

**TESTIMONY OF JIM HALL
ON BEHALF OF
THE TRANSPORTATION SAFETY COALITION**

**BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
U.S. SENATE**

MAY 23, 2002

Members of the Committee:

My name is Jim Hall, and for more than seven years I served as Chairman of the National Transportation Safety Board (NTSB). In that capacity, I acted as the “eyes and ears” of the American people at transportation accidents across the country and around the world. Since leaving the National Transportation Safety Board in January of 2001, I have continued to work on transportation safety issues and serve as a strategic counselor in transportation safety and crisis management. In addition, I currently serve on the National Academy of Engineering’s Committee on Combating Terrorism. This project is aimed at helping the Federal Government, and more specifically the Executive Office of the President, effectively use the nation's and the world's scientific and technical community in a timely response to the threat of catastrophic terrorism. The specific audience for the study will be the Office of Homeland Security, federal and state legislators, and state and local government officials responsible for mitigating terrorist threats.

Prior to coming to Washington, I served as a member of Governor Ned McWherter’s cabinet and director of the Tennessee State Planning Office. In that role, I was deeply involved with spent nuclear fuel transportation and storage issues while Tennessee was being considered a potential host state for Department of Energy’s (DOE) proposed Monitored Retrievable Storage Facility. Additionally, I directed the State’s oversight of DOE operations at Oak Ridge during the cleanup and restructuring of the national nuclear weapons complex. I also directed Tennessee’s participation in the Southern States Energy Board Advisory Committee on Transportation of High-Level Radioactive Material and in the Southeast Compact Commission for Low-Level Radioactive Waste Management.

I am here today representing the Transportation Safety Coalition, a group of organizations concerned about the safety of transporting dangerous nuclear waste on America’s roads, railroads, and waterways. The coalition is composed of environmental, public health, and safety organizations, including the American Public Health Association, the Environmental Working Group, the National Environmental Trust, Physicians for Social Responsibility, U.S. Public Information Research Groups, and the Nevada Agency for Nuclear Projects. This coalition has come together to inform policy

makers and the public on the dangers of proceeding with a nuclear waste repository without a thorough risk assessment of transporting nuclear waste.

DOE Has No Transportation Plan

As the Chairman of the National Transportation Safety Board, I saw the results of a failure to adequately build a safety culture into transportation systems. I also saw how hard it can be for government bureaucracies to change directions to respond to new safety concerns. The National Transportation Safety Board's Strategic Plan states that it is often difficult for Federal, State and local agencies to "recognize and acknowledge when their safety regulations or programs are ineffective."

From my work with the State of Tennessee, I know firsthand about the failure to build a safety culture into the planning stage of an operation. The DOE's activities at the Oak Ridge National Laboratory site have contaminated soil, groundwater and rivers, even drinking water sources, as a result of leaks, spills, and past waste disposal practices. The resulting cleanup will cost taxpayers over \$6.5 billion and could have been avoided if a plan for safe disposal had been in place when testing began.

What I find most shocking about the Yucca Mountain Project is that DOE has **no plan** to transport spent nuclear fuel to its proposed repository. Secretary Abraham testified last week that the DOE is "just beginning to formulate its preliminary thoughts about a transportation plan."

In fact, DOE's spending history suggests that transportation planning has never been a high priority. The Department has spent 7 billion dollars looking into Yucca Mountain's geology, but less than 200 million dollars on transportation of nuclear waste. That works out to less than 10 million dollars a year for the last twenty years. This is a fundamental flaw in the Department's approach. While some might have accepted this approach before 9/11, no one should now. Failing to plan for the safe and secure transport of nuclear waste is irresponsible.

We should not move ahead with this project without a plan for the most critical element of the project, the element that affects more people directly than any other element--that is the lesson of September 11th. The issue of safe transportation cannot be separated from the issue before Congress today, that of deciding whether or not to override Governor Guinn's veto and move ahead with a Yucca Mountain site license. The Nuclear Regulatory Commission, which will evaluate the DOE's work on Yucca Mountain, has no authority to require a transportation plan before deciding on a site license. Only Congress can demand that the DOE develop a credible, safety-based transportation plan.

Today, we all live under the constant threat of terrorism. It is reckless and irresponsible to move ahead without a transportation plan. Congress must immediately demand a detailed transportation plan that protects our citizens before it considers a vote on this project.

Transportation Mode and Routes

Secretary Abraham testified last week that DOE has made no decisions on the mode or mechanism of transport. DOE's Final Environmental Impact Statement (FEIS) simply predicts the maximum number of shipments that would occur under two scenarios: (1) shipments mostly by truck, and (2) shipments mostly by rail, which would require barge shipments from some reactors to rail lines.

