
Chairman's Welcome

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Ladies and Gentlemen: This is indeed an honor for me to welcome you to PATRAM '89. It's even a little intimidating. You represent the best and brightest of the entire radioactive transportation community—the shippers, the carriers, the regulators, cask and equipment designers, and manufacturers, and all levels of related Government and private support. You've come from around the world—I understand there are some 15 countries represented here today. It's our pleasure to be your host and to welcome you to our Capital City.

We've been planning this symposium for 3 years with a great deal of anticipation. The opportunity to meet with colleagues to share news of technical innovation and work in progress is an exciting prospect. I have no doubt that each committee member would tell you every minute spent in meetings, on the telephone, making decisions, lining up speakers, seeing to logistical arrangements and all the other myriad of details has been well worthwhile. I hope you're pleased with the work we've done. Our goal is to ensure PATRAM '89 is professionally stimulating and personally rewarding.

Before I turn the platform over to three very eminent speakers, I would like to share a few of my thoughts on the progress and the problems of radioactive transportation today. Since the beginning of nuclear development almost 50 years ago, we have witnessed the evolution of a transportation system without parallel in the world of commerce. In your countries, and here in the United States, we have routinely shipped materials having all levels of radioactivity from smoke detectors to radiopharmaceuticals and spent fuel assemblies. These shipments have traveled from mines and mills to processing facilities, to reactors, to hospitals, to industrial complexes, and to research and development labs. They have moved by airplane, by truck, by train, and by ship or barge. In this country alone, we estimate there are between 2 and 3 million radioactive material shipments a year. These shipments have been made safely and efficiently—and have added immeasurably to our well-being and standard of living.

That success story hasn't been an accident. Rather, it's been the result of careful planning and meticulous execution by responsible people like yourselves. The system for transporting nuclear material is soundly based on standards developed, reviewed, and agreed to by international experts and organizations. These standards have provided the guidelines for the stringent regulations governing nuclear transportation. There are no haphazard procedures involved. Every step of the shipping process—beginning with preparation of the package at the originating facility to unloading at the destination—is subject to well defined regulatory requirements.

And then, there is the package itself. Our strategy in the radioactive transportation business is package integrity must provide the first and primary line of defense. In all the years of shipping nuclear materials worldwide, there's never been a death or injury because of the radioactive cargo. This is impressive testimony to the credibility of that strategy. Many of you have spent countless hours designing, fabricating, testing, and retesting to ensure superior packaging. You've examined and re-examined design margins to allow for the unexpected. You've experimented with materials to make sure only those with the best characteristics are being used. You've gone back to the drawing board time and again to make absolutely certain your assumptions and criteria are correct.

Two years ago, the United States Nuclear Regulatory Commission completed and released the comprehensive report, Shipping Container Response to Severe Highway and Railway Accidents. In this report, which we refer to as the "Modal Study," the magnitude of forces from actual recorded accidents were compared with forces attributed to the "regulatory-defined" hypothetical accident conditions. With this information, the report indicates no radiological hazard would be expected in at least 994 of every 1,000 severe transportation accidents involving spent fuel casks. In only about one accident every 40 million shipment miles would just minor functional cask damage be expected, with any radiological hazard well within regulatory compliance limits. Once every 80 million shipment miles, we could expect damage to the cask severe enough that the hazard would slightly exceed compliance values. Now those are pretty comforting margins in anyone's book.

Training is another area of major emphasis in ensuring safe transportation. We believe in professionals who know what they're doing and can make correct judgments in both routine and abnormal situations. The people who prepare the package prior to shipment, the inspectors, the drivers, and those who accept and unload the shipment must be thoroughly trained in their jobs. While we've been fortunate not to have had much practical experience in the area of emergency response—since our accident rate is extremely low—we still believe in being prepared. Therefore, those with emergency-related responsibilities are trained so they can respond quickly and effectively in the unlikely event of a radioactive transportation incident.

