

## The Role of State Governments in the Transportation of Radioactive Waste

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### Abstract

States and Tribes play an important role in planning, emergency preparedness, and emergency response related to shipments of radioactive waste through their states or tribal lands. This paper will focus on the role of state governments in these efforts, as experienced during different types of radioactive shipments.

States in all regions have experience with shipments of Foreign Research Reactor Spent Nuclear Fuel received from other countries by the Department of Energy (DOE). States also have experience with highway route controlled quantity shipments, domestic spent nuclear fuel shipments such as University shipments, transuranic, and low-level radioactive waste shipments. Each type of shipment has different levels of notification, security and planning requirements.

States may be asked by the DOE for input on transportation plans for a specific shipment or a campaign of shipments. Such plans may cover notification timeframes, security escort requirements, and information related to emergency response during an incident. While DOE has emergency response personnel, local emergency responders will likely be first on the scene of any incident, and automatically contact their state level counterparts. The issue of escorts is important to states that often staff their escorts with state highway patrol officers. Federal regulations require armed escorts for spent fuel shipments, requiring coordination between state agencies, federal agencies and any company responsible for transport of the radioactive waste. Low-level radioactive waste shipments may require submission of a form and payment of a fee to states traveled through during shipment.

Planning for WIPP originated in the western states. Collaboration on the details of transuranic radioactive waste transportation is handled through the Western Governors' Association's Waste Isolation Pilot Plant Transportation Technical Advisory Group (TAG). For over twenty years, the TAG and the DOE, through negotiation & cooperation, have developed, refined, and maintained transportation safety protocols and procedures that are detailed in the *WIPP Transportation Safety Program Implementation Guide*.

Through the coordinated efforts of states working through their regional organizations, individual states gain the knowledge and confidence they need to protect their states'

rights prior to and during the transportation of radioactive waste. States also make sure they've performed their due diligence in protecting their constituents during transport of radioactive waste.

## **Role of State Governments in the Transportation of Radioactive Waste**

State governments are responsible for developing and implementing plans to ensure the safety of their citizens, whether the threat is from a flood, terrorist attack or incident involving a radioactive material shipment within their borders. States are interested in making sure that shipments of radioactive material are safe, secure and merit public confidence. States are responsible for ensuring that shipments adhere to federal regulations during the course of the shipment, as the federal regulations were designed to enhance shipment safety. This paper will address many of the ways that states prepare for threats that may arise from an incident involving a radioactive material shipment.

### **Coordination and Planning**

The role that states and tribes play during shipment of radioactive wastes starts well before the shipment departs its origin site. Planning for shipments of spent nuclear fuel or other high-level waste typically begins with review of a transportation plan, which should be provided two years prior to initiation of shipments. For instance, the states involved in shipments to and from the Waste Isolation Pilot Plant (WIPP) review and provide comment on the WIPP Transportation Plan annually. The planning timeframe for radioactive waste shippers besides federal agencies, such as highway route controlled quantity (HRCQ) shipments may be shorter, as these may occur more frequently, but coordination of planning efforts is essential to ensure that all shipments are safe, secure and merit public confidence. The transportation plan is developed by the agency or other entity responsible for the shipment. Shippers have the option of coordinating this review by affected states through one or more of the regional cooperative-agreement groups.

### **Coordination between States and Federal Agencies**

Much of the radioactive waste being shipped is a result of cleanups being conducted at federally owned sites. Some of these sites generate enough waste to require a series of shipments, or a campaign, making shipment planning a bit more complicated. Particularly when a shipment campaign is planned, state and federal agencies need to share information and coordinate planning efforts. A formal transportation plan for states to review and comment on is helpful. Fact sheets can be used to inform local emergency responders, the media and general public about the purpose and benefits of the shipment campaign. The National Transportation Stakeholder's Forum's (NTSF) Communications Workgroup has developed a model fact sheet and crosswalk, to aid in making sure pertinent information is included during development of a campaign fact sheet. States and federal agencies continue coordination during the shipment, sharing tracking mechanisms and coordinating security arrangements. Sometimes after a shipment is complete, states and federal agencies will develop lessons learned for use during future shipping campaigns.