DOE's stated preference is to ship spent nuclear fuel mainly by rail. The rail industry concurs that safety and security are maximized by rail transport; however the Association of American Railroads testified to Congress that "the safest possible method of transporting spent nuclear fuel is through the use of dedicated trains." DOE has not committed to using dedicated trains. In fact the Department appears to be resistant to the idea because it is cheaper to ship nuclear waste on a train that can also take on other types of cargo. Yet it appears there would be greater safety and security risks if the DOE does not use dedicated trains. A transportation plan should outline how the DOE will weigh safety against economic concerns. We don't know how the DOE is going to develop its transportation plan, and we don't know whether in fact it will rely on rail as its primary transportation mode.

Construction of a rail line to Yucca Mountain would be the largest new rail construction undertaking in America since World War I and cost 1.5 billion dollars or more. If there is no rail spur to Yucca Mountain, then high-level nuclear waste must be trucked. Without a new rail line to Yucca Mountain, large rail casks would have to move long distances on public highways by heavy haul trucks through the country's fastest growing urban area. In this scenario the waste would have to be transferred three times, increasing the risk and the exposure to the general public.

The United States is undergoing a major demographic shift involving migration from rural areas to urban areas, meaning that both the population of urban areas and the size of urban areas will dramatically increase over the next ten to twenty years. Many of the interstate highways near urban areas already experience significant rush-hour congestion, which is expected to increase as the number of drivers increases. These interstates—such as I-75 through Atlanta, I-95 through Connecticut and New York, and I-24 through Nashville—are the routes that will most likely be used for truck shipments of nuclear waste. Nowhere in DOE's materials was I able to locate any use of projected traffic patterns, demographics, or highway expansion, which should be a critical element of a transportation plan. A route that might take a commuter—or a truck carrying nuclear waste—15 minutes today may take over an hour in future conditions, and transportation planning must include this kind of forward thinking.

It is worth noting here that even if shipments were to begin today, there are more than 200 million Americans living in the 700-plus counties that are traversed by DOE's potential roads and rail-lines. This population is only going to grow, and grow quickly, during the 24 years DOE needs to move nuclear waste across the country.

The DOE does not account for the fact that while nuclear waste shipments begin at scattered locations around the country, these shipments will begin to converge along certain routes as they near the proposed repository site. In these areas, nuclear waste shipments will become everyday occurrences, and the routes will become well known. This raises two concerns. First, risk is not constant across the country but may be higher along routes that converge near the repository, and a transportation plan should consider this. Second, in the past the DOE has usually been able to transport nuclear waste in relative secrecy. The proposed movement of 77,000 tons of nuclear waste is unprecedented, and in certain parts of the country, shipments will be frequent and predictable. We know that nuclear waste is an attractive target for terrorists—I have heard that al Qaeda has identified nuclear material as its target of choice—and it is unlikely that the DOE will be able to maintain a low profile for these shipments throughout the 24 years of shipments.

Shipment Casks

No government agency has demonstrated the safety of the casks that will be used to transport spent nuclear fuel under conditions that would be encountered in an accident or terrorist attack. Neither the Department of Transportation nor the Nuclear Regulatory Commission (NRC) has tested the truck or rail waste containers, which is why I have called for immediate full scale testing of the shipping casks. Before transportation vehicles are allowed to carry passengers, the vehicles undergo vigorous tests for crash-worthiness, structural integrity and engineering reliability. The only tests that have been done on these casks to date were conducted on small-scale models or simulated with computer programs. These tests are no substitute for full-scale testing of the actual casks that will be used for transporting waste. This is especially true given the fact that these canisters, if breached in an accident or terrorist attack, could spread radioactive waste across many square miles and endangering the health of thousands of people.

Full-scale testing of truck and rail casks would provide cask designers, regulators, and policy makers with the information necessary to determine whether the casks could withstand such damage, and what corrective actions, if any, need to be taken. The experts I have consulted tell me that full-scale physical tests should include, at a minimum, the following elements: meaningful stakeholder participation in the development of testing protocols and the selection of test facilities and personnel; full-scale sequential testing (drop, fire, puncture, and water immersion) on a single example of each new truck and rail cask type; and physical testing of casks against currently available armor-piercing weapons and other explosive devices.

The Human Factor

Rather than setting a goal of zero accidents and zero releases, the DOE estimates that there will be over 66 truck accidents and 10 rail accidents over the first 24 years of transportation to a repository. Based on information from the DOE and the department's past performance, other experts are estimating that there will be more than 150 truck or

360 rail accidents over 38 years. Whatever the number, the fact is that one accident resulting in radioactive release will have long-term devastating results.

