

## **Perspectives of the U.S. Nuclear Industry on Transportation of Radioactive Materials and Related Storage Issues**

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We are all here today because, ultimately, we must transport radioactive materials if we are to continue to reap the enormous benefits society gains from their use. I want to share with you today the U.S. nuclear industry's perspective on the importance of transporting radioactive materials and the role technical developments should play in decisions to revise the IAEA Safety Series for transporting radioactive materials. But first, I would like to establish some fundamental points.

The public honestly fears radiation. Even though we may believe those fears are out of perspective with regard to the amounts of radiation involved, we must respect these honestly held fears. However, we have a social problem when fears are out of proportion to risk and result in enormous benefits being forfeited. Antinuclear groups take advantage of the public's fears. Now you have a political problem—substantial societal benefits foregone for no improvement in public health and safety.

Admiral Rickover once said, "There are many valid reasons for decisions, and those can be technical, economic, or political, but don't forget (or mix up) the reasons for a decision." This means don't continue to try to address social and political problems with technical solutions. Number one, it won't work, and, number two, it's very costly.

The work you are doing to ensure safety of transport of nuclear materials is very important and, if properly publicized, can enhance the public's confidence in the safety of transporting radioactive materials. But your work also has the potential to decrease transportation safety. This is because ever-changing regulations make compliance more difficult. Workers must be continuously retrained. This does not improve safety.

In addition, changes to regulations can make transportation prohibitively expensive. This deprives the public of the enormous benefits of the uses of radioactive materials. And the changes will not address the social aspect of the problem. The changes will not increase the likelihood that the public will examine transportation of radioactive materials in the perspective of the benefits they are deriving.

Regulatory changes should not be made unless they can be shown to reduce the risk of transportation significantly. While we completely support continuing the outstanding technical work that is being done around the world to refine our knowledge basis for transporting radioactive materials, we urge more discipline: Make sure any changes to the regulations will actually improve safety.

Before I get into the specifics of optimizing benefits of regulatory changes, I first want to talk about the benefits derived from radioactive materials, which, after all, are why we are here today. In the United States, radiopharmaceuticals are used to treat and diagnose 36,000 patients each day. The nuclear industry, one of the largest shippers of radioactive materials, makes 5 million shipments of radioactive materials each year to provide this invaluable health service.

In the United States, nuclear power plants produced 639 billion kilowatt-hours of electricity in 1994, 20 percent of the total U.S. demand for electricity. In the process, nuclear power helped the environment by reducing greenhouse gases. Since 1973, U.S. nuclear power plants have reduced the amount of CO<sub>2</sub> emissions by 1.6 million metric tons of carbon. This accounts for 92 percent of all CO<sub>2</sub> emissions avoided by U.S. electric utilities between 1973 and 1993. OECD nations and the United States are relying heavily on nuclear power to meet challenges put forth in the global climate action plan. Indeed, without America's nuclear power plants, our Nation would have to more than double its CO<sub>2</sub> emissions reduction goal to achieve the same results.

Next, I would like to share with you a perspective on the challenge the U.S. nuclear energy industry is addressing to ensure the U.S. public retains the benefits of nuclear energy. In the course of generating electricity, a nuclear power plant produces about 20 metric tons of used fuel each year. By 1998, 26 U.S. reactors will have run out of storage space in their spent-fuel pools; by 2010, 80 reactors will have exhausted their storage capacity. To date, U.S. reactors have produced about 28,000 metric tons of used fuel throughout their operating lives.

The Federal Government, specifically the DOE, is responsible by law for taking used fuel by 1998 for eventual emplacement in an underground repository. As you know, our Congress has directed that Yucca Mountain in Nevada be evaluated as a suitable site for an underground repository. While there have been many delays in developing a repository, current legislation pending in Congress may open the door to move fuel on time to a central interim storage facility. The location of this central interim storage facility might be near Yucca Mountain. The U.S. industry supports this legislation because we believe it is safer and more cost-effective to store used fuel in one central location than to store it at 75 reactor sites across the country. The legislation also offers the only fair deal for our rate payers, who have already committed \$11 billion to fund the DOE effort.

