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Office of Civilian Radioactive Waste Management

Strategic Plan for the Safe Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste to Yucca Mountain:

A Guide to Stakeholder Interactions

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Introduction

Our strategy for development of the Office of Civilian Radioactive Waste Management (OCRWM) transportation program is to collaborate with our stakeholders. The *Strategic Plan for the Safe Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste to Yucca Mountain*, which the Secretary of Energy committed to issue in 2003, lays out the path the Office of Civilian Radioactive Waste Management (OCRWM) will follow in defining and developing the comprehensive transportation system required for the safe and secure shipment of spent nuclear fuel (SNF) and high-level radioactive waste (HLW). Specifically, the Plan presents the Department's strategy and describes the process OCRWM will use to work cooperatively with states, federally recognized tribes, local governments, utilities, the transportation industry, and other interested parties to refine the transportation system as it is developed.

The President and the Congress approved Yucca Mountain, Nevada, in 2002 as the site for the nation's first repository for SNF and HLW. OCRWM plans to begin operating the repository under a license from the Nuclear Regulatory Commission (NRC) in 2010. The repository plans to accept the statutory limit of 70,000 metric tons of SNF and HLW for disposal, removing this material from 129 sites in 39 states. This number is down from 131 sites; two research reactors have been closed and the waste has been shipped to locations already storing radioactive material.

The Department will use its experience in transporting nuclear materials, as well as best practices from domestic and foreign nuclear utility shipments, as the foundation for this plan and the OCRWM transportation system. Over the past 30 years, the Department and industry have safely completed approximately 3,000 shipments of SNF and HLW. There is also extensive worldwide experience with SNF transportation: more than 70,000 metric tons of uranium (MTU) of SNF have been safely shipped in the past 25 years. This is equal to the amount the Department will ship to Yucca Mountain as authorized in the Nuclear Waste Policy Act.

To support repository operations over the next six years, OCRWM will develop a transportation system ready to ship SNF and HLW to the repository from sites throughout the nation. OCRWM is now focusing on designing, siting and constructing the infrastructure required for the transportation system. Accordingly, this is the ideal time to begin more frequent and substantive collaboration with interested parties as the details for implementing this transportation system are developed.

Transportation Program Mission and Goals

The mission of OCRWM is to manage and dispose of SNF and HLW in a manner that protects public health, safety, and the environment; enhances national and energy security; and merits public confidence. The OCRWM Office of National Transportation will work

with interested parties in a collaborative process to build a transportation system that supports the OCRWM mission and effectively addresses the concerns of its stakeholders. OCRWM's Office of National Transportation is responsible for designing and developing a safe and efficient transportation system with the capability to support waste acceptance in 2010. The Department's mission to develop a safe, secure and efficient transportation system will be guided by three principles:

- We will conduct a thorough, open and collaborative planning process with interested parties
- We will develop a safe and secure transportation system and related infrastructure that is based on that planning
- We will complete transportation system validation in time to begin operations in 2010.

Over the years, the Department has received considerable input from stakeholders. That history provides an excellent basis for the current work needed to accomplish our mission and achieve our goals.

Collaborative Transportation Planning Process

The Nuclear Waste Policy Act established a stepwise approach for making decisions related to the approval, licensing, operation, and eventual closure of the repository. OCRWM is taking a similar stepwise approach to transportation planning. Now, approximately six years prior to the planned date when shipments would begin, this Strategic Plan will serve as a guide to interaction with interested parties as transportation decisions are made. The Department will work with interested parties, through a collaborative planning process, before developing specific policies and procedures and making transportation decisions.

The transportation planning process is designed to meet our goals and address stakeholder concerns as we develop the transportation system. Assumptions and preliminary operational activities will be subject to change as circumstances dictate. The Department's past experience operating the transportation system for the Waste Isolation Pilot Plant (WIPP), conducting foreign fuel shipments, managing the Naval Reactors program, and other transportation programs has proven that interaction with interested parties is critical to mission success. OCRWM will approach its transportation planning cooperatively, using a collaborative process that incorporates the successful elements from transportation systems developed for other DOE programs.

Many of the parties that OCRWM will work with already participate in transportation planning efforts with the Department. Others will be added as the OCRWM transportation program moves forward. The extent and method of OCRWM's interactions with interested parties will be tailored to their needs and the decisions occurring at each stage of the program. OCRWM will use several processes for interaction such as direct discussions,

information exchanges, and *ad hoc* forums, depending on the particular interest and the topics involved.

Issues Considered

The Department's prior work in addressing and resolving transportation issues will provide a starting point for discussions with various groups. A number of transportation topics have already been identified, and OCRWM will address these according to the general interests and responsibilities of the involved groups. All parties, however, will have an opportunity to be informed and to comment on all facets of the transportation planning process. The topics listed below are an initial list for discussion; they are not meant to be all-inclusive. It is anticipated that new topics will arise over time as planning proceeds.