Finally, we don't just assume regulations are being followed. We must assure compliance through an integrated system of quality control throughout the design, development, and operation phases. Inspections, audits, and where appropriate, penalties for noncompliance, are accepted ways of doing business. I repeat, safe transportation of radioactive materials is not a matter of luck.

Despite what we have been able to achieve, I'm not ready to declare it's time to rest on our laurels. We've some challenges yet to meet, both in the technical and institutional or societal areas. Let's start with the easy ones—the technical challenges. I believe no major scientific breakthroughs are needed in radioactive materials transportation. However, I'm confident we'll be hearing a lot about new ideas and approaches in the sessions this week. While the described technical innovations can certainly offer advances, I think we'll be talking more in terms of incremental improvement rather than radical change.

The greater challenges by far lie in the institutional areas. There's an old saying, "It's hard to argue with success." Unfortunately, that axiom doesn't hold true for us. Despite our proven performance in safely transporting radioactive materials, we're still subject to charges that we've just been lucky—it's only a matter of time before **THE CATASTROPHE** happens. There are a number of reasons for this. We share with all the nuclear industry the task of dispelling the inherent fear of anything radioactive. Unfortunately, the destructive potential of nuclear energy is far more vivid in the mind of the public than its possible benefits. With a few notable exceptions, the news media have pounced on this irrational fear with a vengeance. Safety isn't interesting. Impending doom and disaster are.

The nuclear industry must also accept its share of the blame. For a long time, it operated only in secrecy. It is only recently openness has been introduced as a program requirement. We've compounded the problem by being unable to communicate effectively with the public. Nuclear

scientists and technicians have a tendency to speak in strange tongues and write in jargon and scientific terms. It's little wonder we have a severe and crippling credibility problem. We must do better.

Another problem we've had to deal with is the temptation of political candidates to use nuclear issues as a platform. The U.S. effort to site and construct a repository for spent fuel and high-level waste is a prime example of a program ambushed at every turn by political posturing. More specifically, transportation of nuclear materials in the U.S. has come in for its share of political potshots during the transfer of the damaged core from the Three Mile Island plant. Our country—and yours—will be substantially smarter about handling potential nuclear accidents as a result of our research on the TMI core. But that benefit is rarely—if ever—mentioned. It's getting to the point where we'll have to schedule our shipping campaigns not to coincide with our political campaigns. We've found things go a lot smoother after elections rather than before!

A final challenge I'd like to mention has both technical and institutional implications. Most of us who've developed a transport package believe the package will perform—without exception—to protect health and safety under any credible set of conditions. I know there are many here—and I'm one of them—who believe we should rely far more on the package itself—our centerpiece of safety—and stop being overly concerned with the minute increments of added protection offered by peripheral procedures such as routing. The creeping tendency to not accept "safe enough" as an objective can lead to an endless quest for more and more requirements and procedures so we can assure "the safest system possible." This pursuit, if unchecked, can lead to imposition of totally irrational and costly systems with no measurable increase in safety.

Another troubling aspect of this search for safety without technical basis is when it spills over into our design activity. In our effort to gain approval, we add another criterion to our design specifications—that of public acceptance. While I sincerely believe in the importance of public confidence, nonscientific and frequently emotionally-based requirements can add countless time and dollars to our effort. More importantly, concentrating excessively on the individual elements of the design can ultimately work against the integrated safety of the system as a whole.

Now that I've gotten those frustrations off my chest, I'd like to end my remarks on a positive note. Despite our circuitous path—and what seems many times like two steps back for every one forward—we are moving in the right direction. Our continued record of safe and efficient operations despite rapid expansion gives credence to our vitality and viability. Looking at the talent and experience I see in this audience gives me every reason to believe the radioactive transportation community is equal to the tasks that face it. It is my expectation on Friday we'll return to our countries and to our workplaces with the renewed vigor that comes from productive exchange.