

Effective Radioactive Transport - Perspectives on today's issues and tomorrow's challenges

Lorne Green
Secretary General, WNTI

Nuclear Inter Jura Conference
Brussels,
1-5 October 2007

Introduction

Transport is integral to the whole process of matching product to markets. The transport of dangerous goods, such as Class 7-radioactive materials-must be conducted in a manner to assure safety to life and the environment. It must also be done cost-effectively if society is to reap the full benefits that peaceful applications of the atom bring. Transport of Class 7 cannot be taken for granted; it faces a variety of challenges, and there are a number of emerging issues in the wider nuclear industry that raise important questions about transport.

The Regulator and the Regulated

There is a synergistic relationship between the regulator-whose responsibility it is to ensure that materials are transported safely and securely, and the regulated-that is, those whose job it is to transport the materials in accordance with regulation. One has no meaning, in practical terms, without the other. Regulation only exists because of the need to transport; transport cannot proceed if it is not done according to safety regulation. Each must take account of the interests and the responsibilities of the other. I believe, on the whole, that there is a positive recognition of this internationally, and certainly, from the industry point of view, the message I hear is of a generally healthy communication overall between the regulator and the regulated, at international and national level.

We make frequent reference to national competent authorities as a kind of short-hand for those in government whose job it is to regulate for Class 7 transport safety. In reality, there are many, beyond nuclear regulatory authorities, who have authority in areas that can impact directly on the ability to

transport safely, and cost-effectively-security officials, for example, customs officials, health officials. Perhaps we should be more precise and refer to nuclear regulatory-and other-competent authorities.

It is clear from industry experiences that I have heard, that, sometimes, joined-up regulation is not always apparent, or easily accessed. For example, a security official at an international border crossing may interpret requirements on the ground in a different way from authorities at the centre. There may be differing interpretations of cleanliness standards for containers. The rationale for where maritime requirements end, and inland waterway requirements begin, may not be well understood by all.

Certainly there appears to be a view among some potential transport service providers that the transport safety and security regulatory regimes are onerous, or too complicated. It is the operator who experiences at first hand the differences of interpretation and approach, within and between national jurisdictions. I had a national competent authority say to me once-“You, the industry need to tell us where there are problems of harmonised regulation from one jurisdiction to another, because it is you, the industry that deals with various jurisdictions. But don't just moan,” he added; “suggest how things can be improved.”

Differences within and between national jurisdictions potentially can jeopardise safety, and adversely affect cost effective transport through confusion, duplication of effort, delays in obtaining approvals, and inefficiencies-both for industry and for the authorities. So then, some suggestions for improvement.

Conference Paper

Might it be that publication by national competent authorities of a directory of prime contacts in government departments and agencies—not just nuclear regulatory officials—who have authority over areas that can impact Class 7 movements, would go some way to facilitating transport? Equipped with such a handbook, consignors and carriers internationally could more easily identify where they should turn for information or advice. And then, going beyond this, in those cases when transport actually encounters a problem arising from the application of different regulations, not just nuclear safety ones—for example, when a requirement related to security seems to have the unintended effect of impeding timely transport, it might be helpful if there was a clearly identified, centralised entry, or access portal for industry, to the whole range of government interests when Class 7 transport issues arise. This might, for example, be an office designated within the national nuclear regulatory authority that would provide a centralised, first access to customs, security, and so on, depending on the particular issue. This mechanism would be intended particularly in the event of an issue where, for example, an operator appeared to be getting mixed or different messages from one authority to another. This co-ordinated approach to resolving issues could help ensure consistency of interpretation and application of requirements, and a better understanding of the impact of one set of requirements on another.

I would suggest more regular collective exchanges, within countries, between those whose job it is to develop the regulations and standards that have an impact on Class 7 transport, not just the nuclear regulatory authorities, and those whose job it is to operate within the regulations and standards. For example, an annual or semi-annual meeting of officials from a host of departments and agencies, and the various industry sectors who transport, or rely on transport, for an exchange of information on latest transport regulation, security, customs and other requirements, and their relationship to each other on the one hand, and a sharing of industry experiences on the other, by those operating within the requirements, may go some way to avoiding confusion, and encouraging greater appreciation of the rationale for respective requirements.

Stability for Safety

The foundations for the radioactive transport safety regulatory regime are, of course, the transport safety standards of the International Atomic Energy Agency (IAEA). While those standards are reviewed every two years, this does not imply that they should change substantially every two years. WNTI, in behalf of its members, has for long espoused the principle—“Regulatory change if necessary, but not necessarily change”. We have welcomed recent efforts within the IAEA to streamline the review process. We have encouraged the idea that a review should begin with a look back; to a consideration of experiences with the existing regulatory regime. If the existing regime works well, then leave well enough alone. If, however, clarifications are required, problems to be addressed, or if there are opportunities for

important safety enhancements, then of course, they must be addressed. We expect the new process, which began this year, will provide for a more rigorous filtering of change proposals. We believe that any change proposals should be subject to a rigorous cost-benefit analysis, with safety, of course, as the first principle.