- Selection of transportation routes and modes
- Emergency response planning and training
- Safeguards and security
- Operational practices
- Communications and information access
- Waste packaging for transportation
- Worker protection, training, training standards, and qualifications

Involved Entities

The following four groups each have distinct responsibilities and obligations or areas of interest. The Department emphasizes cooperation with states and tribes in developing the transportation system because they have the primary responsibility for the safety of their citizens.

- States (represented through regional groups) and the local jurisdictions in the States, and federally recognized Tribes
- Stakeholder groups including groups with special interests, rate payers, labor organizations, and nonprofit organizations
- Transportation service providers and cask vendors
- Nuclear utilities generating and storing SNF for eventual disposal

There will also be regular involvement, as appropriate, with other federal entities such as the Nuclear Regulatory Commission, Department of Transportation, Department of Labor, and the Nuclear Waste Technical Review Board.

Interactions with States and Tribes

State and tribal governments have primary responsibility for the health and welfare of their citizens and the environment. In that role, they are key to assisting OCRWM with determining how transportation operations will occur. Beginning in 2004, OCRWM will significantly increase interactions with states and tribes to update and prioritize the list of topics they wish to address.

State regional groups will anchor our collaborative process with the states. These regional groups are the Southern States Energy Board, the Western Interstate Energy Board, and the Midwestern Office and Eastern Regional Conference of the Council of State Governments. The Department already interacts frequently with these groups on other shipping programs and relies on them to provide consolidated state input on various topics and to assist with transportation plans. Demonstrating its continuing commitment to working with these groups, OCRWM in October 2003 reestablished its cooperative agreements with them. Where appropriate, OCRWM will interact with individual States, or its designated State agency, as specific issues of mutual concern arise.

The Department plans to interact with federally recognized tribes on a government-to-government basis. A range of methods may be used to work with tribes, based largely on the needs of the individual tribal governments. OCRWM will consider successful collaborative processes used by other federal agencies and will continue to work with its tribal partners throughout the planning, operational testing, and operations phases of the transportation program.

OCRWM will meet at least twice a year with each of the state regional groups and participate in conference calls or other meetings as needed. State regional groups, organizations representing local appointed and elected officials and tribal officials will also continue to participate in Transportation External Coordination Working Group (TEC) interactions. Beyond their participation in TEC, the Department envisions government-to-government consultation and other interactions with tribal governments. OCRWM will work with potentially impacted Federally recognized tribes to determine an efficient and effective consultation process with the tribal governments. OCRWM will work with states and tribes to develop schedules and approaches to address the topics identified through these discussions.

Discussions between OCRWM and states and tribes on topics of concern will be purposeful and outcome-oriented, leading to decisions necessary to implement an effective transportation system in accordance with all applicable laws and regulations. As a starting point, OCRWM will raise the following topics for discussion; we expect that states and tribes will raise additional topics.

- **Selection of Transportation Routes.** OCRWM will work collaboratively with state regional groups and tribal governments to identify transportation routes. This will include providing assistance, as requested, to state and tribal governments in identifying routes, consistent with federal procedural and substantive requirements set forth in 49 CFR 397.103, including minimization of radiological risk. States and tribes also must consult with contiguous jurisdictions that may be affected to ensure consideration of all impacts and continuity of designated routes.

- **Emergency Response Planning and Training.** OCRWM will work with states and tribes to evaluate current preparedness for safe routine transportation as well as emergency response capabilities, and will provide funding, as appropriate, to ensure that state, tribal and local public safety officials are adequately trained. Additionally, OCRWM will work with states and tribes to refine the approach for implementing Section 180 (c) of the Nuclear Waste Policy Act and to coordinate and integrate Section 180 (c) activities with existing training programs designed for state, tribal and local emergency responders.

- **Shipment Security.** OCRWM will work with state regional groups and tribes in developing approaches to securing the shipments. This effort will address escort and inspection activities as well as new security requirements for shippers and carriers issued since September 2001. Our collaboration will include the Department of Homeland Security and other federal agencies with security requirements.

- **Operational Practices.** OCRWM will review operational practices as documented in the Radioactive Material Transportation Practices Manual 460.2-1 with state regional groups and tribes and update the Manual if needed. Additionally, OCRWM will work with States, tribes, other federal agencies, and industry to identify enhancements to its existing unclassified tracking satellite system called TRANSCOM, so that the most current generation of tracking systems appropriate to a particular mode is available for shipments to the repository.

- **Communications and Information Access.** OCRWM is committed to providing timely, accurate, and complete information about its transportation system and will do so by implementing a communications process with states, tribes, local governments, industry, and other parties participating in transportation planning. OCRWM will work with these parties to develop appropriate materials and to identify optimum distribution mechanisms.

