



# Midwestern **Radioactive Materials** Transportation Project

## Nuclear Waste Management In the U.S.

Over 15 percent of the electricity used in the Midwestern states comes from nuclear power. Since the 1960s, generating all that electricity has produced over 17,500 metric tons of spent nuclear fuel, which is stored at 19 operating nuclear power plants, four shutdown plants, and one away-from-reactor storage facility in the Midwest (see map on back). In 2002, the U.S. Congress selected Yucca Mountain in Nevada to be the site of the nation’s permanent repository for disposing of spent nuclear fuel. In 2009, however, the Obama administration terminated the program on the grounds that the site was not a workable option.

That same year, President Obama appointed a 15-member Blue Ribbon Commission on America’s Nuclear Future and charged it with recommending a new strategy for managing the nation’s spent nuclear fuel and high-level radioactive waste over the long term. In January 2012, after two years of study, the Blue Ribbon Commission issued its final recommendations to Secretary of Energy Steven Chu. One year later, the U.S. Department of Energy (DOE) produced the “Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste.” The Strategy document is a “statement of Administration policy regarding the importance of addressing the disposition of used nuclear fuel and high-level radioactive waste.”

The Blue Ribbon Commission recommended “prompt efforts” to develop a new geologic disposal facility and one or more consolidated storage facilities for spent nuclear fuel and high-level radioactive waste. To site such facilities, the commission recommended developing a new, consent-based process. The commission also recommended establishing a new organization to oversee the waste management program instead of leaving it in the hands of DOE, which has managed the program since its inception in 1983. Other recommendations addressed transportation planning, financing the waste-management program, and research into advanced fuel cycle technologies. DOE’s Strategy embraced these recommendations and set target dates for making

facilities available. By 2021, the department intends to begin operation of a pilot storage facility for spent nuclear fuel. A full-scale facility is anticipated to be available four years later in 2025. DOE’s ultimate goal for final disposal is to have a geologic repository available by 2048. These milestones are contingent upon Congress acting to amend the Nuclear Waste Policy Act (NWPA) and appropriating the needed funding.

First in line for shipping to a pilot interim storage facility would be spent nuclear fuel from shutdown and decommissioned nuclear power plants. Spent nuclear fuel in storage remains “stranded” at these sites long after the power plants stopped producing electricity. Expediting the removal of spent nuclear fuel from shutdown sites would reduce costs to utility ratepayers and allow decommissioning to be completed so that the land can be made available for other uses beneficial to the local community. In addition, moving spent nuclear fuel into consolidated storage would increase protections for sensitive areas like the shores of the Great Lakes, where three shutdown plants are located.

Implementing most of the Blue Ribbon Commission’s recommendations will require congressional action. For example, construction of a federal consolidated storage facility cannot proceed until Congress amends the NWPA. Some activities, however, can go forward under DOE’s existing authority. An example would be transportation planning, which requires long lead times. While the nation awaits action from Congress, spent nuclear fuel and high-level radioactive waste will remain stored at 78 sites across the country, including 24 in the Midwest. Most of this spent nuclear fuel will likely stay where it is for many decades – perhaps even centuries – until it can be transported to facilities for consolidated storage or disposal.

## Transportation

Implementing the Blue Ribbon Commission’s recommendations means starting over with two of the three components of the federal waste management program: disposal and storage. The third component – transportation –



has a history of success, due in no small part to the consultative, cooperative approach DOE follows for planning shipments with input from the affected states. Shipments of radioactive waste and material have taken place since the 1950s in the U.S. and worldwide. In the 1980s, DOE began involving states in transportation planning through regional cooperative agreements with organizations like The Council of State Governments' Midwest Office (CSG Midwest). CSG's Midwest Radioactive Materials Transportation Committee, for example, has worked with DOE on almost 200 shipments of spent nuclear fuel and transuranic waste.

The process of planning shipments on a regional basis was pioneered for shipments of transuranic waste to DOE's Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. The Blue Ribbon Commission cited this regional planning process as a model for a new national radioactive waste management program. The commission's final report acknowledged that successful large-scale shipping campaigns like that for the WIPP program require a significant amount of time and resources for planning, as well as cooperation among all levels of government and the private sector. In the Strategy document, DOE committed to utilizing "the infrastructure and lessons learned" from the WIPP transportation planning program as it works with states and other stakeholders to plan shipments of spent nuclear fuel and high-level radioactive waste.

### CSG's Midwest Radioactive Transportation Project

To ensure that Midwestern state officials have input into the federal program for transporting spent nuclear fuel and other types of radioactive waste and material, CSG Midwest established the Midwest Radioactive Materials Transportation Project in 1989 through a cooperative agreement with DOE. The project sets up a system of two-way communication to keep state officials informed of developments within DOE and, in turn, to provide the department with input on regional issues related to transportation and storage.