Harmonised Regulation

Differences of interpretation and approach from one national jurisdiction to another can lead to confusion, duplication of effort, delays in obtaining approvals and even, jeopardise safety. For example, the International Atomic Energy Agency transport safety standards stipulate that package tests, for demonstrating ability to withstand accident conditions of transport, should include three different drop tests, in a sequence such that on their completion, the specimen package shall have suffered damage that will lead to the maximum damage in the thermal test which follows. But, what if one jurisdiction has a different view from another on the most damaging sequence of the 9 metre, penetration and crush tests for a particular package design? Also, one Competent Authority might request full-scale testing when not required by another. These could have significant implications for the applicant in terms of costs and delays.

There is a general appreciation that greater harmonisation within the international nuclear transport regulatory regime, and between it, and the UN Model Regulations for all Classes of Dangerous Goods transport, is desirable. Good progress has been made; more can be done. Not only greater harmony but also, greater clarity and even, simplicity, in the iteration of the regulations, and their supporting guidance material, and their wider public dissemination among existing and potential service providers, in straight-forward language, would be welcome.

To the extent domestic regulations can actually be a direct reference to international regulations would help. Or, by actually repeating the language of international regulations, harmonisation can be enhanced, through greater clarity and, thereby, increased understanding.

Industry cannot preach harmonisation from its pulpit without accepting its own share of responsibility. Industry itself benefits to the extent that it can collaborate in the resolution of differing approaches, and agree on industry criteria for such major issues as packaging, packing and handling procedures.

This is one of the key functions of the World Nuclear Transport Institute (WNTI); to encourage the development of industry-wide standards, and consolidated positions based on sound research, and situating issues in their widest engineering, economic and political context. If industry can agree consolidated industry positions that are constructive, and be convincing to competent authorities, it can enhance safety, while helping to reduce delays, and duplication of effort. This, in turn, would improve efficiencies for all concerned.

Sustaining Shipments

A worrisome trend for global supply is that some shipping companies, air carriers, and ports have instituted policies of not accepting radioactive materials. Many things can affect the willingness of carriers to accept Class 7 consignments—maybe the potential service providers are unsure about liability and insurance implications. Perhaps they worry about the perception of other customers whose goods they want to carry. Maybe they think special handling procedures, or reporting requirements, are too complicated, or too onerous. Some are put off by problems with countries, ports, or terminals, which themselves are not prepared to accept Class 7 cargoes, or which raise seemingly complex issues affecting transit, trans-shipment or other necessary operational flexibilities. In short, the carriage of Class 7 goods may simply not look like it's worth the bother.

Experience in some regions has shown that service availability, and acceptance levels, have rapidly declined in recent years. Consignors increasingly confront departure, transit, trans-shipment, and discharge port limitations or restrictions. It is difficult sometimes to get a clear understanding and, therefore, consistent interpretation of the regulations within and between jurisdictions. Shipping companies fear that the carriage of Class 7 cargo will result in unexpected delays with port clearance processes or, at worst, refusal to dock. In some instances, this is becoming a reality.

Producer shippers accordingly are denied options for competitive choice of services. Shippers too often are met by a lack of standardisation in documentation. And, of course, worst of all, is when shipping lines deny, or withdraw from services. This situation inevitably drives consignors to consider charter options; but this is not a panacea. Charters can mean reduced shipping schedules, and a lack of delivery flexibility. This, in turn, results in increased overall inventory holdings, and increased total shipping and other related business costs. And of course, use of slower, smaller charter vessels, increases the potential risk of security breaches by diverting cargoes away from mainstream access terminals, to small ports or terminals, and the potential for piracy.

It's not all bad news. There still are carriers on many routes prepared to accept Class 7 consignments. But, if denials and delays of shipments are to be overcome, then industry must work with other stakeholders, including national competent authorities, to demystify the apparently mystifying or fearsome image of Class 7 materials.

Responses to the Denial and Delay Problem

The shipment denial and delay issue has become serious enough to show up on the international radar screen. The International Atomic Energy Agency (IAEA) is seized with the issue; so too is the International Maritime Organization (IMO). It is not an issue specific to select sectors of radioactive materials transport; the hazards associated with the transport of such materials are related

to the properties of the consignment, and not to its end use. Yes, certain materials for medical application are time urgent, but it would be well nigh impossible to distinguish clearly between certain consignments intended for medical applications, and those for other applications. Healthcare and other activities are interdependent; fuel for nuclear power plants supplies hospitals, Cobalt 60 sterilises medical instruments, but plenty of other things too, which are essential for public health.

Within the World Nuclear Transport Institute we constituted a sustaining shipments industry task force, to address the subject in a pro-active, and positive way. First, and importantly, we have sought, on behalf of our industry members, to support international efforts to address the issues of denial and delay. I am pleased to be Deputy Chair of the IAEA's recently constituted Steering Committee to address the problem. My Institute has initiated exchanges with port authorities in a number of countries. We meet with the insurance industry, maritime authorities and liner services.

