DOE TRANSPORTATION PROTOCOLS – AN UPDATE

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ABSTRACT

The Department of Energy's (DOE) Senior Executive Transportation Forum has undertaken an initiative to develop a set of DOE-wide transportation protocols that describe the Department's standard approaches for activities regarding shipments of radioactive materials and waste. Protocols covering 14 different topics have been developed with input from the Transportation External Coordination Group and other stakeholders. External and internal reviews of the protocols have been conducted. The Forum considered several different means for implementing the protocols within the DOE complex. This paper describes a proposed implementation option and summarizes the practices required by the protocols. A summary of key issues raised by stakeholders is also presented.

PROTOCOL DEVELOPMENT

The Secretary of Energy established the Senior Executive Transportation Forum in January 1998 to coordinate the efforts of Departmental elements involved in the transportation of radioactive materials and waste. The Forum undertook the development of a set of DOE-wide transportation protocols to formalize the Department's standard practices for shipping radioactive materials and waste. Draft protocols were developed by a Protocol Writing Group with broad representation from DOE headquarters and field office organizations. Drafts were then presented to a Steering Committee, composed of members of the Forum. Following approval of the Steering Committee, drafts were circulated for internal DOE review and then shared with stakeholders for review and comment. Stakeholder review was done primarily through interactions with a Protocol Topic Group of the Transportation External Coordination Working Group, an existing forum for information exchange with stakeholders interested in DOE transportation activities. After considering the internal and external comments, a revised set of protocols was developed and compiled into a protocol document. Further details on the development process can be found in reference (1).

The protocols are intended to provide the framework for DOE program managers to use in planning and execution of transportation activities involving off-site shipments of radioactive materials or waste. The protocols are to be implemented by the appropriately identified DOE office or by contractors or carriers acting on behalf of the Department. The protocols are not intended to impose requirements on state, tribal, or local authorities or on shippers other than the DOE and its contractors.

IMPLEMENTATION OPTIONS

Several options are being considered for implementing the protocols within the DOE complex. One option is to issue them as a manual or guide referenced by DOE Order 460.2, "Departmental Materials Transportation and Packaging Management." A corresponding contractor requirements document would require DOE contractors to appropriately carry out their responsibilities to follow the practices in the protocols. Specifics of the implementation process are still under consideration.

SUMMARY OF PROTOCOL REQUIREMENTS

The protocol document captures current and planned practices of the Department. It recognizes the existing set of regulatory requirements that provide for safe transportation of radioactive materials and waste. The following topics are covered by the protocols: Transportation Planning, Emergency Planning, Projected Shipment Planning Information, Routing, Security, Carrier / Driver Requirements, Shipment Prenotification, Transportation Operational Contingencies, Tracking, Inspections, Safe Parking, Emergency Notification, Emergency Response, and Recovery & Cleanup. To the extent practicable, these protocols include standardized approaches within material types, recognizing the differing regulatory requirements. The following is a brief summary of selected practices outlined in the protocols.

Transportation Planning

For non-classified spent fuel, high-level waste, tritium-bearing reactor components, and transuranic waste shipments to the Waste Isolation Pilot Plant (WIPP), the cognizant DOE Program Office in consultation with state, tribal, and carrier representatives will develop transportation plans. DOE will provide, for comment, the transportation plans to those states and tribes through whose jurisdictions the shipments are expected to be transported.

Emergency Planning

The protocol outlines DOE's emergency planning activities and the role of DOE's Transportation Emergency Preparedness Program (TEPP) Regional Coordinators. They will: provide planning information and assistance to state and tribal contacts within their region, provide TEPP planning tools to state and tribal authorities, coordinate with site transportation programs, coordinate information with TEPP coordinators in other regions, and develop emergency plans for shipping campaigns.

Projected Shipment Planning Information

DOE programs/shippers should establish an ongoing dialogue with state and tribal agencies that demonstrate an ongoing interest in shipments traveling through their jurisdictions. Summary information will be provided for shipping of the following materials: spent nuclear fuel, high level waste, high-volume shipments of low-level and mixed low-level waste, transuranic waste, and tritium-bearing reactor components. In consultation with state and tribal authorities, the responsible DOE office will determine

the most appropriate method for providing and updating the information. Programs may use the Prospective Shipments Module for spent fuel, highway route-controlled quantity and other campaigns.