The Midwest Radioactive Materials Transportation Committee, staffed by the Council of State Governments Midwestern Office, publishes a "Planning Guide for Shipments of

Radioactive Material through the Midwestern States” that is available in hard copy and on the internet. The Planning Guide provides state specific shipment information to assist shippers and carriers in planning for radioactive waste shipments. The Planning Guide may be found online at [http://www.csgmidwest.org/MRMTP/documents/PlanningGuide2012\\_web.pdf](http://www.csgmidwest.org/MRMTP/documents/PlanningGuide2012_web.pdf).<sup>1</sup>

### Coordination between Regional Groups

Coordination between states is facilitated by the existence of established regional groups. The eastern states meet regularly as the High-Level Radioactive Waste Transportation Task Force, and are assisted by staff from the Council of State Governments Northeast (CSG-NE). Southern states have the Radioactive Materials Transportation Committee, supported by the Southern States Energy Board (SSEB). Midwestern states convene as the Midwestern Radioactive Materials Transportation Committee, staffed by the Council of State Governments (CSG Midwest). States in the west have two organizations, the Western Governors’ Association (WGA) and the Western Interstates Energy Board. These organizations meet separately at least once a year and meet jointly at the NTSF. The NTSF brings together representatives of states, tribes, U.S. Department of Energy programs, other federal agencies and various other participants to share information related to DOE's shipments of radioactive waste, as well as other high-visibility shipments. By meeting in person once annually, members develop relationships in other regions, aiding in communication efforts during transportation planning. The regional groups have for the past four years served as hosts for the NTSF meeting. In between meetings, the regional groups occasionally submit joint comments on proposed regulation or other proposals.

Coordination between states, regional groups, federal agencies and other shippers / carriers provides an opportunity to determine responsibility for items such as communication with the media, local first responders and others well ahead of shipment departure. Early involvement by all parties in coordinating plans for a shipping campaign provides an opportunity for those involved to learn a bit about each other and establish a rapport that will benefit the planning process. Early involvement also allows identification and resolution of issues early in the process. States often require long lead times for any items involving finances, both for revenue and expenses, and for obtaining approvals through the chain of command. Early involvement allows for budgets to be adjusted as needed to accept financial assistance or appropriation authority for expenditures.

Early coordination is especially helpful when new staff are tasked by state agencies to help review a transportation plan. As baby boomers retire in greater and greater numbers, staff turnover and lack of training opportunities may hamper coordination efforts. It takes time for any staff, especially those new to this subject, to familiarize themselves with the pertinent issues. By attending national meetings such as NTSF, staff are able to meet and ask questions of those who have accumulated years of knowledge about transportation of radioactive materials. Lacking structured training in

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<sup>1</sup> Janairo, “Planning Guide for Shipments of Radioactive Material through the Midwestern States”.

this area, attendance at such meetings is the best way for new staff to acquire the knowledge necessary to develop confidence in this subject.

### Resources

The regional groups that help coordinate planning amongst their members and other regions depend heavily on having knowledgeable staff. Even after a shipping campaign has been established and is running smoothly, it is imperative that funding be provided by the U.S. Department of Energy (DOE) and possibly other federal agencies, so that staff can continue to aid in monitoring and supporting safe, uneventful shipments of radioactive materials. State staff usually have multiple duties, of which transportation of radioactive materials is but one responsibility. Regional staff provide the focus and continuity needed, especially when there is a change in state staff, and are a valuable resource for staff who don't know where to turn for information. Without federal agency support, regional staff might not exist, and state staff would be less likely to be able to step into a coordinating role. State budgets don't usually provide for staff to focus on efforts outside their state's boundaries, including travel to national meetings. Particularly since the economic downturn, many state staff have only been allowed to travel to regional and national meetings when federal funding is provided through the regional groups. (In some cases, travel has not even been approved for state staff when federal funding is available.)

Another option for support of transportation of radioactive materials is state fees. A number of states have passed statutes authorizing fees for shipments that cross their borders. The federal authorization for state fees is found in the Hazardous Materials Transportation Uniform Safety Act of 1990, as amended. Fees reimburse states for direct costs associated with radioactive material shipments, such as personnel costs for planning, training, escorting and inspecting shipments. In Missouri, fees are also providing funding for training of emergency responders along interstate routes used for radioactive shipments and to provide modern radiation detection equipment for the responders.

