

# Denial and Delay of Shipments

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## Introduction

Each day thousands of shipments of radioactive materials of all kinds are transported on national and international routes. These consignments, which are carried by road, rail, sea and inland waterway, can range from smoke detectors, cobalt-60 for sterilisation and medical sources, to nuclear fuel cycle materials for electricity production.

As with any product, radioactive material has to be transported from producer to end user. In fact, the International Atomic Energy Agency (IAEA) estimates that over ten million packages of radioactive materials are routinely transported each year. For decades the radioactive material transport sector has safely and securely managed such shipments; this record of success is due primarily to the effectiveness of the regulatory regime and the collective competence of the entities performing packaging and transport activities.

Yet despite this excellent safety and security record a worrisome trend for global supply is that some shipping companies, air carriers, ports and countries have instituted policies of not accepting radioactive (or Class 7) materials.

This paper examines the reasons for increasing delays and denials of shipments of radioactive materials. It describes the impact delays and denials are having on the industry, and the various initiatives to address the problem including industry efforts through the World Nuclear Transport Institute.

## Reasons for 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”. However, there is no clear distinction between the many given reasons for refusals and they may fit into more than one category.

Class 7 materials tend to create a high degree of discomfort with many people. Despite the

industry’s excellent safety record, World Nuclear Transport Institute (WNTI) member companies have sometimes encountered among carriers a fear of accidents. 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 fears. The terrorist attacks of September 2001 in the USA have added a new dimension. Even before 2001 industry opponents would use phrases such as ‘a floating Chernobyl’ to describe shipments of radioactive material. Such attacks served to fuel misperceptions and raised concerns about the safety and security of such shipments.

Carriers also fear repercussions from regular clients. In some instances, clients do not wish their cargoes to be transported next to radioactive cargoes due to genuine, though unfounded, concerns regarding contamination. Often shipping companies decide for commercial reasons not to carry Class 7 cargoes to avoid the risk of losing more profitable business. Sometimes shippers fear that protests from anti-nuclear groups may lead to delays of other consignments, and there is a fear of delays because of perceived special handling procedures for radioactive materials.

Too often the real benefits of radioactive materials are lost in uninformed negative images of Chernobyl, of perceived health risks to crews and dock workers, of nuclear weapons; all of which can lead shipping companies and ports to conclude that they don’t need to be associated with these types of cargoes.

Then there are the “perceptions” or more accurately “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 inconvenience and costs.

The decisions taken by shipping companies, airlines and ports are based on maximising profits. If the return from carrying or accepting Class 7 materials does not seem substantial

enough, then most shipping companies would simply choose not to carry them, particularly in view of the fears, image and perceptions.

## **Industry experience – WNTI Task Force on Sustaining Shipments**

In response to the growing denial/delay issue, WNTI recently set up an industry-led Task Force with members drawn from several sectors of the radioactive materials transport industry. The Task Force is carefully analysing the issues surrounding denials and delays, examining specific incidents and potential causes, to enable a proper consideration of appropriate industry actions and responses. Early findings of the Task Force indicate that service availability and acceptance levels in some regions have rapidly declined in recent years. Consignors increasingly experience departure, transit, trans-shipment and discharge port limitations and/or restrictions. To illustrate, South Australian producer shippers of uranium ore concentrate are restricted to using two ports, either Port Adelaide or the Port of Darwin. Due to a reduced availability of liner cargo services willing to accept Class 7 materials, South Australian producers also have experienced difficulties with trans-shipment storage, and alignment of on-carriage vessels through Singapore, increasing overall freight costs and transit times from mine to converter.

Other issues cited relate to interpretation of international transport regulations which varies between national jurisdictions. The issue is further complicated by individual countries insisting on additional domestic requirements. Shipping companies fear that the carriage of Class 7 cargo will result in unexpected delays due to 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.

As a consequence, producers and shippers are denied options for competitive choice of carrier services. Shippers too often are met by a lack of standardisation in documentation between ports, liner services or airlines. And of course, worst of all is when shipping lines deny or withdraw from service. This situation inevitably drives consignors to seek alternatives, possibly using less well established carriers, and carriers taking longer routes, which has implications for security, cost and delivery schedules. Some consignors consider charter options but this is not a panacea. This in turn results in increased overall inventory holdings on sites and increased total shipping and other related business costs. And of course, use of slower, smaller charter vessels increases the potential risk of piracy, and security breaches by diverting cargoes away from mainstream access terminals to smaller ports or terminals.

Shipment delays and denials also have serious consequences for the non-fuel cycle sector. The transport of Class 7 materials for medical applications, such as cobalt-60, have been particularly hard hit. The Task Force findings indicate a striking commonality of issues with the fuel

cycle sector, including reduced consignor and route availability, the lack of trans-shipment storage at strategic ports, and issues associated with regulatory harmonisation. Given that there are only a few producers of cobalt-60 in the world, the rising number of incidents of denial of shipments is seriously jeopardising its supply and as a result this trend is having a negative impact on global health care.

## **International responses to the problem**

There is growing recognition internationally of the problems created by shipment delays and denials and they now are being addressed in a more concerted way. The 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 is growing for the international community, through the IAEA, to do something. It is worth noting that the WNTI 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 begin addressing 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 delays, 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 nuclear medicine diagnosis and therapy, and the difficulties for the nuclear industry transporting uranium ore or uranium oxide. A British generated database showed about 60% of denials related to long term issues while the remaining related to individual, one-off events. About 60% of incidents related to air transport and 30% to sea transport. About 20% 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 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.

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 underlying political considerations such as “nuclear free zones”, or lack of awareness of the issues involved. The IMO has confirmed that all shipments of Class 7 radioactive materials, when carried in compliance with the relevant provisions of Safety of Life at Sea (SOLAS) (chapter VII) and of the International Maritime Dangerous Goods Code (IMDG Code), should not be denied on grounds of safety. Furthermore, the Facilitation Committee has recently produced a circular for distribution to all Member Governments urging public authorities, owners and operators to facilitate the movement of Class 7 materials.

While all such efforts by these inter-governmental organisations to address the problems of denial and delay can only be for the good, it is unlikely that by themselves they will 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. WNTI has met with and provided information to transport service providers. There is room for more of this sort of educative effort.

### Summary

All stakeholders in the transport of radioactive material share a common interest in protecting and promoting safe, cost-efficient and secure transport. 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: all of these have a direct and potentially costly impact on the radioactive material transport industry. Now more than ever it is important that industry share its experiences and ideas. The World Nuclear Transport Institute (WNTI) is committed to do all it can to address these issues and recently established an industry task force within its Carriers Industry Working Group for this very purpose. This task force will act as a kind of information exchange and forum for brainstorming of ideas to support its Members who live day to day with these problems, and to support the international efforts to alleviate the situation.

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# Conference paper