As you will hear from several speakers at this conference, technology for dry storage of spent nuclear fuel at reactor sites is proven to be safe, is well developed, and is being deployed. But \$11 billion have already been committed to the nuclear waste fund for DOE to take the fuel. It is unfair to rate payers to ask them to pay again for on-site dry storage facilities. So it just makes sense to use the proven technology to take the waste to a central storage facility. The U.S. industry is working very hard to make this happen.

As elsewhere in the world, antinuclear groups are targeting transportation of nuclear materials in the United States to scare people. Their stated agenda is to shut down

nuclear power plants. Antinuclear groups like to remind the public that accidents will occur in transporting spent fuel. In fact, regulations require all packages for significant quantities of radioactive material to be essentially accident-proof. The transportation record for spent fuel in the United States attests to the success of the regulations in asking that packages be accident-proof. In the United States alone, more than 2,000 shipments of spent fuel have been made in the past 30 years without ever exposing the public to the spent fuel, despite seven accidents involving shipment of spent nuclear fuel. Every year, roughly 5 million packages of radioactive materials are transported in the United States without exposing the public to unsafe levels of radioactivity.

The excellent safety record for transporting nuclear materials is not an accident. Instead, it is the direct result of an unprecedented amount of high-quality technical work, such as that being presented this week. This same high-quality work went into establishing the first IAEA Safety Series 6 and subsequent revisions. As evidenced by this conference, the dedication to continuously evaluate the safety of nuclear shipping goes on.

However, at this point, Safety Series 6 is a mature basis for regulations with a proven safety record. We believe the unparalleled safety record of the Safety Series comes from its success in translating radiation protection principles into simply applied requirements. Simple requirements can be consistently implemented by consignors and carriers. Simplicity and consistency are vital to ensuring that workers can be properly trained to carry out their duties to ensure safe transport. Making the regulations ever more complicated could have a negative impact on safety, so changes should not be made unless they are proven necessary. Unnecessary changes can also have devastating economic impacts on industries with no added safety.

There is strong evidence that changes in the last two revisions of Safety Series 6 were not effective in reducing transportation risk. The NRC performed a formal regulatory analysis before incorporating changes to make the U.S. regulations compatible with the 1985 version of Safety Series 6. They found no reduction at all in accident risks and a substantial increase in routine radiological dose associated with the 1985 Safety Series 6 changes. The U.S. industry performed an informal analysis of the proposed changes for 1996 for Safety Series 6. We found no changes were necessary or effective at reducing transportation risks.

As you know, the U.S. delegation to the IAEA recently proposed the following criterion for weighing the need to make changes to the Safety Series: demonstration of improvement in safety at a reasonable cost. I applaud the U.S. proposal and encourage other delegations to embrace this concept. I believe its implementation will lead to a simple and more stable system for protection that will improve safety.

The next step to be taken to ensure a simple, predictable, and stable regulatory system is for governments to accept the work of other Competent Authorities operating to the Safety Series to certify packages. In this regard, I unfortunately cannot commend the U.S. delegation. It has been very guilty of late of disrupting commerce by holding on

to certifications for long periods of time and then asking for unspecified "additional information." Sometimes the United States even requests that packages meet requirements outside of the Safety Series. It is obvious that if every government chose to operate in this manner, essential international commerce in radioactive materials would grind to a halt. We understand our government is working to resolve this matter, and we will do what we can to work with them to avoid unnecessarily disrupting commerce.

In summary, this is the most important message that I can leave with you today. Social and political issues must be addressed in social and political arenas. Making needless changes to regulations that do not measurably improve safety will not help with the basic underlying social and political problems.

Furthermore, while it is important to make the regulations flexible where the advance of technology offers exciting new options, such as the need to examine the ductile range of performance of alternative metals, we commend those changes. Otherwise, changes must be shown to measurably enhance safety, and the benefit of those changes must be demonstrated to justify the impact and cost of the change.

Thank you for your attention, and I hope you enjoy the conference.