The primary vehicle for identifying and resolving regional issues is the Midwest Radioactive Materials Transportation Committee. Each of the 12 Midwestern governors appoints one representative to the committee. The chair of CSG's Midwest Legislative Conference appoints up to 12 legislative members.

The committee convenes meetings and organizes work groups to address federal, regional, and state issues concerning the transportation and storage of radioactive waste. The committee's goal is to make sure the states have the resources they need to be prepared for shipments of radioactive waste and to understand the impacts on their states resulting from shipments and from the long-term storage of spent nuclear



Top left: At the Charleston Naval Weapons Station in South Carolina, workers prepare a train shipment of spent nuclear fuel from foreign research reactors. Credit: U.S. Department of Energy.  
 Bottom left: In the late 1980s, several trains carried waste from the damaged reactor at Three Mile Island nuclear plant in Pennsylvania to a storage site in Idaho. Credit: U.S. Department of Energy.  
 Right: Thousands of shipments carrying low-level radioactive waste helped the U.S. Department of Energy to complete the cleanup of the former Fernald site near Cincinnati. Credit: U.S. Department of Energy (2005).



fuel. When Congress acts on the recommendations of the Blue Ribbon Commission, the committee will be ready to plan large-scale shipments of spent nuclear fuel through the Midwest. In the meantime, the committee will continue to work with DOE on shipment planning and other ongoing initiatives, focusing on the following issues and activities in 2013.

### Federal Assistance to the States

Section 180(c) of the NWSA requires DOE to provide funds and technical assistance to the states affected by shipments to a national repository or interim storage facility. This assistance will help the states to prepare for both safe, routine transportation and emergencies. Between 1995 and 2005, DOE made significant progress working with the Midwestern states and other stakeholders to develop a plan for implementing Section 180(c). The Blue Ribbon Commission recommended that DOE finalize plans for implementing Section 180(c) and begin to provide states with assistance, particularly along routes likely to be used for shipments from shutdown nuclear power plants. In late 2012, DOE organized a working group of state and tribal officials to assist with the task of finalizing the department's policy and procedures for implementing Section 180(c) assistance. The Midwestern Radioactive Materials Transportation Committee is active on the working group. The group's goal for 2013 is to complete its review of the draft policy and procedures published in 2008, present recommendations to DOE management, and develop a plan for conducting an evaluation project to test the implementation process. With four shutdown sites in the Midwest, the states in the region will be engaged in any evaluation project for the Section 180(c) program.

### Inspection of rail shipments carrying spent nuclear fuel

State oversight of transportation includes inspecting and escorting shipments to provide security and also rapid emergency response capability. Most of the shipments that have taken place over the past decade have been by truck. Several Midwestern states have inspectors that are trained to

conduct inspections under a stringent, reciprocal inspection program developed by the Commercial Vehicle Safety Alliance with support from DOE. These inspections have been used successfully on WIPP and other shipments for over 10 years.

No analogous inspection program exists for shipments by rail, however. This is a serious deficiency given the large amount of spent nuclear fuel that will ultimately travel by rail to facilities for disposal or consolidated storage. The committee has urged the U.S. Department of Transportation to work with the states to establish a reciprocal rail inspection program that enhances shipment safety and promotes information sharing among state and federal agencies without compromising security. Such a program must be in place before large-scale shipping campaigns start moving spent nuclear fuel to storage or disposal facilities.

### Shipments through the Midwest

Several Midwestern states are affected by shipments of transuranic waste, spent nuclear fuel, and other radioactive waste and material. For example, shipments of transuranic waste from DOE's Argonne National Laboratory near Chicago will continue to pass through Illinois, Iowa, and Nebraska on their way to WIPP. In addition, shipments of low-level radioactive waste routinely pass through the Midwest headed to disposal sites in the West. These shipments originate at DOE sites and nuclear power plants undergoing decommissioning and decontamination. Occasionally, shipments of spent nuclear fuel from research reactors pass through the Midwest as the waste is sent to DOE facilities for long-term storage until a permanent repository is available. The committee coordinates with DOE and other shippers on their shipping plans both regionally and nationally, through DOE's National Transportation Stakeholders Forum.

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.





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### Nuclear Waste Storage Locations in the Midwest

- Operating power plant
- ▲ Shutdown power plant
- Away-from-reactor storage facility

*Facility locations are approximate.*

Map created by  
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On the cover: Left: A truck carrying remote-handled transuranic waste to DOE's Waste Isolation Pilot Plant in New Mexico stops in Iowa for an inspection and an escort.  
Credit: Major Lance Evans, Iowa Department of Transportation (2011).

Right: A truck carrying spent nuclear fuel from Oak Ridge National Laboratory stops for an inspection on its way to DOE's Idaho National Laboratory.  
Credit: U.S. Department of Energy (2003).