STATEMENT OF

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BEFORE THE

U.S. SENATE COMMITTEE
ON COMMERCE, SCIENCE, AND TRANSPORTATION

HEARING ON
THE TRANSPORTATION OF SPENT NUCLEAR FUEL

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The Association of American Railroads (AAR) appreciates this opportunity to address the transportation of spent nuclear fuel (SNF). AAR members account for the vast majority of freight railroad mileage, employees, and traffic in Canada, Mexico, and the United States.

Should meaningful amounts of spent nuclear fuel require transportation, it is likely that AAR members would be called upon to handle most of those movements (whether it would be to the Yucca Mountain repository[1] or elsewhere), since the Department of Energy (DOE) has indicated that it prefers rail transportation for the movement of SNF.[2] Why? Safety, predominantly. There has never been a release of radioactive materials in connection with the transportation of SNF by rail.

Overview of Freight Rail Safety

First of all, on behalf of the members of the AAR, I offer my deep condolences to the victims of the recent tragic commuter rail accident in California and their families. As many of you know, freight railroads have been working very closely with this committee and others in Congress to draft and pass comprehensive legislation that will address critical areas of rail safety. We are confident that the legislation will result in meaningful rail safety improvement.

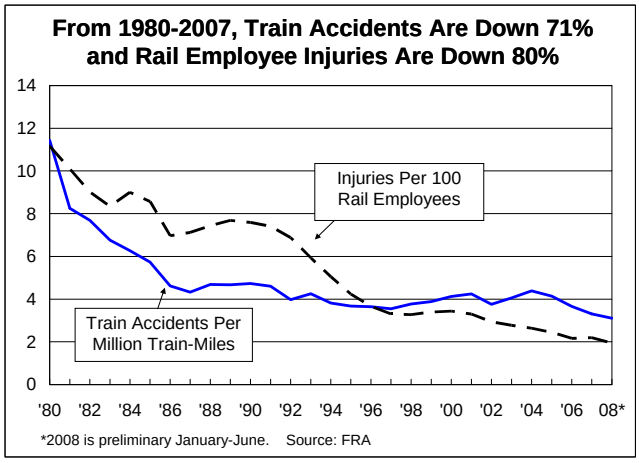
For freight railroads, pursuing safe operations is not an option, it is an imperative. It makes business sense and it's the right thing to do. Through massive investments in safety-enhancing infrastructure, equipment, and technology; extensive employee training; cooperation with rail labor, suppliers, customers, communities, and the Federal Railroad Administration (FRA); cutting-edge research and development; and steadfast commitment to applicable laws and regulations, freight railroads are at the forefront of advancing safety.

[1] The AAR takes no position on whether Yucca Mountain is an appropriate site for a repository.

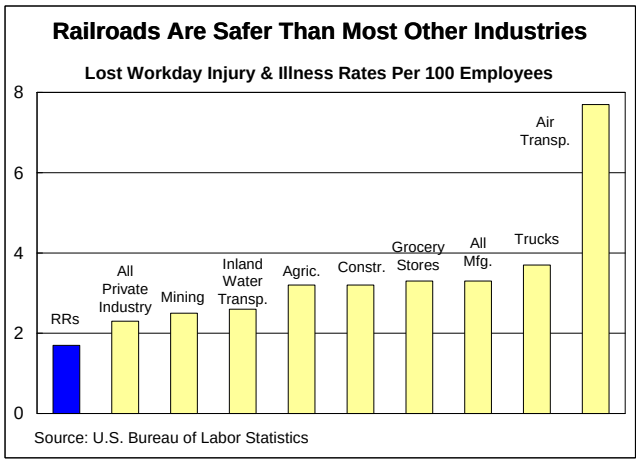
[2] See U.S. Department of Energy, Office of Civilian Radioactive Waste Management, A Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, p. J-1, February 2002.

Freight railroads have an excellent and improving safety record, reflecting the extraordinary importance railroads place on the safety of their employees, their customers, and the communities they serve. As an official from the FRA noted in testimony to Congress in February 2007, "The railroads have an outstanding record in moving all goods safely."

In fact, 2007 was the safest year ever for railroads, according to FRA data, and preliminary partial year data for 2008 show continued improvement. In 2007, the train accident rate was the lowest ever, down 71 percent since 1980. The grade crossing collision rate was the lowest ever, down 77 percent since 1980. And the employee injury rate was the second lowest ever, down 80 percent since 1980.



