

WNTI

WORLD NUCLEAR TRANSPORT INSTITUTE



REVIEW 2005



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“If there is an underlying theme to the WNTI agenda it is harmonisation.”

If I had to cite one attribute above all others which best characterises the way WNTI works, it would be its responsiveness to industry needs. The work of WNTI is industry-driven; that is, the agenda is set by industry in direct response to the collective needs of its Members. For the large part WNTI industry members take the lead in carrying the issues forward, whether through the WNTI task force or working group approach, or in ensuring that WNTI is represented at key meetings by appropriate experts.

The WNTI approach is pro-active; the effort always is not so much to respond to circumstances, and wait for issues to become a problem, as to harness industry's commitment to carrying work forward in the interest of ensuring and enhancing industry's ability to transport safely, cost-effectively and reliably.

The WNTI Work Programme is positive in its objectives; it strives to be solutions-oriented. WNTI recognises it is not good enough for industry to lay out the difficulties in Class 7 transport and then to expect others to come up with the solutions on their own. Industry through WNTI seeks to be a consistent and reliable partner with other stakeholders in safe, effective and secure transport. It follows that industry has a responsibility to advance possibilities for improving situations where a need is identified.

If there is an underlying theme to the WNTI agenda it is harmonisation. In every case, whether it is addressing package requirements, safety assessments, packing and transport operations, safety and cost-effectiveness benefit from stability and predictability. The interests of all are best served when there is clarity and stability in a harmonised transport safety regime. The biggest and most important winner, of course, is safety.

WNTI has a focused, practical, no-nonsense work programme determined by and driven forward by its Members. WNTI provides the setting for this to happen. I want to single out the dedication and professionalism of the entire WNTI secretariat team for providing the catalyst for this action. I also want to express appreciation to Shinzo Baba and Jean-Baptiste des Escotais, who left the WNTI Board this past year, for their wise counsel and also, to welcome Yasuteru Nishihiro and Jean-Luc Andrieux to the Board.

A handwritten signature in blue ink, which appears to read "Malcolm Miller". The signature is fluid and cursive.

Malcolm Miller
Chairman

The WNTI Work Programme is driven by the many and varied interests of its Members. Running on several tracks, each area is at its own stage of research, analysis, discussion and representations. These activities cannot easily be constrained by the boundaries of an Annual Review. What is clear is that there is a great deal of very practical and important work in progress.



“...through its practical, issue-driven agenda, WNTI’s resources are channelled to bring maximum value.”

That is what is special about WNTI; its agenda is focused, practical, business-oriented, dealing with specific issues of transport, and driven directly by the collective interests of industry members. WNTI takes a research-based, pragmatic approach and strives to bring added value to member companies by providing the setting and support for efforts to develop consolidated positions. WNTI then has the responsibility to carry those positions forward and to represent them with other key stakeholders to the international transport safety regulatory regime, notably intergovernmental organisations, national competent authorities and other industry organisations.

No fewer than three major industry task forces currently are running within WNTI: one which is exploring whether a generic industry-wide Knowledge Base to assessing criticality might be achievable, a second which is exploring possibilities for a more harmonised approach to the packaging, packing and transport of uranium ore concentrate, and a third seeking positive responses to the issues which can cause delays or even denials to the shipment of Class 7 materials. The WNTI HEXT Industry Working Group continues its deliberations to ensure that the technical bases for and requirements of uranium hexafluoride (Hex) packaging and transport are well-understood, soundly-based and properly implemented. WNTI is heavily engaged in developing positions that enable it to make positive contributions as it co-operates with key intergovernmental organisations, notably the International Atomic Energy Agency (IAEA), International Maritime Organization (IMO), International Civil Aviation Organization (ICAO) and the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods, in promoting an effective, harmonised international transport safety regulatory regime.

All this adds up to an intensive work programme and a busy year ahead. WNTI is committed to concentrating its efforts on serving Members’ collective interests. And through its practical, issue-driven agenda, WNTI’s resources are channelled to bring maximum value. In direct support of this, and with the imminent expiry of our lease at Old Park Lane in London, WNTI Headquarters will be moving in Spring 2006 to new, cost-effective and efficient premises in Central London.

