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Industry Perspective on Transport Operations and Safety

presentation paper

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**Dedicated to the
safe, efficient
and reliable
transport of radioactive
materials**

The regulator and the regulated

Standards and regulations have no intrinsic practical effect without taking into account those who are the object of such standards and regulations. Standards and regulations do not become operationally effective until they are implemented by the entities which are subject to them. Accordingly, there is a necessary synergy between the regulator and the regulated; the regulators whose task it is to make and enforce the rules for safe, efficient and reliable transport, and those whose job it is to transport within the rules. One has no full meaning without the other. Both, I suggest, the regulator and the transporter, can be more effective in achieving their purposes when they co-operate in the interest of mutual understanding.

In the case of the international transport safety regulatory regime, it is the nuclear transport industry, such as represented by the World Nuclear Transport Institute, which is the object of transport safety standards and regulations. As such, the nuclear transport industry is a principal stakeholder in the regime.

The essential role of transport

Transport in turn is not a side issue in the nuclear fuel cycle; it is intrinsic to it. Transport is what makes the cycle go around. Most people are familiar with the graphics typically used to display the fuel cycle; beginning with the uranium mine site, the arrows carry the eye around the circle from refinement, conversion, enrichment, reconversion and fabrication facilities to reactor site. And then, in the case of reprocessing, the cycle spins off on another round; ultimately carrying spent fuel through the reprocessing cycle back once more to the reactor site. There are, of course, off-ramps to the cycle, carrying radioactive residues away for treatment, storage and disposal.

The nuclear transport industry plays a vital role in supporting the International Atomic Energy Agency's (IAEA's) objective of accelerating and enlarging the contribution of atomic energy to peace, health and prosperity throughout the world. One of the founding articles of the IAEA, Article III, authorises the Agency to make provision to meet the needs of research, development and practical application of atomic energy for peaceful purposes, including the production of electric power, with due consideration for the needs of the under-developed areas of the world. Whether or not particular countries choose to generate a portion of their electricity from nuclear power, the beneficiaries of nuclear power do not only live in those countries that so choose. All countries, developed and developing, derive benefit from technologies that contribute to the reduction of CO₂ emissions. If nuclear power is to play its part in meeting the energy needs, and the clean air needs of peoples everywhere, it must be able to transport its materials to where they are needed.

The industry context for transport

Practical, efficient, safe transport standards and regulations should take account of their impact on those who do the transporting. The context today in which radioactive materials are transported is complex, it is challenging, and it takes place in a rapidly changing environment. The transport of radioactive materials is increasingly international; many countries which choose to include electric power generation from nuclear power plants in their energy mix must rely on foreign sources for supply of necessary services and materials to support the fuel cycle. We are witnessing consolidation among buyers and sellers, supplies opening up from non-traditional sources, and the decommissioning and clean-up of facilities. Transport by its very nature must rely on carriers to deliver its products. The availability of carriers drives routing decisions, and changes in material flows necessitate new approaches to packaging and transport scenarios. If society is to derive the full benefit

of peaceful uses of nuclear energy then the provision of that energy should be cost-effective. And that means that cost-effective transport of radioactive materials is critical to this purpose. It has been said that the future of nuclear power depends heavily on continued public confidence in its safe and peaceful use, and on its economic competitiveness in the energy market place. Safe, efficient and reliable transport is essential both to public confidence and to economic competitiveness. Economic competitiveness relies to an important extent on the optimal use of existing facilities, packagings, and efficient transport.

The industry commitment to safe transport

No stakeholder in the international transport safety regulatory regime has a greater interest in safe transport than those who are doing the transport. It is the transporter who is in the front line of the actual transport; it is the truck driver, the railway worker, the ship's crew, the airline crew, who is closest to the materials being transported. There is no room for complacency or a hesitant approach by the nuclear transport industry to balanced transport regulation. The most immediate loser in the event of failure would be the industry and its workers.

Industry is fully committed to meeting its requirements within the international transport safety regulatory regime. Transporters of radioactive materials have an outstanding safety record. Indeed, the transport of radioactive materials could be regarded as a model for the transport of other classes of dangerous goods. All too often we have seen pictures on our televisions of catastrophic accidents involving other classes of dangerous goods. The nuclear transport industry has a long track record of safe transport over several decades. It is noteworthy that where there have been transport incidents involving radioactive materials, and these have been very few relative to the number of such transports, they have been without major radiological consequences for health and the environment. The incidents there have been largely transport events involving radioactive materials; not radiological events involving transport. There is good evidence that packages conforming to the IAEA standards offer appropriate protection under accident conditions. The IAEA General Conference in 1998 recognised that "compliance with regulations which take account of the Agency's Transport Regulations is providing a high level of safety during the transport of radioactive materials" (Resolution GC (42)/RES/13).

There are two principal reasons for this outstanding safety record. It is due primarily to well-founded regulations developed by such key intergovernmental organisations as the IAEA, with the essential contributions of the Member States who participate actively in the regulation review and implementation processes, and their reflection in the international transport safety regime of modal, regional and national regulations. It is due also to the professionalism of those in the industry. Industry has co-operated in the full implementation of this regime.