Moreover, according to U.S. Department of Labor data, railroads today have lower employee injury rates than other modes of transportation and most other major industry groups, including agriculture, construction, manufacturing, and private industry as a whole — even grocery stores. Available data also indicate that U.S. railroads have employee injury rates well below those of most major foreign railroads.



Railroads are proud of their safety record, which results from their recognition of their responsibilities regarding safety and the enormous resources they devote to its advancement. At the same time, railroads want rail safety to continue to improve. Railroads are always willing to

work cooperatively with members of this committee, other policymakers, the FRA, rail employees, and others to find practical, effective ways to make this happen.

Railroads Have an Excellent Hazmat Safety Record

Today, U.S. railroads transport very little spent nuclear fuel. In 2007, there were just 14 originations; in the five years from 2003 to 2007, there were only 314. Railroads do, however, haul significant amounts of other hazardous materials. In fact, each year, 1.7 to 1.8 million carloads of hazardous materials are transported by rail in the United States. Materials that present a "toxic inhalation hazard" (TIH) — *i.e.*, gases or liquids (such as chlorine and anhydrous ammonia) that are especially hazardous if released — are a subset of hazardous materials. Railroads transport around 100,000 carloads of TIH each year. For perspective, DOE projects that there would be, at most, around 400 carloads of spent nuclear fuel transported annually.

In 2006 (the most recent year for which data are available), 99.996 percent of rail hazmat shipments reached their destination without a release caused by a train accident. That equates to one accident with a hazmat release for every 56,000 rail hazmat carloads.

The overall rail hazmat accident rate is down 88 percent since 1980 and down 39 percent since 1990. And although no firm in any industry can guarantee that it will never suffer an accident, the railroads' overall safety record should give you and the public confidence in the rail transport of SNF if the public interest requires its transportation.

How Can the Safety of SNF Transport be Maximized?

Notwithstanding freight railroads' excellent safety record, they recognize that public concern over radioactive materials requires that all parties involved in the transport of SNF take special measures to ensure safe movement. In particular, the DOE and Department of Defense (as the shippers of SNF), the Department of Transportation (the regulator of the safety aspects of

hazmat transport), and the railroads must work together to design the safest possible transportation system for SNF.

For many years, the rail industry has urged the use of dedicated trains — *i.e.*, trains with no other freight than SNF, traveling from one origin to one destination — to transport SNF. In 2005, the DOE issued a statement that it was DOE policy to use dedicated trains as the usual mode for its shipments to Yucca Mountain.[3] The DOE identified important safety, security, and system cost benefits to the use of dedicated trains at that time. More recently, the DOE stated, in its application to the Surface Transportation Board (STB) to construct a railroad line that would serve the Yucca Mountain repository, that it intends to use dedicated trains on that line.

Dedicated trains in fact offer numerous key safety advantages that would reduce the already very small possibility of an accident involving SNF transport.

First, SNF cars in dedicated trains would not have to be "switched" in and out of trains at rail yards, many of which are located in or near major metropolitan areas. Switching would be required if SNF cars were transported in general freight service. Switching increases the amount of handling a freight car receives. All else equal, the more a freight car has to be handled, the greater the risk of an accident.

Second, the weight of SNF cars could increase the potential for an accident if the cars were hauled in general freight service. The vast majority of loaded rail cars on the U.S. freight rail network weigh no more than 286,000 pounds.[4] SNF cars, though, would weigh approximately 400,000 pounds. If hauled in general freight service, these extremely heavy SNF cars could generate high in-train forces, such as slack action (the force exerted throughout the

[3] Department of Energy Policy Statement for Use of Dedicated Trains for Waste Shipments to Yucca Mountain, available at http://www.state.nv.us/nucwaste/news2005/pdf/doe050718rail.pdf.

[4] A small minority of rail cars in general service weigh up to 315,000 pounds. In extremely rare cases (for example, movements of power plant generators), railroads will haul much heavier shipments.

train as trains accelerate, decelerate, and operate over undulating and curved terrain) that could lead to a derailment. Slack action is much easier to control in a short, dedicated train than in a long, general service train, especially in trains with extremely heavy cars mixed with other normal-weight cars.