WNTI, with its small secretariat staff, and greater pool of industry expertise from among its Members, is committed to ensuring that transport, essential to bringing the benefits of Class 7 materials to where they are wanted the world over, is conducted safely, effectively and reliably.

Lorne Green
Secretary General

Introducing WNTI

Industry Working Together

The World Nuclear Transport Institute (WNTI) was founded in 1998 by British Nuclear Fuels plc (BNFL) of the United Kingdom, COGEMA of France, and the Federation of Electric Power Companies (FEPC) of Japan to represent the collective interests of the radioactive materials transport sector. Over the past seven years, WNTI has grown dramatically to 39 member companies drawn from a wide range of industry sectors, including major utilities, fuel producers and fabricators, transport companies, and package producers. This year WNTI's membership base broadened further still, with the welcome addition of REVISS Services (UK) Limited, a world leader in the production and supply of large radiation sources.

The safe and efficient transport of radioactive materials is vital to many aspects of modern life, from the generation of electricity, to medicine and health, scientific research, and agriculture. All these sectors are becoming increasingly global in terms both of products and services. Maintaining safe and secure national and international transport by all modes is essential to support them.

The industry has established an enviable record of safety and reliability – delivering thousands of shipments of radioactive materials of all kinds each day around the world. This impressive safety record is backed by a stringent regulatory regime that has been in place and under continuous review for several decades.

The radioactive materials transport industry provides a vital service within a complex regulatory, commercial and political context. Industry has demonstrated an ability to recognise the many challenges it faces, and a willingness to interact with regulators, carriers and public groups to

ensure the continued safe and efficient delivery of these essential materials. WNTI's capacity to represent industry interests is due in large part to its focus on transport issues from a very practical point of view, and developing consolidated industry positions to address them.

Through WNTI, companies are working together to promote a sound international framework for the future by helping to build international consensus, co-operation and understanding.

Intergovernmental Organisations

Intergovernmental organisations such as the International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO) play a pivotal role in establishing standards and regulations that apply to radioactive materials transport and it is important that industry views are represented.

Through its non-governmental status, WNTI supports the work of the key intergovernmental organisations in promoting an efficient, harmonised international transport safety regime.

During 2005, WNTI actively participated in an intense schedule of meetings of the IAEA and the IMO, including the provision of specialist experts for technical meetings. WNTI also was represented at key meetings of the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods.

Developing Awareness

WNTI produces technical and other factual information to support a background for balanced policies and regulations. Scientific and other academic papers are published regularly and presented to key officials including international regulators.

Our Objectives

- To ensure that radioactive materials are transported by sea, land and air in a safe, efficient and reliable manner through the harmonised application of national and international standards, regulations and procedures.
- To consult with governmental and non-governmental bodies to support balanced international standards, regulations, guidelines and procedures through the preparation of industry position papers, technical briefs and scientific research.
- To act as a catalyst and facilitator bringing Members together to exchange views on radioactive materials transport issues and to participate in appropriate meetings, conferences and media briefings.
- To support research, development and testing of systems for the transport of radioactive materials.

Our Role

WNTI is a global industrial organisation for all segments of radioactive materials transport. Operating effectively as a network organisation, the WNTI Secretariat has a small staff of qualified professionals working closely with Members and other international bodies involved in the transport of radioactive materials.

WNTI provides:

- a forum for Members to share information and ideas;
- well-researched, consolidated positions;
- time-sensitive, value-added analyses of regulatory changes;
- technical research, studies and publications;
- dialogue with intergovernmental organisations;
- a collective voice for industry.



above: Off-loading spent fuel cask for radiological inspection

The WNTI outreach programme includes participation in and presentations to relevant international meetings, conferences and exhibitions, as well as maintaining contacts with the media.