For shipments en route to WIPP, Congress has mandated that DOE provide assistance to the states to support emergency preparedness.<sup>2</sup> Under Section 180(c) of the Nuclear Waste Policy Act, DOE is required to provide similar assistance to states in preparation for transportation of spent nuclear fuel and high-level radioactive waste to a federally owned storage and/or disposal site. To make sure the risks of transporting all shipments of spent nuclear fuel are addressed no matter the destination or shipper, states should receive financial and technical assistance similar to that provided for WIPP shipments if affected by any DOE shipment of spent nuclear fuel.

### Route Selection

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<sup>2</sup> Tammy Ottmer, WIPP Program Manager, Colorado Highway Patrol contributed greatly to this paper by offering overall advice and guidance as well as information specifically regarding the western states and efforts related to WIPP shipments.

It is important that shippers/carriers coordinate with states when selecting routes for radioactive material shipments. States can advise which routes may be closed or delayed due to construction, floods or other disaster. States can also provide advice when more than one interstate route is available, helping shippers/carriers select the least populated (and therefore less risky) route. States can also help identify safe parking areas and advise when to avoid certain routes due to probable congestion and concentration of people at large events.

For shipping campaigns involving spent nuclear fuel, high-level radioactive waste or transuranic waste, the shipper should present their proposed route to the affected states and tribes at least one year prior to commencement of the first shipment. If a state proposes an alternative route that would change the proposed route through one or more other states, both the proposing state and the shipper will consult with the affected state(s) prior to the alternative route being selected. Proposed changes to selected routes must be presented to all potentially affected states in a timely manner for their review and consideration.

State law enforcement personnel have the authority to direct shipments to a different route as need dictates such as to avoid placing the shipment in safe parking. If a route deviation occurs, law enforcement may inform the driver or carrier through direct contact or in the case of WIPP, through the Central Monitoring Room. The state will also be responsible for coordinating with any other state that will be affected by the route deviation. Route deviations have serious implications and should be considered by federal and state parties before implementation in order to ascertain the need for emergency short term or longer more routine use.

For rail routes, if the shipper consults the Federal Railroad Administration regarding route selection, they should also consult with staff of the state rail safety programs in the potential corridor states.

Shippers/carriers will identify routes for both highway and rail shipments in consultation with the potentially affected states. Shippers/carriers should use regulatory guidance for highway route selection in 49 CFR 397 and for rail route selection in 49 CFR 172, with safety as the primary consideration in route selection. Carriers shipping by truck need to consider accident rates, population exposure and time in transit when comparing potential routes. For rail shipments, the U.S. Department of Transportation (DOT) identifies these same three criteria as part of 27 total factors that rail carriers must consider when performing annual risk analyses of available routes (see 49 CFR 172.820 and Appendix D to Part 172). As well, shippers/carriers are responsible for compliance with state laws including fees and routing. No matter which mode is chosen, it is important that shippers, affected states and tribes coordinate to ensure that the selected routes comply with the regulatory guidance.<sup>3</sup>

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<sup>3</sup> Lisa Janairo, "Planning Guide for Shipments of Radioactive Material through the Midwestern States," Council of State Governments Midwestern Office and the Midwestern Radioactive Materials Transportation Committee, CSG Midwest, Revision 5, August 2012.

The state routing agency, as defined in 49 CFR 397.201(c), shall select routes to minimize radiological risk using “Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantity Shipments of Radioactive Materials,” or an equivalent routing analysis which adequately considers overall risk to the public. Designations must be preceded by substantive consultation with affected local jurisdictions and with any other affected States to ensure consideration of all impacts and continuity of designated routes. State routing agencies may designate preferred routes as an alternative to, or in addition to, one or more Interstate System highways, including interstate system bypasses, or Interstate System beltways.

### Key Events and Holidays

The Midwest’s Planning Guide and the *WGA WIPP Program Implementation Guide* provide dates when shipments should not pass through certain areas of a state. These key events and holidays include times when large public gatherings will occur along a radioactive waste transportation route. Major holidays pose problems for state agencies scheduling officers for escort duty, as well as an increase in traffic flow/congestion during major events such as professional sports events, NASCAR and the Indianapolis 500 races, state fairs and some college sports events. Not only are large crowds expected at these events, but law enforcement personnel may be busy providing security for these events, so it is best that shippers avoid these dates during pre-shipment planning.

### Emergency Preparedness

In order to be prepared for any contingency, states need to be involved in emergency preparedness planning. These efforts should include development of transportation plans, possible shipment specific fact sheets, emergency response plans and shipment escorts.