Third, premium suspensions can be incorporated in all rail cars in dedicated trains. Premium suspensions are higher-quality freight car wheel assemblies. They reduce lateral wheel forces and vertical dynamic impact forces, which can result in derailments. If SNF were transported in general freight service, there would be no way of guaranteeing that the cars transporting other freight would have premium suspensions. More generally, dedicated trains eliminate the possibility of a derailment of an unrelated car having as a side effect the derailment of or damage to a car carrying SNF.

Fourth, dedicated trains are essential if the newest technology designed to lower the possibility of a derailment is to be used for SNF shipments. The AAR's Performance Specification for Trains Used to Carry High Level Radioactive Material, also known as S-2043, calls for additional safety requirements and technologies, including on-board defect detection systems, premium suspensions, and electronically-controlled pneumatic (ECP) brakes. ECP brakes function only when all cars in a train are equipped with them. In addition to providing superior braking performance, ECP brakes utilize a communication system throughout a train that can be used to transmit train health information to the locomotive crew and security personnel. The train health information, obtained from the on-board defect detection systems, would include monitoring for known derailment causes such as excessive truck hunting[5];

[5] Truck hunting is an instability at high speed of a wheel set (the "truck" in railcar terminology) causing it to weave down the track, usually with the flange of the wheel striking the rail.

rocking[6]; wheel flats[7]; ride quality; defective bearings; vertical, lateral and longitudinal acceleration; and, of course, braking performance.

Fifth, dedicated trains minimize the time spent in transportation, an important factor for security and efficiency.[8] It would take longer (possibly significantly longer) to transport SNF from origin to destination if SNF were transported in mixed-freight trains instead of dedicated trains, because the switching of rail cars in and out of trains takes time and because railroads can more readily schedule dedicated trains to move quickly and smoothly through sensitive areas.

Finally, dedicated SNF trains can be transported with greater security. Escorts, which are required by the Nuclear Regulatory Commission (NRC) for all SNF movements, will be able to monitor SNF much more easily in dedicated trains than in general freight service.

The FRA has also determined that dedicated trains for the transportation of SNF would reduce accident risks through avoidance of yards, reduced derailment potential, and reduced risk of the involvement of other hazardous materials in an accident.[9] Similarly, the National Academy of Sciences has determined that dedicated train transportation of SNF has operational, safety, security, communications, and planning advantages over transportation in general merchandise trains.[10]

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[6] Excessive lateral rocking of cars and locomotives can occur, usually at low speeds. The speed range at which this phenomenon occurs is determined by such factors as the wheel base, height of the center of gravity of each individual car or locomotive, and the spring dampening associated with each vehicle's suspension system.

[7] A wheel flat is a flat spot or loss of roundness of the tread of a railroad wheel

[8] U.S. Department of Transportation, Identification of Factors for Selecting Modes and Routes for Shipping High-Level Radioactive Waste and Spent Nuclear Fuel, p. vi (April 1998).

[9] Use of Dedicated Trains for Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel (March 2005), available at www.fra.dot.gov/downloads/safety/report_dedicated_trains.pdf.

[10] Committee on Transportation of Radioactive Waste, National Research Council of the National Academy of Sciences, Going the Distance: The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States (2006).

DOE is planning to build the transportation equipment for the transportation of SNF to Yucca Mountain in conformance with S-2043. In addition, the U.S. Navy, which currently ships more SNF than any other entity, is currently designing and building a new freight car to meet S-2043. The prototype car is currently being tested at the Transportation Technology Center, Inc., an AAR-operated rail research and test facility in Pueblo, Colorado.

The rail industry commends the DOE for recognizing the benefits of dedicated trains, and commends the U.S. Navy for agreeing to conform with S-2043. However, despite its 2005 policy statement in favor of the use of dedicated trains generally and its statement to the STB that it will use dedicated trains on its own Yucca Mountain line, DOE has not committed to use dedicated trains for SNF shipments on other rail lines, including shipments to Yucca Mountain.[11] The U.S. Navy has not yet agreed to use dedicated trains for SNF shipments. Railroads respectfully suggest that policymakers should strongly encourage the DOE and Navy to do so.