Cooperation with Industrial Organisations

WNTI profits from the on-going information exchange between complementary industrial organisations. FORATOM, the trade association of the European nuclear industry with its Transport Working Group, the Nuclear Energy Institute (NEI) Transportation Task Force and its primary focus on the United States, and the World Nuclear Association

(WNA) bring a particular perspective to the issues from within their areas of interest and competency.

Forum for Exchange of Information and Views

Through its advisory and working groups WNTI provides an important forum for an exchange of views. The WNTI Technical Advisory Group and Communications Advisory Group bring Members together to address challenges facing industry, and to share information and ideas.

Industry-led working groups meet under WNTI auspices - the TS-R-1 Industry Working Group considers transport safety regulation

review and implementation issues, and the HEXT Industry Working Group focuses on packaging issues related to the transport of uranium hexafluoride (Hex).

In 2005 WNTI embarked on a major intensification of its work programme. Recent initiatives launched include industry-led task forces addressing issues related to criticality assessment, delay and denial of shipments, and uranium ore concentrate packaging, packing and transport. The agenda for these task forces responds directly to specific member company interests and are indicative of WNTI's focused approach to addressing practical transport issues.

WNTI Organisation

WNTI is the trade name of World Nuclear Transport Limited, a company limited by guarantee and governed under English Law. WNTI has two membership categories – Ordinary Member and Associate Member. Ordinary Members are those prepared to make a substantial commitment and be actively involved in the Institute's development. Associate Members have access to information produced by WNTI and may be consulted in defining common positions.

The Board of Directors, drawn from Ordinary Members, currently comprises six Directors and meets biannually. The WNTI Headquarters, based in London, is headed by the Secretary General. WNTI has regional offices in Tokyo and Washington. The Secretariat in London has a small staff including specialist advisors on secondment from British Nuclear Group (BNG), COGEMA and the FEPC; a Company Secretary, Communications Manager, Finance and Operations Manager, Membership Secretary, Finance and IT Assistant, and a Secretary. The Secretary General chairs an Advisory Committee which reports to the Board of Directors.

Membership

WNTI is an international organisation and its capacity to represent Members' interests is influenced by the number, global reach and variety of its Members. As the WNTI membership has grown, the Institute has won increasing recognition for its capacity to represent the collective views of industry. New Members from all sectors of industry having a stake in safe radioactive materials transport are being encouraged to join WNTI.

The large part of WNTI's expertise rests with its Members and, to provide any necessary technical support, WNTI seeks collaboration with Members and external experts.

“WNTI takes a research-based pragmatic approach and strives to bring added value to member companies.”

WNTI Members

Advanced Nuclear Fuels GmbH (ANF)
 BHP Billiton Ltd.
 British Nuclear Group (BNG)
 Cameco Corporation
 COGEMA
 COGEMA LOGISTICS
 ConverDyn
 Direct Rail Services Ltd. (DRS)
 Électricité de France (EDF)
 ENUSA Industrias Avanzadas S.A.
 Framatome ANP
 FSUE “Atomspetstrans”
 General Atomics
 GNS Gesellschaft für Nuklear-Service mbH
 James Fisher & Sons plc
 Japan Nuclear Fuel Ltd. (JNFL)
 Joint Stock Company “Techsnabexport” (TENEX)
 Marubeni Corporation
 Mitsubishi Corporation
 Nuclear Cargo & Service GmbH (NCS)
 Nuclear Fuel Industries, Ltd. (NFI)
 Nuclear Fuel Transport Co., Ltd. (NFT)
 Nuclear Risk Insurers Ltd. (NRI)
 OCL Corporation
 Pacific Nuclear Transport Ltd. (PNTL)
 REVISS Services (UK) Ltd.
 Rio Tinto Uranium Ltd.
 RSB LOGISTIC Projektspedition GmbH
 Sojitz Corporation
 Sumitomo Corporation
 Svensk Kärnbränslehantering AB (SKB)
 (Swedish Nuclear Fuel & Waste Management Co.)
 Swiss Nuclear Fuel Commission
 The Federation of Electric Power Companies of Japan (FEPC)
 TRANSING Ltd.
 Transnuclear, Ltd.
 Transport Logistics International, Inc. (TLI)
 Urenco Ltd.
 USEC Inc.
 Westinghouse Electric Company LLC