Beginning in 2006, interactions with state regional groups and tribes will shift focus from topic identification and resolution to training and operational readiness. States and Tribes will be involved in reviewing transportation campaign plans, conducting emergency and communications exercises with local officials, reviewing associated public information programs along routes and participating in readiness reviews. These activities will require States and tribes to coordinate closely with local public safety officials.

Interactions with Stakeholder Groups

In addition to state and tribal government officials, OCRWM recognizes that a wide spectrum of stakeholders, such as groups with special interests, rate payers, labor organizations, and nonprofit organizations are interested in how the transportation system will be developed. While these groups do not share the responsibilities or obligations of state and tribal officials, or the professional responsibilities of industry groups that are directly involved with shipments, they do serve an important role by articulating the views and concerns of their membership and helping guide the program's transportation policy.

OCRWM will participate in topic- or group-specific forums to address particular interests and stakeholder topics. For instance, environmental groups may have specific concerns related to the environment and public health and safety; the transportation industry may have specific concerns related to the transportation infrastructure associated with shipments to the repository; and labor organizations whose members are responsible for emergency response, enforcement and inspection activities, and for transportation may have specific concerns related to their functions. Emergency responders are key to the success of OCRWM planning. These groups include emergency medical technicians, emergency room medical staff, police and fire fighters. The organizations representing these safety officials will have a clear role in reviewing and revising, if needed, funding and training approaches to support emergency preparedness for shipments. These groups already participate in the TEC; these topics could also be addressed through special forums, the results of which will be considered in the development of the transportation system.

Some stakeholders want information that can be easily accessed to have a better understanding of transportation and what OCRWM will do to protect their health and safety. Transportation information is provided, and will continue to be provided and available to the public through a variety of direct and indirect means including DOE sponsored web pages (e.g., OCRWM's homepage is www.ocrwm.doe.gov), mailings, at open meetings, through state and tribal representatives, and other third party providers of information in addition to direct access to OCRWM. The goal of these activities is to provide balanced information to the public and ensure that their concerns about safety are being addressed. Feedback opportunities will be provided so that OCRWM will be able to better address specific topics.

One of the means of interaction with stakeholder groups and the general public will be through an already established, effective forum—TEC, co-chaired by the OCRWM program.

TEC provides a broad-based input and information exchange between OCRWM and all of its members. TEC includes organizations representing federal, state, tribal, and local governments; police, fire, and emergency management organizations; business and industry associations; and professional and technical organizations. Several unions already participate in TEC. The TEC meetings will provide an excellent conduit for information on health and safety and preventing and responding to emergencies.

TEC meetings are usually held semi-annually, and are open to the public. Reports and studies from TEC topic groups, which consist of crosscutting groups of OCRWM stakeholders, can be used by states and tribes to assist them in making important decisions in their areas of responsibility. Additional topic group sessions will be held to focus on key topics of interest to OCRWM and TEC members as the transportation system is developed. Some topics which may be further addressed through TEC include research on best practices and lessons learned from ongoing international and domestic spent fuel shipment campaigns; rail routing criteria and approaches used by industry; and updates to the Transportation Practices Manual previously discussed. TEC members could also review various OCRWM approaches to activities, such as training and emergency management, or communications and information development.

Interactions with the Transportation Industry and Cask Vendors

Several different industries will be involved in the transportation system. Cask vendors design and fabricate shipping containers used to move SNF and HLW. The containers must meet stringent performance standards established by NRC. Transport logistic firms provide a range of services to carry out shipments safely and efficiently. These include the management and organization for shipments, physical protection, and coordination with the transportation carriers. Transportation carriers include specialized trucking companies and railroads that provide transportation services to move hazardous cargo that requires special handing.

Section 137 of the Nuclear Waste Policy Act requires the Department to utilize private industry to the fullest extent possible in each aspect of the transportation system. In order to transport SNF to the repository, OCRWM must acquire transportation casks as well as operational and maintenance services. Private sector industries are currently providing equipment and services to utility customers in the United States and internationally, as well as serving the needs of other programs within the Department. The private sector has a great deal of experience with SNF transportation and appears well positioned to respond to OCRWM's need for transportation equipment and services.

Before beginning the formal procurement process, the Department will interact with private-sector cask suppliers, utilities, logistics providers and others in the transportation industry to solicit information as well as private-sector views on approaches to establishing the necessary system design and cask fleet on a timely and cost-efficient basis. Such interactions would involve workshops, conferences and other appropriate forums. These interactions with the cask supplier industry would be utilized to further develop and define the cask fleet requirements in terms of numbers and types of casks, as well as technical specifications and commercially available approaches for acquiring the necessary casks.