One of the initiatives we have pursued is the development of what we call an Industry Knowledge Base, to assist WNTI Member companies in their dealings with potential or existing transport service providers. The Knowledge Base, provided to WNTI member companies, includes straight-forward, plain-speaking, factual information on such subject areas as insurance requirements, the physical properties and packaging characteristics of Class 7 materials, radiation protection requirements, information regarding segregation distances on carriers, and so on. We seek to equip the WNTI member companies to give information and assurance to potential service providers before concerns arise. We also are developing information and education modules to be made available to our industry members to support their dealings with service providers.

In December we will host a workshop on insurance and liability for our member companies, with representation, we anticipate, from the insurance industry, P&I Clubs, a legal expert on the international nuclear liability regime and a maritime salvage company.

I believe that increased dialogue between those who are expert in nuclear law, particularly as it relates to liability, the insurance providers, and the transporters can play an important part in dispelling concerns. The World Nuclear Transport Institute (WNTI), for its part would welcome such further exchanges.

Looking Ahead

If already the availability of transport options raises important questions, then what for the future, with a host of emerging issues in the nuclear industry. For example, there has been much attention of late to the possibilities of developing an international mechanism for assurance of fuel supply without proliferation of sensitive nuclear technology such as uranium enrichment and plutonium reprocessing. Any such mechanism inevitably must

include a view on the transport of supplies of fresh fuel, of spent fuel for reprocessing, and residues. An essential question is, even if availability of supply can be assured, how can transport to support such programmes be assured? Could existing commercial liner services be relied upon to meet the growing demand for fuel services; particularly in an environment of increasing denials and delays of shipments? And, even if it is possible to assure availability of transport at the earliest stages of the fuel cycle, is there sufficient capacity to transport spent fuel, reprocessed fuel and residues in greater volumes, and across expanded routes?

Increased demand for uranium concentrates has led to increased exploration, and development of mines in new locations. Some speak of a veritable uranium “Gold Rush”. This inevitably leads to more transport, sometimes from areas potentially lacking in transport infrastructure, service providers, and experience. This raises a variety of issues including the capacity to transport safely, compliance with regulation, harmonised standards and regulations, security, training. The same goes for the increase in the number and location of nuclear reactor sites, notably in Asia.

Increased emphasis on transport security raises a variety of issues. International transport security requirements are being developed; the IAEA transport safety guidelines for example. International standards and requirements are being supplemented by national requirements. Differing requirements between national jurisdictions can lead to greater complexity, with the potential for confusion and misinterpretation, and act as a potential disincentive to transport service providers.

Public perceptions

It would be remiss not to mention public perceptions of transport, because public perceptions have an important impact on the acceptability of transport options, and on the ability of industry to deliver its materials in a cost-effective and timely manner. An ever more internationalised nuclear industry, with increased transports to more destinations, greater attention to the growing requirements for decommissioning, and the pursuit of long-term storage solutions, all in an age of heightened security concerns, and a very public debate on energy choices for the future, make the public more sensitive to the role of the nuclear industry, and the transport of radioactive materials. It’s not just a matter of perceptions of radioactive materials transport. An incident in any sector of the nuclear industry can and does have an impact on all other sectors. A careful eye must be kept on running a safe, cost-efficient industry; but at the same time, an eye must be kept on the political, social and economic context in which the industry operates.

Industry has made giant strides, and is doing a much better job today of communicating than it did in past decades. But communication is a process rather than an end-it must continue without let-up; we must be innovative in conveying our messages of necessary and safe transport to contemporary society. Ours is a generation more environmentally aware than ever before; a generation more sensitive to the perils to our ecosystem. It is a generation also seemingly sceptical of all-knowing authority from above and, perhaps, a generation not over impressed by the technocrat. People talk in terms of values; attitudes, intuition and feelings count for as much as facts. So it is at this level, too, that industry must reach out to its audiences. It must be prepared to acknowledge when and why things sometimes go wrong; it must be prepared to answer sometimes awkward questions of public concern. Science, engineering, must be situated in its political and social context, if it is to be supported. Ultimately, it is an issue of trust-how far can the public trust the industry to provide reliable, objective and the fullest possible knowledge. Facts yes-but more is needed.

Summary

There is a widespread recognition today that maintaining transport options, in the interest of bringing the benefits of radioactive materials to where they are wanted the world over, requires open and sustained dialogue between the regulator, and the regulated. This is improving. It also requires close collaboration among all parties in the industry-this is increasing. 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 regulations should take full account of their impact on those who do the transporting. But industry does itself no favours if it is seen as only moaning or complaining; it should offer support and encouragement to the other stakeholders, and work together to propose solutions where improvements are called for.

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 to ensure that it continues to meet its commitments to safety, and to take a positive and inclusive approach to the important issues before it.

Conference Paper

For further information contact:

WNTI
Remo House
310-312 Regent Street
London, W1B 3AX
Tel: +44 (0)20 7580 1144
Fax: +44 (0)20 7580 5365
Website: www.wnti.co.uk
E-mail: wnti@wnti.co.uk