WNTI

World Nuclear Transport Institute

Conference paper

Sustaining Transport Options – A WNTI Priority

Lorne Green
Secretary General
WNTI

Global Uranium Market Outlook Conference, Beijing, China, 19-20 April 2005

Introduction

Transport is not a side issue in the nuclear fuel cycle; it is intrinsic to it. Transport is what makes the cycle go around. The graphics typically used to display the fuel cycle begin with the uranium mine site, then 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 arrows represent the transport legs of the cycle. Knock the transport legs out from under the cycle and the whole thing inevitably grinds to a halt. That is what some people would like to happen; to stop the use of nuclear energy for the production of electricity. There are others, perhaps in countries or regions that do not themselves rely on nuclear power generation, who do not see themselves deriving direct benefit and so, do not see why they should accept the transport of fuel cycle materials through their ports. The sad fact is that sometimes the transport protest may be the Trojan horse of opposition to the nuclear power industry.

Denial and Delay of Shipments

The reasons for carriers and ports to deny shipments are many, but they can be grouped loosely, into three categories – "fear", "image" and "perception".

Fear of what? We have variously encountered among carriers a fear of accidents, a fear of repercussions from their regular clients, a fear of reactions from ports. Sometimes there is a fear of protests from anti-nuclear groups, and there is a fear of delays to other consignments because of perceived special handling procedures for radioactive materials.

When does "image" become a problem? Too often the real benefits of radioactive materials are lost in uninformed negative images of Chernobyl, of perceived health risks, of nuclear weapons; all of which can lead shipping companies to conclude that they don't need to be associated with these.

Then there are the "perceptions" or should I say "misperceptions". Some shippers believe that Class 7 carriage represents too much work for not enough commercial return. Other shippers suggest that regulations are difficult and complex, requiring special training and handling, with all the associated additional costs.

The decisions taken by shipping companies are based on maximising profit. If the return from carrying Class 7 materials does not seem substantial enough, then why bother in face of the fears, image and perceptions? 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 and/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. And in some instances this is becoming a reality. There all too often is an evident general ignorance of the real facts within top-end shipping management at owner, financier and operator level.

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 is 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 overcome the problems of fear, image and perception.

Responses to the Problem

The shipment denial and delay issue has become serious enough to begin showing up on the international radar screen. The International Atomic Energy Agency (IAEA) hosted a major international conference on transport safety for Class 7 materials in 2003. At that conference a number of papers focused on the increasing difficulty consignors of radioactive materials for medical applications in particular, including those requiring urgent transport, were facing with denials and delays. The pressure was on for the international community, through the IAEA, to do something. It is worth noting that the World Nuclear Transport Institute (WNTI) successfully drew attention to the fact that denial and delay problems were not specific or unique to non-fuel cycle sectors of industry. Indeed well before the international conference, the WNTI already had created an industry-led Carriers Working Group to address the issue.

The IAEA recognised that it had to make a best effort to do what it could to help alleviate the situation and the Member States of the IAEA at its subsequent Annual General Conference later that year called for discussions to address the problems with refusal of shipments. Accordingly, the IAEA Secretariat established a Fact-finding Discussion Forum to scope the multitude of reasons for denials and delay, and on that basis to determine what actions might be taken. The WNTI because of its already well-advanced work in this area was well placed to participate in this process; WNTI with its industry members already had assembled an inventory of specific problems based on real-life experiences.

In the resulting IAEA fact-finding phase, several participants recounted specific instances and expressed particular concern over the hardships encountered by patients requiring medical diagnosis and radiotherapy, and the difficulties for the nuclear industry transporting uranium ore or uranium oxide. A British generated database showed about sixty per cent of denials related to long term issues while the remaining related to individual, one-off, events. About sixty per cent of incidents related to air transport and thirty per cent to sea transport. About twenty per cent of all denials had a bearing on regulatory burden or economic issues.

Based on its findings the IAEA then convened a small group of consultants, including a WNTI expert, to come up with recommendations for IAEA action. This group considered the possibilities within the areas of education, communication and training. Specific proposals included possible development of a training programme addressing regional denial issues including port and airline authorities, the insurance sector and the transport industry, greater IAEA public information efforts underlining the importance of Class 7 transports, and measures to ease administrative burdens related to package approvals and compliance assurance. The IAEA will return to the denial and delay issue at a special seminar of complex technical issues related to transport expected in the autumn.

Denial and delay similarly has been discussed in the International Maritime Organization (IMO). It was observed during the IMO considerations that the reasons for denying shipments in or through ports might be associated with underlining political considerations such as “nuclear free zones”, or lack of awareness of the issues involved.

While all such efforts by these inter-governmental organisations to address the problems of denial and delay can only be for the good, we should be under no illusions that by themselves they can convince reluctant carriers or ports to accept Class 7 cargoes. There is no one remedy for the multitude of denial and delay problems, and adequate responses to them probably have to pursue different avenues by different entities at different levels, all at the same time. But any efforts to allay fears, to correct misperceptions and to increase a proper understanding should be encouraged and supported.