### *Transportation Plan*

States review the plan to make sure it addresses their concerns regarding notifications, en-route tracking, escorts, inspections and emergency response. The transportation plan should include the following elements:

- Purpose and need for the shipment;
- Definition of roles and responsibilities for all parties involved;
- Emergency management plan;
- Communications plan, outlining the approach to be used in providing information to the public and the media – this plan should identify who will notify local media and first responders in the shipment corridor, or at least who is designated to answer questions from the media.
- Shipping mode and carriers to be used;
- Preferred route and alternatives, if any;
- Shipment tracking methods available;
- General outline of security considerations, along with a detailed security plan to be distributed on a “need to know” basis;

- Incident or accident recovery plan, including a list of local first responders and local response contractors;
- NRC or DOE Certificate of Compliance for the shipping container (if applicable);
- List of lead contacts for the shipper, the carrier, corridor states and tribes, including 24/7 phone numbers at the agencies and cell phone numbers; and
- Safe parking areas, should the shipment encounter dangerous weather conditions or other delays.

It should be explained that the term “states” does not necessarily mean one person or one reviewer per state, as several state agencies may be involved with radioactive waste shipments. In Missouri, for example, the Department of Natural Resources serves as shipment coordinator and primary reviewer, with input from other agencies. The Missouri Highway Patrol is responsible for escorts, and coordinates with the Department of Health and Senior Services regarding inspections. The Patrol conducts the safety inspection of truck shipments, while the Department of Health conducts radiological surveys. For rail shipments, the Missouri Department of Transportation has state certified rail inspectors. Emergency planning and response is coordinated between the State Emergency Management Agency, Department of Health and Senior Services and the Department of Natural Resources’ Environmental Emergency Management program.

#### *Emergency Response Plan*

State and local governments have primary responsibility and authority to respond to and manage emergencies within their jurisdictions and to provide incident command. Should an incident occur, emergency responders will check the shipment’s paperwork for contact information for the shipper, so the 24-hour emergency contact should be included. Shippers should ensure that the transportation plan includes adequate emergency management information, including:

- Roles and responsibilities of all potentially involved parties in each state, or on tribal lands;
- Procedures to be used in responding to an incident involving the shipment, with emergency contact pathways and the proper Emergency Response Guides for the material being shipped;
- Emergency contact information for the shipper, carrier(s), states, and tribes (if applicable);
- Resources available from the shipper or carrier and other parties (ex.: Department of Energy) to assist the incident commander during an emergency;
- Plans for the shipper’s recovery and cleanup operations, should they be necessary.

The shipper should ensure that the carrier’s emergency plan and the shipper’s emergency plan are consistent, and both commit to using the incident command system. Corridor states should have an adequate opportunity to review and provide input into both the shipper’s and the carrier’s emergency management plans.

#### *Emergency Notification*



The emergency plan should require the carrier to notify local emergency response authorities in the event of an incident or emergency. If the event meets the reporting criteria outlined below and in 49 CFR 171.15(b) and 49 CFR 390.5, the shipper shall notify the states through their 24-hour emergency numbers within one hour of receipt of the initial notifications if any of these conditions exist:

- A fatality or injury that requires immediate treatment away from the scene of the incident;
- Evacuation of the general public from the incident area of one hour or more;
- Fire, breakage, spills or suspected radioactive contamination;
- Security breach or incident;
- Collision resulting in disabling damage or derailment; or
- Road or facility closure or shut down exceeding one hour.

Should an incident or event not involve one of these problems, it is left to the shipper/carrier to determine whether notification of the states is appropriate. If the event is likely to result in public or media attention to the shipment, then notification of the state emergency contacts by the shipper should occur.

A shipment may be delayed for a number of reasons, including adverse weather, natural disaster, equipment malfunction or road / rail conditions, without meeting the criteria outlined in federal regulation for emergency notification. Should a delay occur for any spent nuclear fuel, high-level radioactive waste or transuranic shipment, notification shall be provided to the 24-hour emergency numbers or through DOE's TRANSCOM system if the delay is expected to be more than two hours.

### *Escorts*

The security of radioactive waste shipments is of utmost importance, in order to ensure that shipments are safe, secure and merit public confidence. Security is a concern shared by the shipper, carrier and state agencies responsible for planning, law enforcement and emergency management. Shippers should communicate with each governor's designee and other authorized personnel regarding security issues, which include escort arrangements, threat assessments, identification of safe parking areas and additional security requirements for shipments in safe parking areas.