Industry working together

There is a clear determination on the part of the nuclear transport industry and the key international organisations to dialogue, and through the World Nuclear Transport Institute industry has a dedicated vehicle for taking part in this dialogue. The very fact that companies are able and prepared to collaborate in this way in itself sends a powerful message of industry's commitment to safe transport. The industry, through the World Nuclear Transport Institute, values greatly the opportunities made available to it within the IAEA, international modal organisations, and by national competent authorities, to dialogue in the common interest of safe, efficient and reliable transport.

Enhancing the impact of the transport safety regulatory regime

The bottom line of transport safety regulation is, of course, safety. But safety is not a factor exclusively of the wording of the regulatory provisions. Safety also is assured to the extent that there is stability in the international transport safety regulatory regime. Safety is enhanced to the extent there is clarity within the regulations; to the extent there is consistency and uniformity in their interpretation and their application around the world, and to the extent that they provide for efficient operation. Consistent interpretation and application of international regulations is important to the safe, efficient and reliable movement of radioactive materials.

Implementation is the reverse side of the regulation coin; there is an intrinsic relationship between the two. Consistency and predictability assist in ensuring compliance, help to avoid confusion among all those involved in the transport chain, avoid any perception that differing applications of the regulations in different jurisdictions, while tailored appropriately to domestic circumstances, are somehow more or less stringent than others, and focus resources on safety considerations and compliance.

Communicating transport safety

I have heard it said on occasion that transport is a weak link in the public debate of issues surrounding the fuel cycle. It is the transport link that carries radioactive materials out from behind the factory perimeter fence and into the community, onto the highways and the railways. I would argue to the contrary, that transport should be perceived as a strong link. First, it is an absolutely essential link. Second it is a safe link with an outstanding safety record. Perhaps it would be more accurate to say that it is the debate surrounding the transport of radioactive materials that is the potential weak link. This need not be the case. The regulators and the regulated both have a powerful message to convey of necessary and safe transport.

There are many who have sincerely-held concerns about the transport of radioactive materials. Sometimes this concern derives from a lack of information, or understanding, about the reasons for and the nature of the transport and how safe it really is. The value of an idea, of course, has little to do with the sincerity alone with which it is held.

It would be difficult and mistaken to under-estimate the importance of public attitudes to nuclear transport. The nuclear transport industry recognises that and takes its responsibilities for effective and appropriate communication seriously, commensurate with the equal necessity to ensure security of transport. The appropriate balance between openness and security requirements according to international agreements must be struck.

It is not sufficient that the nuclear transport industry is conducted safely, and that the industry and the regulators know that it is so conducted; it is necessary that that message of essential and safe transport be conveyed to far wider and often very diffuse audiences. The public's approach to information processing is complex and diffuse. Public attitudes are made up of much more than facts; they tend to be a complicated mix of beliefs and feelings as well. And attitudes can be devilishly hard to change, even when confronted by compelling new evidence.

The smallest incident involving the transport of radioactive materials, no matter the lack of any real or potential radiological consequences, has the potential to play to people's latent fears. There is no question that accurate information plays a powerful part in allowing greater public understanding. The communicator must engender trust. The communicator must provide reliable knowledge, empirically based and rigorously proven. Facts must be presented in ways that take account of the wider context, and in ways that are meaningful by being seen to respond to the wider public's interests. No longer is it sufficient that the science, the standards and the regulations should be right; they should be intelligible. The nuclear transport industry today is committed to communicating effectively while honouring its commitments and requirements for safe and secure transport.

Summary

There is a widespread recognition today that maintaining transport options in the interest of bringing the benefits of nuclear energy where they are wanted the world over requires open and sustained dialogue between regulator and the regulated. It also requires close collaboration among all parties in the industry. Industry recognises that it must continually educate itself to ensure full compliance with the international transport safety regulatory regime. Equally, industry must take the opportunities afforded it to inform the regulators and others of the context in which industry performs its essential services, and to be engaged in the regulation review and implementation processes.

Practical, efficient and safe transport regulation should take account of its impact on those who do the transporting. Pressures on the transport sector are not without serious consequences; they can cause delays and in some cases cancellation of essential movements. Complex routings and the necessary use of costly carrier options can push up costs and work against cost efficiency.

There is a powerful message to be told here; radioactive materials transport plays a vital role in bringing peaceful uses of the atom to the benefit of society. The nuclear transport industry operates within a highly stringent international transport safety regulatory regime; a regime subject to regular review to ensure safety. The transport of radioactive materials has an outstanding safety record over several decades. The nuclear transport industry takes its responsibilities seriously. The industry has come together, through the World Nuclear Transport Institute, to collaborate in ensuring that it continues to meet its commitments to safety. The industry is seeking every opportunity to increase mutual understanding among the major stakeholders through dialogue and collaboration. The nuclear transport industry, and all those who rely on safe, efficient and reliable transport welcome the opportunity of this important conference to increase that understanding.

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