WNTI Board of Directors

Malcolm Miller, *Chairman*

Jean-Luc Andrieux

Nobuo Asai

Arthur de Montalembert

Yasuteru Nishihiro

Jeremy Rycroft

Hilary Black, *Company Secretary*



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WNTI Members of Staff

Headquarters

Lorne Green (1)	Secretary General
Tracy Grant-Wilson (2)	Communications Manager
Darren Waller (3)	Finance and Operations Manager
Hilary Black (4)	Membership Secretary
Tamara Cowan (5)	Finance and IT Assistant
Emma Pittman	Secretary (on extended leave)



4



7

Specialist Advisors

Tatsuya Ishikawa (6)
 Trevor Dixon (7)
COGEMA position temporarily vacant



6

Tokyo Office

Principal Representative
 Yukio Nishino

Washington Office

Principal Representative
 Eileen Supko

“All stakeholders in the transport of radioactive materials share a common interest in protecting and promoting safe, cost-efficient and reliable transport.”

Criticality Assessment Task Force

A major initiative has been launched within WNTI with the setting up of an Industry Task Force to explore the possibility of developing an Industry Knowledge Base on Criticality Assessment. This could form a basis for a more harmonised approach to criticality safety assessment by industry.

Currently, when considering hypothetical accident conditions, the underlying assumptions can differ widely from application to application. One stage of a harmonisation process could be the identification and justification of realistic and achievable configurations of nuclear fuel cycle materials following an impact accident.

A challenge for Industry is to see if it can agree on realistic worst cases, i.e. those which would have most effect on the approach to criticality, based on sound engineering principles and analysis, coupled with experimental evidence following the IAEA tests relevant to accident conditions of transport.

Various options may be considered for the preparation of an acceptable safety case for the transport of nuclear materials. While the objective of a WNTI Industry Knowledge Base would be to assist applicants, they would decide which course of action to adopt on the basis of their own cost/benefit considerations. It is not intended to offer advice on the optimum strategy or on design solutions to meet particular regulatory requirements. These matters will depend on the circumstances relating to a particular application but the document would point out major generic factors to be addressed.

A workshop was convened in March to determine the extent to which rationalisation of approach in preparing criticality safety cases might be possible. The workshop concentrated mainly on new and spent fuel assemblies.

Sub-groups were set up to further study the scope for rationalisation in the three priority areas: (i) enrichment mapping/burn-up, (ii) fuel break-up/lattice expansion, and (iii) water ingress. Good progress has already been made in addressing some of these major issues with work carried forward to a second workshop in December.

Discussion on possible future Task Force work has identified the following stages for further consideration:

- preparing the concept, format and content of the Knowledge Base;
- developing more explanatory material and detail;
- commercial/implementation issues.

While the initial focus of work within WNTI has been on fuel assemblies it is intended to initiate work on other fissile fuel cycle materials.

Task Force on Sustaining Shipping Options

There is growing recognition internationally of the problems created by delays and denials of Class 7 shipments and they now are being addressed in a more concerted way by such organisations as the IAEA and IMO. Industry through WNTI is committed to do all it can to address these issues and recently established an Industry Task Force within its Carriers Group for this very purpose. The Task Force is analysing the issues surrounding delays and denials, examining specific incidents and potential causes, to allow full consideration of appropriate industry actions and responses. The issues are many and complex, and have been of increasing concern in recent years.

The safe, efficient transport of such materials is vital to many aspects of modern life, from the generation of electricity, to medicine and health, scientific research and agriculture.

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 materials transport industry.

For decades the radioactive materials transport sector has safely and securely managed such shipments. Yet despite this excellent record a worrisome trend for global supply is that some shipping companies, air carriers, and ports have instituted policies of not accepting radioactive materials. 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 Task Force is now moving beyond the problem definition stage to the development of effective industry responses.