When shipping commercial shipments of spent nuclear fuel, shippers must adhere to NRC rules, regulations and orders for physical protection (10 CFR Part 73). These requirements include prior route approval, safeguards provisions (including escorts), and advance notification to the states. In addition, shippers must verify that carriers have met their own responsibilities under federal regulations and guidance. While some states are required by statute to escort all shipments of spent nuclear fuel, high-level radioactive waste, transuranic waste and HRCQ shipments through their state, others may choose whether or not to require escorts depending on current security threats, based on state policy, or to meet the intent of NRC orders.

Shippers/carriers should request the input of state law enforcement officials and the governors' designees under 10 CFR 73.37 regarding security plans for shipments.

Shippers should verify if state law enforcement escorts will be required for their shipment, and if not, consider requesting a state police or other qualified state agency escort for their shipments.

### *Training*

For states to be able to respond to an incident involving a shipment of radioactive material, their personnel must receive training on a regular basis. If not used within six months, information learned through training diminishes in utility. This, plus changes in staff require that training be repeated on a regular basis. DOE provides training through its Transportation Emergency Preparedness Program (TEPP), designed for use by emergency response personnel. DOE can also conduct “Train the Trainer” sessions on the state level, so that training can continue without direct involvement by DOE staff.

### *Exercises*

Training in a classroom is helpful and recommended on a regular basis. TEPP has tabletop exercises for use in training. But the opportunity to see what an incident might look like and how responders should address the situation is much more likely to be retained for a longer period. Whenever possible, states should support exercises by sending staff to learn from these experiences. DOE’s Naval Nuclear Propulsion Program holds exercises throughout the country, to enhance emergency preparedness around their shipment corridors. These provide an opportunity for training beyond what can be obtained from classroom situations.

### *Equipment*

For emergency response personnel to provide an adequate response to an incident involving a radioactive material shipment, they must have appropriate equipment. Detection equipment is available in many types, from those that give an alert signal when radiation is detected at a certain level, to those that aid in determining the type and level of radioactivity in a given area or on an object. Funding to assist in obtaining and maintaining detection equipment is necessary for those emergency responders who are first on the scene to be able to assess the situation and determine the appropriate level of response.

### Public Information

The shipper’s transportation plan should include a communications section, to define the roles and responsibilities of the shipper, states and other parties in providing accurate and timely information regarding the shipment to the media in anticipation of a campaign or during shipments. The communications plan should clearly identify spokespersons for the shipper/carrier, states and other parties such as the CSG Midwest or other state regional group. Whether information is provided to the public via the media in advance of the shipment or in response to questions raised while en route, the use of a fact sheet prepared by the shipper will facilitate all parties sharing the same information. A general fact sheet may be supplemented by shipment specific details, understanding that security concerns need to be honored.

Communicating with local government officials and emergency responders should be considered a role of state government, rather than the shipper. Specific questions regarding the shipment that cannot be answered using the fact sheet should be referred to the shipper. Public information supplied for spent nuclear fuel shipments shall conform to the NRC's requirements regarding protection of safeguards information (10 CFR 73.21). Information shared with the public shall not mention specific dates or months when shipments are expected to transit the state or tribal lands.

### Accident Prevention

States are interested in shipments that are safe, secure and merit public confidence, which means there are no accidents while en-route.

### *Inspections*

Higher level radioactive waste shipments must be inspected at their point of origin by qualified state inspectors prior to departure, and must include a radiological inspection. For truck shipments, the Federal Motor Carrier Safety Administration requires that all vehicles used to transport an HRCQ quantity of radioactive material must have a Commercial Vehicle Safety Alliance (CVSA) Level VI point of origin inspection. Truck shipments must not leave their point of origin until any out-of-service criteria violations have been corrected, consistent with federal regulations and CVSA Level VI criteria.

Over the past twenty years, states have recognized the value of standardized inspection procedures that can promote reciprocity of state inspections of radioactive waste shipments. Using reciprocity, "downstream" states can accept a prior CVSA Level VI inspection in full, or perform a lower level of CVSA inspection that requires less time. For truck shipments, the CVSA established its Level VI inspection procedures for shipments of transuranic and HRCQ radioactive material. An equivalent system does not yet exist for rail shipments, however, work has begun in this area. In 2010, a working group of state and federal rail inspectors developed a standardized inspection process and form for use by state rail inspectors. A number of states have advocated that DOT establish standardized procedures such as these, so that a reciprocal program can be developed to facilitate state inspections of rail shipments. A reciprocal program will allow "downstream" states to accept the inspection of an "upstream" state without conducting a second inspection of a shipment, or to conduct a shorter inspection.