A transportation plan for nuclear waste shipments should have a zero-accident goal. The zero-accident goal would reflect a culture in which safety is paramount and drives all aspects of the transportation system. The goal encourages a culture of safety. The FAA and individual airline companies have set a goal of zero accidents and zero fatalities. The DuPont Corporation, with a 99.1 percent safety record, has set a zero tolerance policy for accidents and employee injuries. The company noted that if we all accepted 99.1 percent in other aspects of our lives, we would then accept:

- 4,500 incorrect surgical operations each year;
- 18 unsafe landings at O'Hare Airport in Chicago each day; and
- 150,000 pieces of mail lost each hour.

A transportation plan should include a careful look at all the human factors that contribute to risk in transporting nuclear waste. Over 80% and possibly up to 90% of all transportation accidents are caused by human error. In investigating the causes of accidents, the National Transportation Safety Board examines such human factors as operating practices and procedures; training; duty/rest cycles; fatigue; workload; control/display systems; crew coordination; situational awareness; and decision-making. These are all elements that should be in a transportation plan to ensure a culture of safety.

September 11th and the anthrax mail incident have highlighted the importance of having a well-articulated communications system in place before it might become necessary to use such a system. But even before last fall, past incidents had already taught us that a strategy for crisis communication is essential. One of the most striking failures during the Three Mile Island incident was the series of miscommunications between plant operators, federal agencies, local officials, the press and the public. The widespread public panic that followed the first announcement of problems with the nuclear reactor has generally been blamed on poor communications, and the incident itself was in part caused by communication problems. It will be a huge, but critical, undertaking to develop a nationwide communications system as part of a nuclear waste transportation plan.

Full risk assessment

In the months following September 11th, nearly every federal agency has been engaged in evaluating their preparedness to deal with terrorist attacks and adopting measures to counter this new threat. Congress has approved billions of dollars for protecting federal facilities from terrorist attacks and is considering legislation to adapt the country's public health, emergency preparedness, and response systems to new threats (HR 3555). In 1998, federal agencies were directed to conduct vulnerability assessments of critical infrastructure (PDD 63). These ongoing efforts aim to protect citizens and infrastructure from terrorist acts, even those we have not yet confronted. In contrast, we already know that terrorists view nuclear material as the target of choice, and yet safeguarding the transportation of nuclear waste—a known hazard—has not received the same level of scrutiny.

The issues I have just raised must be addressed before the DOE can tell us where, how and for how long shipments will occur. To address these issues, the Department must make some difficult decisions and initiate long-range planning. The DOE's decisions must be safety-driven, and safety-driven decisions are often not the most economical. The process by which the DOE makes these choices must be transparent and based on a system-wide risk analysis. What does that entail? In general terms, DOE must perform a comprehensive risk assessment that considers current and future conditions; identifies known hazards and anticipates unknown hazards; analyzes where, how, and how much the public may be at risk; and estimates how much each alternative—including security—will cost. It is essential that state and local officials, particularly transportation experts and emergency response providers, are involved in the risk assessment process. This risk assessment will provide the information needed to decide whether the unprecedented nationwide mobilization of spent nuclear fuel can be done safely and securely.

Conclusion

Secretary Abraham admitted last week that no decision on routes or transportation modes has been made, and that any suggestion to this effect is “completely fictitious.” He further stated that those decisions can't be made until the “DOE has the opportunity to work with affected States, local governments, and other entities on how to proceed.”

I couldn't agree more with the Secretary, but I disagree that this work can wait until after a site is designated. The Secretary argues that because the DOE has shipped nuclear materials before, there is a record of safety. But I can assure you as someone intimately familiar with transportation in this country that we have never shipped waste in the vast quantities or with the frequency that the DOE is proposing now. Before Yucca Mountain is approved Congress should demand that DOE conduct a full risk assessment of transporting nuclear waste.

My testimony is no different than what Secretary Abraham told the Committee last week with regard to the DOE's plan for transporting nuclear waste. There is **no plan** for shipping nuclear waste to Yucca Mountain. The potential consequences of an accident or terrorist attack on a nuclear waste shipment would be devastating, and the American people need to understand that their highways, their communities, and their neighborhoods are the sites for potential releases of this high level waste.

History has shown us time and time again that if the essential elements of a safety plan are not put into place before an activity begins, the momentum of the activity overtakes safety considerations. We all have an obligation to ensure that everything that can be done is being done to protect the American people. I believe every member of Congress will fulfill their obligation by requiring DOE to develop a transportation plan with a full risk assessment before any repository site is approved.