All stakeholders in the transport of radioactive materials share a common interest in protecting and promoting safe, cost-efficient and reliable transport.

Task Force on Uranium Ore Concentrate Packaging, Packing and Transport

There has been discussion within industry for a number of years regarding standards for shipping uranium ore concentrates to conversion facilities. Uranium ore concentrates are transported internationally by road, rail and sea from the uranium producers to uranium converters. The concentrates are LSA-1 type material transported in IP1 packaging, typically standard open-head steel drums. In some cases the transport takes place over relatively limited distances in dry vans (road trailers). In many cases, however, the transport is over long international routes that involve the use of dry 20' sea (ISO) containers. International routes involve sea transport and often include both rail and road segments.

The combination of long distances and multiple transport modes can result in more demanding conditions of transport.

As greater attention is given by national and modal authorities to the handling of cargo classified as dangerous goods, shippers are re-evaluating their methodology for transporting these cargoes. As well as being classified as dangerous goods (Class 7), there are additional requirements and areas of regulatory interest applicable to uranium concentrates, such as attention to the control of radiation dose and contamination by customs and other authorities; the interest of ports and other jurisdictions in the security of the cargo in transit; and increased phytosanitary regulations (restricting the use of raw lumber products for load bracing).

A new initiative has been launched with the setting up of a WNTI Industry Task Force to discuss and explore the three main aspects of uranium concentrate shipping in ISO containers: (i) the drums used for packaging, (ii) the containers themselves, and (iii) restraint of the drums in the containers.

The Task Force will also look into related emerging issues and initiatives, such as the recent formation of a new American National Standards Institute (ANSI) Sub-Committee N14.37 to address methods of restraint for drums of commercial quantities of dry uranium concentrates that are packed and shipped inside cargo containers.

The Task Force will explore the concept of standard practices for uranium concentrate packaging and shipping in ISO containers in the interest of assisting industry in the transport of well packaged and secure loads at reasonable cost.



top: Lyn Farrington, Chair, Criticality Assessment Task Force

middle: Günter Achilles, Chair, Carriers Group

bottom: Catherine Green, Chair, Uranium Ore Concentrate Task Force

Safety and Security

Safety of radioactive materials transport depends mainly on the integrity of the package. The IAEA Transport Safety Regulations set standards and tests which ensure safety under all accident conditions which can be realistically envisaged. Adoption of these Regulations and their implementation by industry has led to an impressive record of safety. In over 40 years, no accident with significant radiological consequences has occurred in nuclear fuel cycle transport.

Whereas safety is the prime responsibility of the consignor, security which involves the various measures to guard against the consequences of malicious acts is mainly the responsibility of the State. The main consideration in the past was theft and diversion of nuclear material but the events of September 11 2001 have heightened concerns about terrorist action.

WNTI has been involved in work within the IAEA and IMO on the need for enhanced measures for security in the transport of radioactive materials. This is intended to complement the security requirements in the UN Transport Regulations which contain a basic security level for the transport of all dangerous goods, as well as additional requirements for an enhanced security level for goods defined as 'high consequence dangerous goods'. Security requirements may include monitoring of the transport operations, a degree of confidentiality, and appropriate protection measures.

International Atomic Energy Agency (IAEA)

For decades the International Atomic Energy Agency (IAEA) Transport Safety Regulations, known as TS-R-1, have set the standards for the worldwide transport safety regulatory regime. The premier body within the IAEA recommending on transport safety regulation review and implementation is the Transport Safety Standards Committee (TRANSSC).

TS-R-1 Industry Working Group

The WNTI TS-R-1 Industry Working Group's principal purpose is to arrive at consolidated industry positions on TS-R-1 review and implementation issues. It also plays an important role in providing advice to support WNTI representatives at IAEA and other meetings.