In fact, much practical work already is being done in this area. For example, the WNTI undertook a major study of the industry experience with radiation dose exposure rates for transport workers to ensure that the radiation protection programme requirements of the IAEA transport safety regulations are well understood, and appropriately implemented within the transport industry. We have met with and provided information to transport service providers. There is room for more of this sort of educative effort.

Importantly, the World Nuclear Transport Institute, representing industry, continues to address these issues and recently established an industry task force within its Carriers Industry Working Group for this very purpose. The task force will develop guidance for WNTI Members’ use in their exchanges with shipping service providers.

Harmonised Standards and Regulations

Harmonised interpretation and application of internationally accepted standards and regulations help ensure safety and facilitate cost-efficient operations. Standards and regulations, however good, are not

effective until they are implemented correctly at the operating level. It is the operator who experiences at first hand the differences of interpretation and approach from one national jurisdiction to another. Such differences can jeopardise safety and lead to confusion, duplication of effort, delays in obtaining approvals and inefficiencies for both industry and national authorities.

For the transport of radioactive materials, safety is based on principles developed by the IAEA. These then are incorporated into the international modal regulations for sea and air transport, and the regional regulations for road and rail transport. They then are implemented nationally through processes specific to particular countries.

Overall, the nuclear transport industry experience of operating within the regulations has been positive. The issues which have arisen have related principally to differences in their interpretation by the modal organisations and competent authorities, coupled with different time schedules for implementation. Such differences take on added importance in the context of the increased frequency of IAEA regulation review.

Industry must accept its own share of responsibility for developing industry-wide standards; industry benefits when it is able to work together to resolve different approaches and agree on the criteria for such key issues as criticality assessment, and package and handling procedures. That is one of the principal functions of the World Nuclear Transport Institute (WNTI); to encourage the development of industry-wide standards and consolidated positions and also to explain and promote them to national competent authorities. WNTI currently has industry-led task forces addressing standardised industry criteria for criticality assessment, denial and delay of shipments, and importantly has recently agreed to establish a task force specifically to explore possibilities for greater industry standards for U308 packaging and transport.

U3O8 Standards

Although there is a standard way of transporting U3O8 ore concentrate, the methods employed in using 55 gallon drums and ISO containers varies considerably. For example, the drums themselves are not standard and have different lid fastenings. The drums are located and fastened in the ISO container in a variety of ways, and there is no standard for packaging the drum in the ISO container. Issues arise with regard to the packing material used to secure the drums including its disposal. The stowage of ISO containers on vessels varies considerably.

WNTI has agreed to establish a transport industry-driven task force to examine whether uranium producers and users could agree a set of minimum standards acceptable to all. It is not the intention of the task force to change significantly the way U3O8 ore concentrate currently is transported, but rather to strive to agree industry standards for packing and shipping. Through the task force, WNTI Members are collaborating to develop consolidated industry positions to carry to national competent authorities and the intergovernmental organisations. WNTI provides the opportunity but it only stands a chance of succeeding if the producers participate in or at the very least support its work.

World Nuclear Transport Institute (WNTI)

If industry can agree consolidated industry positions that are constructive, and be convincing to national competent authorities, it can enhance safety while helping to reduce delays and duplication of effort; and thereby improve efficiencies for all concerned.

At the same time that WNTI is helping industry develop consolidated positions on the big issues, it is working within the key international organisations where it has status, notably the IAEA and IMO, to encourage efforts to simplify the transport safety regulations, the timely publication of guidance material to support implementation of the regulations, and a more common interpretation of the regulations themselves. Everyone benefits from a stable international transport safety regulatory regime – stability is good for safety and it is good for efficiency. More exchanges within industry, and between industry and the national competent authorities and international organisations, on experiences operating within the regulations can only help. Uniquely, the World Nuclear Transport Institute provides this opportunity specific to transport on an international scale.

Summary

All stakeholders in the transport of radioactive material share a common interest in protecting and promoting safe, cost-efficient and secure transport. Just as the business becomes increasingly international, so too do the complexities of transport. And increasingly transport is becoming an important part of the overall cost-equation. It is also coming under greater public and regulatory scrutiny. The availability of carriers on many routes, access to ports, differing regulatory and other requirements from one jurisdiction to another, differing interpretations of just what is required, a lack of harmonisation in standards; all of these have a direct and potentially costly impact on producers. Now more than ever it is important that industry share its experiences and ideas, and collaborate in the development of consolidated positions. It has been proven in the World Nuclear Transport Institute that it is possible to do this without compromising commercial sensitivities. The WNTI is a catalyst for bringing industry together and it has the access where it counts to represent agreed industry positions.

WNTI

World Nuclear Transport Institute

Conference paper

For further information contact:

WNTI
7 Old Park Lane
London W1K 1QR
United Kingdom
Tel: +44 (0)20 7408 1944
Fax: +44 (0)20 7495 1964
Website: www.wnti.co.uk
e-mail: wnti@wnti.co.uk