



The Vital Role of States in Transportation Planning

State government agencies play an important role in planning and overseeing shipments of radioactive waste and material. The states have the primary responsibility for assuring the health and safety of the public and the environment within their jurisdictions. In addition, they exercise authority as co-regulators of transportation along with the U.S. Department of Transportation (DOT) and the U.S. Nuclear Regulatory Commission (NRC). Many states have been involved in planning shipments of spent nuclear fuel and transuranic waste conducted by the U.S. Department of Energy (DOE). These shipments have contributed to national nonproliferation objectives as well as environmental cleanup of former defense facilities. The scope of the states' activities will expand if the federal government meets its goal for 2021 of beginning to move spent nuclear fuel from shutdown nuclear power plants to a facility for consolidated storage. This fact sheet explains the role of states in planning and overseeing shipments. All these activities help to reduce the risks associated with transporting radioactive materials.

Pre-shipment Activities

Much of the states' involvement in shipping campaigns takes place long before shipments occur. To prepare for shipments, states need to get resources in place and work with the shipper to plan how, when, and where the shipments will occur. Preparations for shipments include measures to prevent accidents and actions to ensure emergency response capabilities are in place to handle emergencies should an accident occur.

Accident Prevention

Shippers identify routes for highway and rail shipments in consultation with the potentially affected states. DOT provides regulatory guidance to carriers for selecting highway and rail routes. For both modes, safety must be the primary consideration in deciding which routes to use. For truck shipments, shippers consider accident rates, population

exposure, and time in transit when evaluating routes. For shipments by rail, the Federal Railroad Administration (FRA) lists these three factors among a total of 27 factors that rail carriers must consider when conducting annual risk analyses of available routes. When evaluating routes, it is important for shippers and affected states to coordinate with the carriers involved to ensure that selected routes are consistent with the regulatory guidance. It is also important for the states to be involved in route identification because most states require permits for overweight truck shipments—that is, those that weigh more than 80,000 lbs. Because of the weight of a fully loaded cask, shipments of spent nuclear fuel may exceed the legal weight limit. Among other reasons, permits for such shipments are required so that the state can alert the shipper to any possible problems with the route, such as whether the shipment will exceed bridge weights.

Many states designate curfews in major metropolitan areas to avoid having shipments travel during rush-hour traffic. To avoid overburdening the states' public safety personnel, states often request that shipments not travel during holidays or special state events, such as state fairs.

NRC regulations require that shippers of spent nuclear fuel provide notification to the affected states in advance of shipments. The shipper must provide this notification to the states in writing or by other means as long as it arrives at least seven days before the shipment. Ideally, discussions will have been occurring about these shipments long before the formal notifications are made. For spent nuclear fuel shipments from commercial power plants, the notification must include specific information, such as the name, address, and telephone number of the shipper, carrier, and receiver; a list of the routes to be used within the state; and the estimated date and time of entry into the state. If there are changes of six hours or more to the estimated shipment times, the shipper must notify the affected states by telephone. States may share their advance notification with local officials and emergency responders as long as the information is protected in accordance with federal regulations.



Communication may be the most important aspect of any shipping campaign. Communications plans are useful for spelling out exactly how the shipper and the affected states will interact with the public and with the media. For some DOE shipping campaigns, the Department has worked with states to hold public meetings in those locations where interest in the shipments is high. States are also involved in preparing fact sheets and other public information materials in connection with shipping campaigns – sometimes partnering with DOE, at other times developing materials on their own. These public information materials can be very useful in the event a state agency receives inquiries from the media, the public, or elected officials. Some states even choose to disseminate general shipment information prior to the onset of shipments to help people understand the need for shipments, the possible impacts on their communities, and the preparations that the state and DOE have put in place to ensure public safety.

Emergency Preparedness

Preparing to respond to emergencies is a significant part of any radioactive waste shipping campaign. While shipments are conducted in such a way as to prevent accidents from occurring, if an accident does occur, the state and local jurisdictions must be prepared to respond quickly, safely, and effectively. A well-organized and coordinated effort is necessary for a swift and effective response to an accident. Emergency responders along the route have plans and procedures in place to deal with transportation incidents involving shipments of hazardous materials, including radioactive waste. These plans specify notification and response procedures for use in the event of an accident.

DOE's Transportation Emergency Preparedness Program (TEPP) has developed a training program, recognized by the U.S. Department of Homeland Security (DHS), called Modular Emergency Response Radiological Transportation Training (MERRTT). MERRTT has a modular design, consisting of 16 concise, easy-to-understand modules, four textbook exercises, and five hands-on practical exercises. This design allows a jurisdiction to integrate the modules into existing hazardous material training. MERRTT provides fundamental knowledge for responding to transportation incidents involving radioactive material and builds on training in existing hazardous materials curricula. The material is designed to meet the training needs of persons serving in fire service, law enforcement, emergency medical service, emergency management, public works, or on a hazardous materials team.

While it is highly unlikely that a patient would be radiologically contaminated as the result of an accident, training is also available for hospital and emergency medical services personnel. Emergency responders and hospital



Top left and right: State inspectors check radiation readings on shipments of radioactive waste that are getting ready to depart.

Bottom left: Firefighters participate in an exercise to test their knowledge of proper procedures for responding to accidents involving shipments of radioactive waste.



personnel have access to radiation detection equipment and are trained to use this equipment properly in the event of any radiological incident. To give responders an opportunity to practice and demonstrate what their training has taught them, states conduct drills and exercises as an integral part of a good training program.