Currently, rail shipments must have an inspection of motive power and equipment and a hazardous material inspection conducted in accordance with federal regulations, the Federal Railroad Administration's (FRA) SCOP, Association of American Railroads recommended practices, state requirement and industry standards. The SCOP, or "Safety Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel" was developed by FRA in 1998, to set forth an enhanced FRA policy to address the safety of rail shipments of spent nuclear fuel and high-level radioactive waste. All inspections of equipment and packages of radioactive waste will be performed either by or in the presence of an FRA-certified state inspector, or, if the state or tribe does not have a certified state inspector, a federal inspector. Rail

shipments must not be dispatched until they are in compliance with the standards listed above and recommended practices.

In Illinois, en-route inspections are required on all shipments of spent nuclear fuel, high-level radioactive waste, HRCQ shipments and transuranic waste. En-route inspections may be conducted by states at their discretion, and they reserve the right to choose the level of inspection to conduct. To encourage reciprocity (and efficient use of staff time and to move shipments toward their destination as quickly as possible), shippers of large-scale movements of radioactive waste should coordinate with states to develop an approach to inspections that recognizes state laws, policies or rules that require inspections. Inspection locations should be determined well in advance of the shipment's departure. For truck shipments, ports of entry are generally acceptable. For rail shipments, the shipper and carrier should strive to arrange crew changes, routine inspections, etc., at a point that will accommodate the needs of state inspectors. These locations should be reasonably close to the state's border, to meet the intent of state laws and policies.

#### *Advance Notification*

Advance notification is necessary to assure the timely coordination of state resources. For instance, scheduling state law enforcement personnel for a series of "rolling" escorts across a state requires some advance notice. (In Missouri, our Highway Patrol escorts use multiple officers for escorts that cross the state. When the shipment crosses into another Highway Patrol district, the new escort pulls up behind the shipment, allowing the previous escort to return to their home base. This "rolling" exchange does not require the shipment to stop at district boundaries, and utilizes officers in the district with which they are most familiar.) The same applies to coordination of radiological inspectors. In Missouri, our radiological inspectors are all based in the central part of the state, but inspections occur near the eastern and southern state boundaries, requiring several hours of travel before and after each inspection. In some states, inspections and escorts are provided by one law enforcement officer.

Fortunately, advance notification to states and tribes of all spent nuclear fuel, high-level radioactive waste and HRCQ shipments is required by NRC regulations 10 CFR 71.97, 10 CFR 73.37, state requirements and other guidance. Notifications delivered by mail must be postmarked at least 7 days before the beginning of the 7-day period during which departure of the shipment is estimated to occur. A notification delivered by any other means must reach the office of the governor or of the governor's designee or the Tribal official or Tribal official's designee at least 4 days before the beginning of the 7-day period during which departure of the shipment is estimated to occur.

Should shipment plans change, the shipper shall notify the office of the governor of the State or of the governor's designee or the Tribal official or the Tribal official's designee of the extent of the delay. Occasionally, shipments have been delayed hours while en-route, or their departure may be delayed for several days. The sooner states and tribes have this information, the less likely their staff will be sitting for a long period of time at a rendezvous location hours away from their home base. State budgets have been

slashed in many areas, so staff are required to constantly do more with less, and lengthy delays while waiting for a shipment to arrive could result in delays of other staff responsibilities.

### *Monitoring of Shipments*

States monitor radioactive shipments while en-route for a number of reasons. First, if escorts are involved, it is necessary to know if the shipment is proceeding on schedule so that escorts can meet the shipment in a timely manner. Should the shipment be delayed, the personnel conducting the escort may remain in their office and work a while longer, or a change in personnel may be required in order to avoid overtime costs. Secondly, if there is an incident near their border, they may offer emergency response assistance. Third, as the shipment travels through their state, state officials want to be assured that the shipment is proceeding as planned.

Shipment tracking technology continues to evolve. For a number of years, DOE has used TRANSCOM as their tracking program, which is available to state staff who have received training. In November, 2010, NTSF sponsored a webinar where Radiofrequency Identification and TRANSCOM enhancements were demonstrated. As retailers and the military adopt new technology to track their merchandise / supplies, some of this technology should soon become more affordable and applicable to shipment tracking.