The various types of SNF and HLW that OCRWM will ship to the repository will result in a variety of different cask and transporter requirements. The Office of National Transportation is developing its process for procuring and managing casks and transporters

in consultation with industry professionals. Approaches that minimize schedule and cost risks for procurement of inventory and services will be an important part of this planning process. Our strategies in this area all recognize the long time required to design, certify and procure new casks. Some of the actions the Department will consider include:

- Working closely with the vendor community (through workshops and procurements) to develop proposed suites of casks that could efficiently address all of our transportation needs

- Implementing the cask procurement process in phases, which will allow us to make progress while preserving some flexibility to address uncertainty as long as possible

- Modeling the transportation system to identify cask requirements associated with the needs of our customers (the utilities, research facilities and DOE shipping sites). Incorporating cask utilization information in the model to determine the number of casks required. Updating the model as decisions are made to help guide procurements of casks required for shipments in the first five years of repository operations.

- Establishing a working group of utilities, cask vendors, transportation industry professionals, and other federal agencies, as appropriate, to address specific technical needs and solutions for casks and other infrastructure to be used in the OCRWM transportation system.

OCRWM realizes the need to initiate interactions with cask vendors as soon as possible. Several SNF cask designs are currently certified and could be used for shipments, but some casks that may be needed in 2010 do not yet exist and must be designed and certified. OCRWM's interactions will be focused on how to acquire currently certified cask systems from industry and how to contract with the private sector to develop certified casks and other required transportation equipment that is not available in the current market.

Through its interactions, OCRWM will:

- Define transportation infrastructure and support services needs

- Develop acquisition, operations and management plans

- Identify and mitigate system risks

OCRWM will take advantage of industry knowledge and experience by engaging the industry through industry organizations, conferences, professional associations, working groups, and normal procurement processes. These interactions may include public workshops, industry comments on draft procurement documents, and individual vendor meetings.

Interactions with Nuclear Utilities

Nuclear utilities will play an integral role in the planning and implementation of the transportation system. Transporting waste to the repository will begin at the utilities when they prepare transportation casks for OCRWM-managed shipment. As current owners of the fuel, the utilities have the responsibility of training their personnel appropriately to ensure the safe transfer of the waste to OCRWM, pursuant to NRC regulations. More than 100 reactors at more than 70 sites will be involved in shipments of SNF to the repository. Utilities will provide OCRWM with information on their various operating capabilities, local transportation infrastructure, and fuel condition.

OCRWM is in the process of updating the capability assessment data that was collected in the early 1990s. These data identify the various operating capabilities at the utility sites that are important to determining cask requirements and site servicing equipment needs. Interactions with OCRWM's nuclear utility customers to validate information on site operational and transportation interfaces will start in 2004. The updated site data will be used to develop site-specific and final transportation requirements.

The data on transportation infrastructure in the vicinity of sites, which is needed to develop final transportation plans, will also be updated. Updating will be accomplished through transportation logistics services, and in consultation with the affected utilities. This data provides information concerning the local transportation infrastructure that connects the utility sites with the nearest mainline rail or interstate highway system. Updating this information close to the time of actual shipment assures that the latest information is used for identifying site-specific transportation needs.

To assist our planning, OCRWM will request the utilities provide us with their best available information as to the type and condition of the spent fuel, its storage location, and the capability of the shipping facility. OCRWM will explore mechanisms for soliciting this data with the utilities. After we receive this information, we will discuss opportunities for refining transportation schedules. A similar process will be used with DOE sites in order to integrate DOE and Naval spent fuel shipments into the OCRWM transportation system planning process.

OCRWM believes that opportunities exist to improve the waste acceptance and transportation planning process to allow for more efficient planning, scheduling, and operation of the transportation system. In particular, opportunities exist to refine the scheduling process to allow the final scheduling of spent fuel deliveries at an earlier time than now required, which in turn would allow for more efficient waste allocation and transportation planning. Further, modifications to allow the use of multi-year transportation campaigns instead of annual campaigns may be beneficial to both OCRWM and our utility customers. OCRWM is also open to discussions concerning the acceptance of additional waste forms, such as dual-purpose storage/transportation cask systems that have been certified by the NRC.

Conclusion

Significant transportation experience demonstrates that shipments to the Yucca Mountain repository can be conducted safely and securely. The path toward developing a safe, secure, efficient transportation system for Yucca Mountain will require the participation of many interested parties.

The Department recognizes some of the topics we need to address as we develop the transportation system. Interested parties have previously identified and will continue to identify many other relevant topics. OCRWM welcomes comments on this plan and at any time throughout the planning process. Comments and new topics will be considered and incorporated through ongoing consultations with state, tribal, and local officials, business, industry, and other interested parties. While our emphasis will be on those groups with public health and safety and operational responsibilities, OCRWM will interact with all the interested parties identified in this plan and will provide them with access to information about the transportation system and opportunities to influence its development.