Midway in the current two-year regulation review cycle, TRANSSC had before it the 28 proposals for change to TS-R-1 which survived the initial filtering of proposals. In total 22 changes to TS-R-1 were accepted, all essentially of an editorial nature with no impact on package design or fuel cycle transport operations. The next TRANSSC meeting in February 2006 will address whether the changes warrant a new publication of TS-R-1.

Streamlining the Review Process

In 1999 the IAEA introduced a system for a two-year process of review and revision of the Transport Safety Regulations. The intention was to make the process more efficient, more user-friendly and to harmonise the IAEA Regulations for the Transport of Radioactive Materials with the regulations for the transport of other classes of dangerous goods. While industry has been supportive of the review process, WNTI played a substantial role in advancing ideas for streamlining it. In particular, WNTI has emphasised that safe and efficient transport operations are enhanced by

stability, and that proposals for change should focus on safety which can be justified in terms of cost and benefit. WNTI favoured a more efficient process which would begin with a preliminary review of the current regulations to determine if a request for proposals for change on safety grounds was necessary.

A new process has now been defined by the IAEA which retains the two-year cycle, remains synchronised with the United Nations process for regulation review, but would only follow the preliminary review with a revision process if TRANSSC considered proposals for change to be sufficiently important in terms of safety. This approach should prove to be more workable and efficient.

HEXT Industry Working Group

The WNTI HEXT Industry Working Group considers package requirements in TS-R-1 for the transport of uranium hexafluoride (Hex).

The Working Group provides a forum for WNTI Members to exchange information on a range of packaging issues including package approvals and validations. Information also is shared on technical and operational solutions to satisfy regulatory requirements.

A major challenge for industry has been addressing the thermal test requirement for 48" Hex cylinders, and, in particular, implementing the use of newly developed thermal protectors in 2005. Different systems for transporting 48" Hex cylinders are currently being used, as shown in the photographs (see facing page). Compliance with the thermal requirement will continue to be a subject for further research and investigation.

Transport Security

Maintaining secure as well as safe transport remained a priority at the IAEA in 2005. Work continued on developing guidelines on transport security. These guidelines will be the subject of a Technical Meeting in 2006.

IAEA Annual General Conference

At this year's General Conference a Resolution was supported by both shipping and coastal states which highlights the intention of Member States to hold further discussions on the shipment of nuclear materials on a voluntary basis. The Resolution also requests the IAEA Secretariat to report on the planning and work of the International Expert Group on Nuclear Liability (INLEX).

International Maritime Organization (IMO)

The International Maritime Organization (IMO) is the specialised agency of the United Nations Organization providing the mechanism for Member States to develop regulations and codes of practice to preserve the safety of life at sea, ensure maritime security, and protect the marine environment from pollution by shipping. The IMO provisions for radioactive materials are based on the IAEA Regulations.

There are currently 166 Member States of the IMO and several intergovernmental and non-governmental organisations, including WNTI, which provide expertise and technical guidance on all aspects of the marine industry.

Meetings in 2005

Several items relevant to the transport of radioactive materials were discussed at IMO meetings in 2005.

Shipments of Class 7 Materials

Mindful of increasing concerns about delays and denials of Class 7 shipments, the Facilitation Committee approved a Circular encouraging Member Governments to work with relevant national authorities and industry associations to facilitate the movement of Class 7 materials transported in accordance with the International Maritime Dangerous Goods Code.

Particularly Sensitive Sea Areas (PSSAs)

The Marine Environment Protection Committee (MEPC) agreed to the designation of new Particularly Sensitive Sea Areas (PSSAs), which were previously approved in principle: the extension of the existing Great Barrier Reef PSSA to include the Torres Strait; the Canary Islands; the Galapagos Archipelago; and the Baltic Sea area. MEPC also finalised its review of Guidelines for the Identification and Designation of PSSAs. The application process for Member States to request PSSA status has been restructured. The amendments include the introduction of a flow chart to assist States in deciding the most appropriate measures for protection of sensitive sea areas. While the qualification criteria remain unchanged, the whole area must now comply which will prevent large areas from being granted PSSA status in future. The revised guidelines have no additional impact on the transport of radioactive materials.

