportation External Coordination Working Group (TECWG) and other group interactions.

DOE recognizes that stakeholders need planning information to carry out their responsibilities. The Projected Shipment Planning Information (PSPI) Protocol provides the framework that will stimulate a continuing dialogue between DOE programs and interested stakeholders. Under the PSPI Protocol, the nature of this dialogue is determined by the responsible DOE office, in consultation with its state and tribal stakeholders. Details on some shipments may be covered in transportation plans, as defined below.

Transportation planning must conform to applicable requirements and constraints contained in regulations (e.g., DOT and NRC), statutes (e.g., the WIPP Land Withdrawal Act, the Nuclear Waste Policy Act, as Amended), programmatic or project-specific records of decision, memoranda of understanding, and other sources.

Transportation planning activities include: characterization of the material for transportation purposes, identification of the applicable regulatory and programmatic requirements, selection and procurement of appropriate packagings, and evaluation and selection of modes and carriers to be used. The objective of transportation planning is to arrange for safe, secure, timely and cost-effective movement of the radioactive materials.

This protocol is to be used in conjunction with related protocols, including Emergency Planning and Projected Shipment Planning Information. Transportation operations are addressed in other protocol areas such as Routing, Security, Transportation Operational Contingencies, Carrier/Driver Requirements, Tracking, Inspections, and Safe Parking.

II. Transportation Planning

A. Material Characterization

Characterization and classification of the material to be shipped is a key step in planning shipments of radioactive material. Proper classification is necessary to ensure that the material is shipped safely and in compliance with appropriate regulations and that the material is compatible with the packaging type selected for shipment. DOE must properly classify and describe the material in accordance with DOT requirements and in sufficient detail to permit identification of appropriate packaging. Material characterization is performed by DOE or contractor technical staff who possess detailed knowledge of the material and who have been properly trained on the DOT regulations pertaining to classification.

B. Identification of Requirements

DOE identifies the need to ship, the materials to be shipped, the origin of the shipments, the destination of the shipments, the schedule on which shipments should be made, and other programmatic needs. DOE also identifies the applicable regulatory requirements based on the characterization of the material to be shipped. Stakeholders are involved through the NEPA process and/or through discussions for shipments identified in the Projected Shipment Planning Information Protocol.

C. Package Selection

Based on the material characteristics, the type of packaging required can be determined. Packaging selection depends on the DOT material classification and the chemical and physical characteristics of the material. It is the responsibility of the shipper to identify the proper packaging and to take the steps to ensure that the packages are available when needed for shipment to meet programmatic requirements. Package selection is performed by technical staff who have been properly trained on the DOT and/or international packaging regulations.

D. Mode and Carrier Selection

Shipments are typically planned using the mode of transportation, or individual carriers within the mode, that can provide the required service at the lowest overall delivered cost to the Government. However, in some cases, other factors may be considered for specific material types, as identified below. As noted in the Carrier/Driver Requirements Protocol, only motor carriers with satisfactory Department of Transportation (DOT) ratings will be used for DOE shipments of radioactive materials. Furthermore, DOE maintains a Motor Carrier Evaluation Program (MCEP) to evaluate the fitness of carriers to ship truckload quantities of radioactive material. Preferential treatment, normally, shall not be accorded to any mode of transportation (motor, rail, air, water) or to any particular carrier when arranging for transportation services. However, where for valid reasons, a particular mode of transportation or a particular

carrier within that mode must be used to meet specific program requirements and/or limitations, only that mode or carrier shall be considered. Examples of valid reasons for considering only a particular mode or carrier are:

- (1) Where only a certain mode of transportation or individual carrier is able to provide the needed service or is able to meet the required delivery date; and
- (2) Where the shipping or receiving facilities preclude or are not conducive to service by all modes of transportation.

The following factors are considered in determining whether a carrier or mode of transportation can meet DOE's transportation service requirements for each individual shipment:

- (1) Availability and suitability of carrier equipment for the weight and size of the cargo;
- (2) Carrier terminal facilities at origin and destination;
- (3) Pickup and delivery service, if required;
- (4) Availability of required or accessorial and special services, if needed;
- (5) Estimated time in transit;
- (6) Record of past performance of the carrier; and
- (7) Availability and suitability of transit privileges.

1. Spent Nuclear Fuel and High-Level Waste

The DOT study "Identification of Factors for Selecting Modes and Routes for Shipping High-Level Radioactive Waste and Spent Nuclear Fuel" concluded that:

- The transport casks used for spent fuel and high-level waste are designed to the most stringent packaging standards. The cask design reduces much of the risk associated with the transport of the material.
- Radiation exposure risk associated with both incident-free and potential accident conditions are both very low.
- A shipping campaign using larger capacity rail/barge casks, where practicable, can reduce the number of trips needed and consequently may result in lower overall risk.
- Shipment duration is the most significant safety factor.
- As a general rule, highway offers the fastest movement among the three modes (highway, rail, and water) and waterway is the slowest.

DOE will consider these DOT study conclusions in its mode selection deliberations. Shippers and carriers should consult with states, tribes and interested parties, in accordance with the Projected Shipment Planning Information Protocol, to ensure that the ultimate choice reflects also the detailed knowledge and particular concerns of those parties.

2. Spent Nuclear Fuel Shipped Under the Nuclear Waste Policy Act, as Amended (NWPAA)

For spent nuclear fuel shipped under the Nuclear Waste Policy Act, as Amended (NWPAA), maximum use of special rail service shall be used wherever reasonably possible. All mode recommendations of the transportation services contractor must be approved by the DOE Office of Civilian Radioactive Waste Management.

E. Transportation Plans

General information regarding projected shipments is shared with state and tribal authorities in accordance with the Projected Shipment Planning Information Protocol. This information will help stimulate a continuing dialogue between DOE programs and affected stakeholders. The specific information to be provided and the timing of it will be determined by the responsible DOE office, in consultation with state and tribal authorities.

1. Unclassified Spent Fuel, High-Level Waste, Tritium-Bearing Reactor Components, and Transuranic Waste Shipments to WIPP

Transportation Plans will be developed by the cognizant DOE Program Office in consultation and coordination with stakeholder and carrier representatives. The level and extent of this consultation and coordination will be determined by the cognizant DOE Program Office in consultation with its stakeholders and carriers. DOE will provide, for comment, the Transportation Plans to those states and tribes through whose jurisdictions the shipments are expected to be transported.

The plans would describe the operational strategy and delineate the steps which will be implemented to ensure compliance with applicable regulatory and DOE requirements, including DOE's Transportation Protocols. Specific contents of Transportation Plans should be determined by the Program Office, but in general would include information such as:

- organizational roles and responsibilities,
- material to be shipped,
- projected shipping window*,
- estimated number of shipments,
- mode of transport and carriers to be used,
- packages to be used,
- preferred and/or alternative routes,
- plans for prenotifications,

- safe parking arrangements* ,
- tracking systems,
- emergency plans,
- security arrangements* , and
- public information plans.

(*Security needs may require that detailed information be subject to restricted access.)