Routing

Highway carriers will select routes in accordance with DOT regulations in 49 CFR 397.101. States and tribes may designate highway routes in accordance with the DOT regulations. For shipments to WIPP, DOE negotiates routes with states and tribes on behalf of the carrier. For rail shipments, DOE or the designated DOE shipper specifies carriers and interchange points between carriers

Security

Security of the material will be provided through compliance with NRC regulations in 10 CFR 73, equivalent DOE requirements, or DOT requirements, depending on the ownership of the radioactive material, type and quantity of radioactive material, and whether the transport activity falls under NRC license. Armed federal agents accompany each classified Office of Transportation Safeguards shipment. Armed, specially trained active duty navy personnel escort naval spent fuel shipments.

Carrier / Driver Requirements

Only motor carriers with "Satisfactory" Department of Transportation (DOT) ratings will be used for DOE shipments of radioactive materials. DOE maintains a Motor Carrier Evaluation Program (MCEP) to evaluate the fitness of carriers to ship truckload quantities of radioactive material. In addition to the regulatory-required training, drivers transporting spent nuclear fuel are required to be knowledgeable in the Commercial Vehicle Safety Alliance Enhanced (Level VI) Standard Inspection Procedures, in particular, Part I - Driver Inspection Standards. The WIPP transportation plan includes specific requirements for driver qualifications, driver performance requirements, driver training, carrier requirements, inspection requirements, and vehicle maintenance requirements. Rail carriers must comply with Federal Railroad Administration (FRA) regulations.

Shipment Prenotification

This protocol addresses near-term notification activities for specific pending DOE shipments of radioactive materials. DOE, its contractors, or carriers will provide advance notification of non-classified shipments of spent fuel and high-level waste in accordance with NRC requirements or equivalent DOE requirements. The following notifications will be made for transuranic waste shipments to WIPP: annual projection of shipments by January 31, six month update of the annual projection by July 31, 14-day notification prior to the first five WIPP shipments for each corridor, eight-week rolling projections via the Transportation Tracking and Communications System (TRANSCOM), and notification 2-hours prior to entry into each state provided by telephone from the WIPP Central Monitoring Room.

Transportation Operational Contingencies

Transportation operational contingencies refers to actions taken in response to adverse weather, vehicle breakdown, travel and road/rail conditions and unanticipated delays. Before dispatching highway shipments of spent fuel, high-level waste, tritium-bearing reactor components, and transuranic waste shipments to WIPP, the shipper and the carrier must agree that travel conditions are considered to be acceptable. Shipments should not be dispatched or travel if there are severe weather or bad road conditions that make travel hazardous, or if the forecast predicts severe weather or bad road conditions that would affect the safety of the shipment. Rail carriers make informed decisions to avoid or minimize potential weather-related or track condition risks.

Tracking

Near real-time position tracking (updated every 3-5 minutes) and communications for shipments of non-classified spent fuel, high-level waste, tritium-bearing reactor components and transuranic waste shipments to WIPP will be provided by TRANSCOM. TRANSCOM access is limited to users authorized by the cognizant DOE Program Office and in coordination with the National Transportation Program. Access to information on a particular shipment is controlled by the cognizant DOE program office to provide timely information to affected corridor states and tribes. Classified shipments are tracked by a separate, secure system.

Inspections

For non-classified highway shipments of spent fuel, high-level waste, tritium-bearing reactor components, and transuranic waste shipments to WIPP, inspections will be done prior to departure by certified state inspectors unless other arrangements have been made with the state. Inspections will be conducted in accordance with the Commercial Vehicle Safety Alliance (CVSA) Enhanced (Level VI) North American Standard Inspection Procedures. Shipments enroute may be inspected at the discretion of states and tribes or as required by state-specific regulations.

For rail shipments of spent fuel and high-level waste, equipment and radiological inspections will be performed at the origin facility prior to shipment. These inspections may be performed by federal, state or carrier inspectors and will be conducted to assure compliance with applicable federal and state regulations, Association of American Railroads rules, and industry standards. Rail shipments may be inspected enroute by the Federal Railroad Administration (FRA) and by state agencies through the FRA state participation program.