### *Bad Weather and Road Conditions*

Radioactive shipments often traverse several regions as they move throughout the country, and so experience a wide diversity of weather conditions. Of course, shippers and carriers are advised to consider weather conditions and predictions prior to releasing a shipment from the originating site. But summer storms and tornadoes, bitter cold and blinding snow don't always provide several days of warning – they can strike with very little advance notice. This is another reason for states to track shipments, so they can warn the drivers if inclement weather may make travel unsafe in their area. State escorts have authority to pull a shipment into safe parking if weather results in dangerous travel conditions. Construction on the route may result in traffic delays or detours requiring an alert by state officials to shippers and carriers. Planning documents can provide contingency plans for such events, but coordination between the states and shippers and carriers is what makes contingency plans work.

### *Safe Parking Areas*

States are responsible for designating safe parking areas, for use when shipments have to stop due to hazardous weather, equipment failure or some other issue. The shipper is responsible for including safe parking areas in their notification to the Nuclear Regulatory Commission (NRC). The shipment's security plan should include not only a list of safe parking areas along the designated route, but also additional security requirements for shipments while located in safe parking and avoidance criteria for selecting additional safe parking areas should the driver / crew not be able to reach the

pre-designated locations. This security plan should identify safe parking areas on both sides of borders between states or tribal boundaries, to facilitate exchange of escorts and inspection locations. Safe parking areas should be selected by the states, tribes and shippers based on the selection criteria and the accessibility of the area to the driver / crew. In addition, safe parking areas should accomplish the following objectives:

- Provide adequate separation from the public and other vehicles carrying hazardous material;
- Facility required security (i.e.: lighting); and
- Provide adequate driver / crew services.

Safe parking areas should avoid the following, if possible:

- Highly populated areas;
- Heavily industrialized areas (especially those involving combustible or hazardous materials);
- Hospitals and schools;
- Areas where it would be difficult for emergency response vehicles to access;
- Crowded parking areas, such as shopping malls or rest areas;
- Residential areas;
- Highway shoulders (for truck shipments); and
- Areas with numerous pedestrians.

In the interests of traffic safety, truck carriers must not park a radioactive waste shipment on or within five feet of the traveled portion of a public street or highway except for brief periods when mechanical breakdown or other crisis make it necessary to park the vehicle in any other location.

States may in some cases designate truck stops or other areas open to the public for safe parking. States may have access to additional safe parking areas managed by state or federal agencies, such as weigh stations, regional agency offices or military bases. In Missouri, safe parking designations are determined by Missouri Highway Patrol escorts while en-route. Should the need arise to pull the shipment off the interstate, the Patrol officer providing the escort is very familiar with the facilities available in the region, and will make the decision based on the criteria listed above and the distance from the shipment's current location.

### Security

States are required to provide security for the shipment related information they receive, often described as "safeguard information." Safeguard information is sensitive unclassified information authorized to be protected by Section 147 of the Atomic Energy Act. Safeguard information is handled and protected similar to classified confidential information – states are required to have a cabinet with a lock in which to store safeguard information. The categories of individuals who are permitted access to safeguard information are listed in Nuclear Regulatory Commission regulation 10 CFR 73.21.

Throughout this paper, the role of state governments in transportation of radioactive waste has been explained. States play a critical role in safe, secure transportation of radioactive waste, as they have knowledge of and connections with local resources and the media. By involving the states, shippers and carriers gain a level of expertise it would be time consuming, difficult and costly to replicate. States have a responsibility to ensure the safety of their citizens, which results in the states being involved in transportation planning, coordination with other states, regions, federal agencies and other shippers / carriers, routing, emergency preparedness, dissemination of public information, accident prevention efforts and security procedures. In order to accomplish these varied tasks, states must have sufficient resources to support their efforts, including staff time, training and equipment.

Funding by federal agencies is necessary to maintain continuity in communication infrastructure made possible by the regional groups. These regional groups provide networking opportunities where state staff can learn through formal presentations and from each other. State staff have a wide variety of backgrounds, and are expected to absorb and understand a large volume of material related to radioactive waste in a relatively short period. State staff can change responsibilities fairly often and usually are responsible for addressing a wide variety of issues. Regional group staff provide necessary continuity, keeping their members informed on the pertinent issues, no matter how long they have served as their state's representative.