

**CANADIAN NUCLEAR ASSOCIATION (CNA) WINTER SEMINAR
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NUCLEAR SAFETY AND REGULATION – THE TRANSPORT DIMENSION

INTRODUCTION

The many benefits from peaceful applications of nuclear energy are due in no small part to industry's capacity to transport radioactive materials safely, efficiently and reliably. The nuclear transport industry plays a vital part in realising a fundamental objective of the International Atomic Energy Agency, as stated in its Statute, which is to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world.

Transporters of radioactive materials have an outstanding safety record. While there have been transport incidents involving radioactive materials cargoes, the number has been very small relative to the large number of transports over the past forty years. One estimate indicates that about 30,000 tonnes of spent nuclear fuel alone have been transported across distances totalling more than 25 million kilometres by road, rail and sea. It is noteworthy that where there have been transport incidents involving radioactive materials, they have been without radiological consequence for health and the environment. To the contrary, there is good evidence that packages conforming to the International Atomic Energy Agency standards offer sufficient 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)

CURRENT CONTEXT FOR RADIOACTIVE MATERIALS TRANSPORT

The environment in which radioactive materials are transported has rarely been as challenging as at present. Transport of nuclear fuel cycle materials is conducted within a rapidly changing environment. There is deregulation in the electric power industry, consolidation among buyers and sellers, supply from non-traditional sources, and the decommissioning and clean-up of facilities. Purchasers of radioactive materials are more frequently addressing transportation requirements in detailed contractual terms, more clearly articulating the relevant responsibilities of buyer and seller with regard to packaging, physical transport and regulatory compliance. In many respects transportation now is being viewed as an integral market issue rather than a subsidiary concern. The industry operates within a complex regulatory system in which international, regional and national regulations overlap. The availability of carriers drives routing decisions, and changes in material flows necessitate new approaches to packaging and transportation scenarios.

Pressures on the transportation sector can affect the wider community. Such impacts can include:

- delays, and in some cases cancellations, of planned movements;
- higher costs resulting from complex routings and the necessary use of chartered carriers;
- longer, and often unpredictable, lead times to obtain regulatory approvals;
- increases in the complexity associated with implementing transports;
- market uncertainties resulting from fears about future deliveries of fuel cycle materials, especially under long-term contracts.

INTERNATIONAL REGULATORY REGIME

The excellent safety record for nuclear transport is due primarily to well-founded regulations developed by such key intergovernmental organisations as the International Atomic Energy Agency. It is due, also, to the professionalism of those in the industry. The international regulatory regime for the safe, secure transport of radioactive materials has been developed and periodically reviewed over the decades by the Member States of the IAEA. The international standards developed there are reflected in the standards and regulations of the modal organisations such as the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO), regional regimes such as the ADR, RID and ADN for road, rail and inland waterways in Europe, and the regulatory regimes of Member States themselves. Taken together they form the international regulatory regime

for the safe transport of radioactive materials. Industry has co-operated in the full implementation of this regime.

In a statement addressing the major global challenges and opportunities facing nuclear power, the Director General of the International Atomic Energy Agency, Dr. ElBaradei, said that, nuclear power's future contribution is closely tied to two key factors – public confidence in its safe and exclusively peaceful use, and the demonstration of its economic competitiveness in the energy marketplace.

Safe, efficient and reliable transport are vital to both – to public confidence and to economic competitiveness. Economic competitiveness relies to an important extent on optimal use of existing facilities and efficient transport. Deregulation of industry is driving costs down while transport costs are being driven up. The demands to transport radioactive materials are increasing while, at the same time, consignors are having difficulties in some cases in securing carriers. It is important that the voices of those engaged in, or who rely on the safe, efficient and reliable transport of radioactive materials should be heard. Practical, efficient, safe transport regulation should take account of its impact on those who do the transporting.

There is a clear determination on the part of industry and the key international organisations to dialogue. Organisations such as the International Atomic Energy Agency and the International Maritime Organisation make provision for non-governmental organisations which meet certain criteria to have a presence and, in some cases, to participate in their deliberations. This is an opportunity not normally available to any one company in this direct way.

WORLD NUCLEAR TRANSPORT INSTITUTE

A few years ago, some companies that attach importance to the safe, efficient and reliable transport of radioactive materials, and whose operations are influenced critically by national and international standards and regulations, began a discussion of how better to represent the collective interests of the industry. From those discussions grew the World Nuclear Transport Institute in 1998. Based in London, with regional offices in Washington and Tokyo, the Institute, or WNTI as it is known, has in a relatively short time, grown to 35 members world wide. The membership represents several sectors of the nuclear industry and utilities. Discussions with several other companies currently are underway. The Institute's ability to represent the collective interests of its members is enhanced by the global span of its membership and the diversity of transport concerns it represents. The World Nuclear Transport Institute offers a forum for members to share information, ideas and concerns, and acts as a catalyst to stimulate development of consolidated industry positions on transport matters. In short, the World Nuclear Transport Institute provides the nuclear transport industry, and those who rely on it, with the collective eyes, ears and voice in the key intergovernmental organisations which are so important to it.