During Shipments

During shipments, state agencies work with the rest of the transportation planning team to put in place accident prevention measures and to be ready in the event of an emergency. The states and DOE have agreed upon procedures to monitor weather and road conditions so that certain shipments can avoid traveling when hazardous weather is expected. While a shipment is in transit, events can occur that warrant diverting the shipment to a designated safe parking area. Those events could include bad weather, road or rail closures, or potential security situations. In such cases, state security escorts have the authority to direct the shipment to a safe parking location. State agencies generally identify these locations in advance. The shippers include them in their shipping security plan. Occasionally, a state will not pre-identify safe parking locations but instead will rely on the state escort to identify such a location should one be needed. Safe parking areas may not be located near high-population areas; schools, hospitals, or residential areas; or areas of heavy industry where hazardous materials would be present. Suitable locations would include defense facilities, such as army bases, and state-controlled facilities. Many states expressly prohibit the use of public rest areas for safe parking purposes.

Accidents involving shipments can be avoided by having alert, skilled truck drivers and railroad crews who use high quality, well-maintained equipment. DOT sets standards for rail and truck carriers that transport hazardous cargo, including radioactive waste. State departments of transportation have the responsibility for regulating truck carriers and ensuring

that their employees, equipment, and shipping practices are in compliance with federal regulations. States do not exercise the same authority over rail carriers as they do over truck carriers. State agencies and FRA-certified state inspectors may interact with rail carriers, however, during shipment planning and in the event of any accident requiring emergency response.

An important accident prevention measure is identifying and correcting any mechanical defects in the vehicle or train and to ensure that radiation levels are within allowable limits. Prior to departing, each shipment must be inspected at the point of origin to verify compliance with applicable transportation and packaging regulations. States have the right to inspect commercial motor vehicles using standards established by the Commercial Vehicle Safety Alliance (CVSA). Across the nation, improvement in commercial motor vehicle safety is a priority. This is especially important in the transportation of hazardous materials and, in particular, radioactive and nuclear waste. For these shipments, CVSA developed enhanced inspection procedures that are performed not only to assure the mechanical integrity of the vehicle and the driver's skills, knowledge, and capabilities, but to assure the integrity of the packaging for radioactive and nuclear waste.

States have the authority to inspect rail shipments provided they have personnel trained and certified by the FRA for this purpose. The states can perform inspections and provide oversight in six areas: track, operating practices, signal and train control, motive power and equipment, grade crossing, and hazardous materials.

States find it extremely useful to be able to track shipments in near real-time, using DOE's TRANSCOM system. TRANSCOM (Transportation Tracking and Communications) is a web-based system that provides users with access to shipment information, including maps that depict the position of the truck or train. DOE limits access to the system only to those users with a need to know, and users are able to see only the shipments that affect their state or tribe. DOE uses



Above: A state inspector confers with the drivers on the shipping papers for a shipment of transuranic waste that is ready to leave Argonne National Laboratory near Chicago. The waste is destined for the Waste Isolation Pilot Plant in New Mexico.

TRANSCOM to track its shipments of spent nuclear fuel, transuranic waste, high-level radioactive waste, and other shipments that might attract attention from the public.

The security of radioactive waste shipments is of paramount importance to shippers, carriers, and state and federal agencies. Recognizing that deliberate attacks on shipments could present a risk to public health and safety, the NRC regulates the physical protection of spent nuclear fuel in transit. These regulations require shipments to be accompanied by armed escorts. Some states escort all shipments of spent nuclear fuel and transuranic waste that cross their borders. State escorts serve the primary purpose of providing security for shipments, but they can also facilitate communications with other state personnel that may be staffing emergency operations centers or other facilities. In some cases, the escorts also include personnel trained to handle accidents involving radioactive materials. In some situations, DOE provides its own escort for a shipment. Even in these cases, however, the states may choose to provide their own state escorts as well, either because of state law or because of the agencies' desire to more easily monitor a shipment's status.

Resources

Being involved in planning and overseeing shipments requires that state agencies have access to sufficient resources. Some activities are funded through federal agencies such as DHS and the DOT Federal Motor Carrier Safety Administration. For some shipping campaigns, such as the transuranic waste transportation program, DOE is required by statute to provide funds and technical assistance to the states that are affected by shipments. Section 180(c) of the Nuclear Waste Policy Act requires DOE to provide similar assistance to states in preparation for future shipments of spent nuclear fuel and

high-level radioactive waste to a national repository or storage facility, when one becomes available.

Some states charge a fee specifically on shipments of hazardous materials, spent nuclear fuel, transuranic waste, and/or high-level radioactive waste. In most of these states, the fees are deposited into dedicated funds and are used for performing inspections, providing escorts, tracking shipments, training first responders, and other shipment-related activities. In at least one state, the fee is specifically intended to recoup the state's cost of inspecting and escorting the shipment, which is a state requirement. Fees have been an important source of revenue to the states, offsetting their expenses related to preparing for shipments and carrying out operational activities such as escorting. The assessment of fees in connection with radioactive waste shipments is allowed under the federal Hazardous Materials Transportation Uniform Safety Act.

Through the activities described above, the states work hand-in-hand with DOE, tribal governments, carriers, and other federal agencies to reduce and to manage the risks associated with shipping radioactive waste and material. As a result of all these efforts, the safety record for radioactive waste shipments over the past 50 years is exceptional. These efforts will need to continue in full force in order to meet the challenge of future campaigns to transport thousands of shipments of spent nuclear fuel and high-level radioactive waste to facilities for storage and disposal.

For more information on the Midwestern Radioactive Materials Transportation Project, including maps and tables, visit the project's resource web page at <http://bit.ly/MRMTInfo> or scan the qr code with a barcode reader on your smartphone.