SNF Liability Protections Offer a Model for TIH Transport

Railroads are confident that they could transport SNF extremely safely, and they are working hard every day to further enhance the safety of their operations.[12] However, as indicated above, no firm in any industry — and certainly not a rail industry that has an outdoor "factory floor" that is more than 140,000 miles long — can guarantee, with complete certainty, that no accident or terrorist attack will occur.

Despite all the precautions that might be taken, there is clearly some risk involved in the use and handling of nuclear fuel. Recognizing this, in 1957 Congress enacted the Price-

[11] In the STB rail construction proceeding concerning the Yucca Mountain line proposed by DOE, it has been suggested that DOE should be required, as a condition to approval, to use dedicated trains for all transportation of SNF to the Yucca Mountain line. DOE has opposed that condition, saying only that it will maintain its policy (cited at footnote 3 above) to use dedicated trains as the "usual mode" for transportation to Yucca Mountain.

[12] See the AAR's Senate testimony on May 22, 2007 and July 26, 2007 for details on the many ways that railroads are using technological advances, innovative operating practices, and other means to enhance rail safety.

Anderson Act. The Price-Anderson Act limits the liability of a company (including railroads) from an incident involving the release of nuclear material (including in transportation). The Act provides for a fund, to which all nuclear power plant licensees contribute when an incident occurs, to cover any damages in excess of required insurance levels.

More than 25 years ago, the Interstate Commerce Commission (ICC), the predecessor of today's Surface Transportation Board, held that the railroads' common carrier obligation requires them to transport shipments of SNF, whether the railroads want to handle such shipments or not. The ICC's decision at that time was based, in part, upon the liability protections that the Price-Anderson Act afforded to the railroads.

I would be remiss if I did not note that, likewise, because of their common carrier obligation, freight railroads — alone among all modes of transportation — must also transport TIH and other highly-hazardous materials in response to a reasonable request. However, the railroads do not have any comparable Price-Anderson Act protections for this transportation.

While TIH materials are a small percentage of total rail traffic — they constitute only about 0.3 percent of all rail carloads — the transportation of such materials exposes railroads to significantly higher costs and potentially ruinous liability due to the extraordinarily dangerous characteristics of the commodities themselves. Indeed, an accident involving TIH could cause casualties orders of magnitude higher than the casualties that would likely result from an accident involving SNF. Accidents involving TIH on railroads are extremely rare. However, history demonstrates that railroads could be subjected to multi-billion dollar claims — even for accidents where they do nothing wrong.[13]

[13] For example, a few years ago in New Orleans, a tank car that railroads did not own containing more than 30,000 gallons of liquid butadiene began to leak. Vapor from the butadiene tank car rolled out across a neighborhood until the pilot light of an outdoor gas water heater ignited it. More than 900 people were evacuated, though no one was killed or seriously injured. The National Transportation Safety Board found that the probable cause of the accident was an improper gasket that a chemical company had installed on the tank car. Nevertheless, a state court jury entered a punitive damages verdict against the railroads involved in the amount of $2.8 billion.

Moreover, the revenues that highly-hazardous materials generate do not come close to covering the potential liability to railroads associated with this traffic. Nor can railroads fully insure against the multi-billion dollar risks associated with TIH shipments.[14] This places railroads in an untenable situation.

Given these points, I respectfully submit that if there is a public interest need for railroads to be compelled to carry TIH materials similar to that requiring them to carry SNF, there is a corresponding public interest need for the rail industry to be able to take into account and protect itself against the increased risk and potentially ruinous liability exposure associated with transporting TIH materials — just as railroads (and others) are protected to a limited degree from liabilities associated with SNF.

This can be achieved if policymakers enact a Price-Anderson type solution. The AAR has a legislative proposal which would effect a Price-Anderson type solution for TIH transport and would be pleased to discuss it further with the Committee.

Conclusion

Thank you for the opportunity to testify. Nothing is more important to railroads than the safety of their employees, their customers, and the communities they serve. The railroad industry is committed to working with its employees, Congress, the FRA, its customers, and others to ensure that rail safety continues to improve.

[14] Although TIH materials account for only 0.3 percent of rail carloads, the absolute number of carloads — some 100,000 per year — is 250 times higher than the number of expected SNF carloads. The use of dedicated trains is feasible for a commodity like SNF where very few carloads are involved, but is not feasible for TIH.