Safe Parking

For shipments of spent fuel, high-level waste, tritium-bearing reactor components, and transuranic waste shipments to WIPP, selection of safe parking areas will be coordinated with the states and tribes through which the shipments will pass. Carriers should first consider parking at a DOE facility or other Federal facilities, as identified in the applicable transportation plan. States and tribes may also specify facilities to be used, such as weigh stations, state highway service facilities, and National Guard facilities.

For classified national security shipments, the Office of Transportation Safeguards has in effect a safe havens agreement with DOD.

Emergency Notification

This protocol addresses the process DOE uses to notify state and tribal officials, after DOE itself has received notification, of a transportation emergency involving DOE radioactive materials. This protocol does not address the initial notifications made by the carrier or others to local emergency response organizations. When notified of an emergency situation, the DOE shipper will conduct the following notifications in accordance with applicable DOE requirements: to designated state and/or tribal 24-hour points-of-contact (where the event occurs), to the cognizant DOE Regional Coordinating Office, and to appropriate DOE offices. The DOE shipper will also make other applicable notifications in accordance with existing site transportation emergency plans, memoranda of agreement, or campaign specific transportation plans. The DOE-HQ National TEPP Coordinator will maintain a central database that contains the 24-hour emergency points of contact for states and tribes.

Emergency Response

DOE will provide assistance in accordance with federal statutes and regulations to support state, tribal, and local authorities. State, tribal, and local governments have the primary responsibility and authority to respond to and manage emergencies within their jurisdiction.

The DOE shipper will: provide shipment specific emergency information and access to DOE/contractor personnel for technical advice and detailed information as requested by on-scene response personnel, assist in the coordination of DOE resources to provide additional radiological support/technical assistance if requested, coordinate with DOE Headquarters and the cognizant Regional Coordinating Office in the affected region to designate a Federal On-scene Coordinator/Commander and conduct activities if an emergency occurs that warrants a Federal response, and assist in the coordination of DOE resources to provide information to the public regarding the emergency and the response.

Recovery & Cleanup

Carriers have primary responsibility for recovery and cleanup. Carriers will coordinate with state, tribal, and local agencies regarding these activities. DOE will coordinate with carriers, state, tribal, and local authorities to ensure that cleanup is done to an acceptable level. DOE will review truckload carriers' plans for recovery and cleanup or verify that they have a contract with a remediation company as part of the Motor Carrier Evaluation Program (MCEP). For shipments of spent fuel, high-level waste, tritium-bearing reactor components, and transuranic waste shipments to WIPP, DOE will ensure that carriers have specific written procedures for providing recovery and cleanup in the event of an accident or incident.

STAKEHOLDER ISSUES

The writing group received over 500 comments from external stakeholders on preliminary drafts of the protocols. The writing group prepared a response to each comment and revised the draft protocols to incorporate the group's responses to the comments. Many of the comments requested clarification of the draft protocols or offered suggested improvements.

Several issues were reflected in multiple comments on the draft protocols. Comments were made on several topics requesting that practices used for shipments of transuranic waste to WIPP be applied to shipments of other materials and waste. The WIPP practices were developed to fit the specifics of that program and are not necessarily transferable to other programs with other types of packaging and different carrier arrangements. Several comments requested that DOE work more directly with local authorities in planning and response activities. While the protocols acknowledge the important role of local authorities, the protocols note the Department will interface primarily with state officials who will in turn, work with local communities. Some comments requested that there be greater specificity in some of the protocols with less flexibility given to individual programs. However, the protocols recognize the need for specific DOE programs to determine details of implementation, taking into account their specific needs and the views of their affected stakeholders.

CONCLUSION

The efforts to develop the protocols have been significant with large contributions from DOE staff and from stakeholder organizations. The resulting dialogue between DOE and the stakeholders has been beneficial in that areas of common approaches have been identified along with an increased understanding of the programs' needs to apply specific solutions to their problems.

Changes to the protocols will be made in future updates to cover additional modes and materials, as needed, to support shipping programs. The protocols will also be updated periodically to incorporate improvements suggested from lessons learned from their application.

The dialogue that began with this process will continue among all parties – the shippers of radioactive material, the various DOE programs, and the interested stakeholders- local, state, and tribal. The result is a major improvement in understanding and communication on the practices used to ship the Department's radioactive materials.

REFERENCES

1. C.W. GUIDICE, J.G. CRUICKSHANK , and M.J. CONROY , "DOE TRANSPORTATION PROTOCOLS - A STATUS REPORT", Waste Management 2000.