INTERNATIONAL ATOMIC ENERGY AGENCY

The World Nuclear Transport Institute has provisional consultative status with the International Maritime Organization (IMO) and observer status with the International Atomic Energy Agency (IAEA). Last year the IAEA Director General, Dr. Elbaradei invited WNTI to attend meetings of the Transport Safety Standards Committee (TRANSSC), the premier IAEA body charged with considering implementation and revision of IAEA Transport Safety Regulations. Through the WNTI participation in this committee and the related cycle of IAEA meetings industry collectively now has the opportunity to register its views on implementation of the IAEA transport safety regulations, which as I said earlier forms a basis for international, regional and domestic regulation, to identify any problems arising from existing regulations, and to propose changes to them.

The process of revision to the latest version of the IAEA transport safety regulations – the so-called ST-1 – is well advanced with proposals for changes submitted last year by IAEA member States and some international organisations, including the World Nuclear Transport Institute – some 175 of them. The proposals for changes were considered most recently at the annual meeting of the IAEA Transport Safety Standards Committee, at which WNTI was represented, last month. This engagement by industry through the World Nuclear Transport Institute represents a major opportunity for industry, by itself, to advance its positions, and to have its interests and concerns taken into account. And the impact of the industry case is strengthened to the extent that it is expressed as a consolidated industry position, developed and advanced through the World Nuclear Transport

Institute.

IAEA TRANSPORT SAFETY REGULATIONS

The IAEA Transport Safety Regulations are based on the philosophy that radioactive materials being transported should be packaged adequately to provide protection against the hazards of the material under all conditions of transport, including foreseeable accidents. Therefore, it is considered, as far as possible, that:

- safety is vested in the design of the package. This, combined with simple operational controls, ensures safety;
- the consignor bears most responsibility for ensuring the safety of the transport, because he prepares the package for transport;
- packages of radioactive materials should be dealt with in the same way as other dangerous goods.

The latest revision of the IAEA Transport Safety Regulations –ST-1-introduces several significant changes to which industry needs to accommodate itself. For example, ST-1 imposes new requirements for the transport of uranium hexafluoride. It introduces a new, Type C package specification applying to the transport of high-activity radioactive material by air. It requires that carriers have a Radiation Protection Programme in place, the nature and extent of which to be related to the magnitude and likelihood of radiation exposures. It is important that the transport industry, and all parts of industry that rely on the transport of radioactive materials, understand fully the implications for their business of such changes. Regulatory changes can and do have an important impact on packaging, operations and on the commercial climate. That is why it is important to the Members of the World Nuclear Transport Institute that they have a vehicle for making the industry position known early on in the regulation revision and implementation process.

Accordingly, in order to address such issues our Members formed two groups within WNTI to address the issues arising from the new IAEA transport safety regulations – one industry group addresses the range of implementation and revision issues; a second one more specifically addresses packaging issues related to the transport of uranium hexafluoride. These groups represent industry's determination to collaborate among themselves to arrive at consolidated positions, and to have a strong, clear collective voice in international discussions on the regulations.

COMMUNICATING NUCLEAR TRANSPORT SAFETY

It would be difficult to over-estimate the importance of public and political attitudes to nuclear transport, and their potential, if not heeded, and not responded to sensitively and convincingly, to make life very much more difficult for industry. It is not sufficient that the nuclear transport industry is conducted safely and that it knows that it is so conducted – it is necessary that that message be conveyed to far wider, often very diffuse audiences. And those messages must respond not so much to the industry's way of processing information as to the audience's means of information processing.

The amorphous public's approach to information processing is both complex and diffuse. Public attitudes, as we all know, are made up of much more than facts – they tend to be a complicated mix of beliefs and feelings as well as facts. And attitudes can be highly resistant to change, even when confronted by compelling new or different evidence. The smallest event involving the transport of nuclear materials, no matter the lack of any real or potential radiological consequences, has the potential to play to peoples' latent anxieties. Transport, of course, is a portion of the industry that tends to be more highly visible in the wider community – radioactive materials are carried out onto the highways, waterways, seaways and airways of the world and so exposed to surroundings that often lack extensive knowledge of nuclear matters.

Use of nuclear energy, and radioactive materials, takes place in this wider context. Regulators charged with protecting public health and safety experience the pressures arising from this environment in that they are asked to re-evaluate the adequacy of existing regulations and enforcement programmes. For example, considerable time has been spent in Europe reviewing regulatory requirements for surface contamination on packages and conveyances, an issue for which

a high degree of political interest exists. The nuclear transport industry also is working to manage shipments within this context. This same context can influence carriers and port authorities through which the industry needs to ship.

SUMMARY

In summary, there is a widespread recognition today that maintaining transportation options requires open dialogue between regulator and licensee, and close collaboration among all parties in the industry. This type of industry co-operation and collaboration that has been possible through participation in the World Nuclear Transport Institute transcends the competitive pressures between individual companies in their common interest.

Our Members recognise that they must educate themselves and their partners in the industry. At the same time, it must take the opportunities afforded to it to inform the regulators, and others, of the context in which industry operates and, to be engaged in the regulation implementation and revision process. The voice of industry, we believe, is made stronger through the elaboration and presentation of collective positions, made possible through participation in the work of the World Nuclear Transport Institute.