Suppression of Unlawful Acts against the Safety of Maritime Navigation

A diplomatic meeting adopted changes to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation. These changes have no impact on the lawful transport of radioactive and nuclear materials.

Long Range Identification and Tracking

A draft text for a Safety of Life at Sea (SOLAS) regulation on Long Range Identification and Tracking of ships is being developed by an IMO working group. The group has not yet come to an agreement on the rights of coastal states. This issue will be taken up by the Maritime Safety Committee in 2006.



top: Bare Hex cylinder
middle: Hex cylinders with blanket thermal protectors
2nd middle: Hex cylinder with composite thermal protector
bottom: Dedicated transport container for Hex (Japan)

Radiation Protection Programmes

Radioactive materials fuel the nuclear power industry – an industry generating electricity in 31 countries supplying over 16% of the world's electricity. Radioactive materials also have vital applications in many sectors including healthcare and industry. Safe and reliable international transport is essential to support these industries and most transport is carried out by organisations for which the transport of radioactive materials is only a small part of their business.

The IAEA now requires all organisations involved in radioactive materials transport, including consignors, carriers and handling agents, to implement a Radiation Protection Programme (RPP) to control radiation dose exposure to both workers and the public.

The organisations involved fully support the need to establish RPPs but some transport companies may perceive the implementation of a formal RPP as difficult to justify in terms of the value to them of the business. This need not be the case. The detailed guidance provided by the IAEA, coupled with advice available from WNTI, is intended to help minimise any administrative burden in developing effective RPPs. The sharing of best practice within the industry is also beneficial and is being encouraged.

This support facilitates the continued provision of safe and reliable international transport services by alleviating the concerns of operators, transport workers and the public.

General Assembly

This year, the IMO held its biennial Assembly Meeting which approved a Resolution on the transport of Class 7 materials urging Member States and port authorities to facilitate the efficient movement of Class 7 materials.

World Maritime University

Based in Malmö, Sweden, the World Maritime University (WMU) was established in 1983 by the IMO to increase the number of highly trained specialist maritime personnel in countries across the world.

WNTI continued its partnership with the WMU in the interest of encouraging a fuller understanding of the issues surrounding radioactive materials transport. This year saw another WNTI sponsored student successfully complete a Master of Science Degree in Maritime Affairs with a specialisation in shipping management. WNTI is set to continue its programme of sponsorship with a third fellowship in 2006.

Committee of North Sea Senior Officials (CONSSO)

Environment Ministers of States bordering the North Sea meet every few years to discuss issues of common concern regarding the North Sea. A Committee of North Sea Senior Officials (CONSSO) meets between Ministerial Sessions to prepare papers for ministerial consideration. In the current round of meetings in advance of the Ministerial Meeting planned for Gothenburg Sweden, May 2006, the transport of radioactive materials in the North Sea area has been a small but nevertheless important part of discussions. The WNTI has attended these meetings in the interest of increasing understanding of the context in which such materials are transported, and in particular, the stringent international safety regulatory regime applicable to such shipments.

WNTI Industry Site Visits

Building on the success of previous years, WNTI continued its programme of site visits to transport-related facilities in France and the United Kingdom. This programme has encouraged many senior representatives of the IMO and IAEA Secretariats and national delegations to see first hand the practices, procedures and equipment involved in ensuring safe, efficient and reliable transport of radioactive materials.

International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) Dangerous Goods Panel met this year and considered a number of issues relevant to the transport of radioactive materials. The ICAO Technical Instruments have now been amended in light of changes to the United Nations Model Regulations for the Transport of Dangerous Goods (the so-called Orange Book).

The issue of delays and denials of shipments was also considered. There was recognition within ICAO that States and operators needed to work together to minimise impediments to the transport of radioactive materials, in particular medical isotopes, for which the delivery is time sensitive.

United Nations Sub-Committee of Experts on the Transport of Dangerous Goods

The United Nations Sub-Committee of Experts published the 14th Edition of the Recommendations on the Transport of Dangerous Goods. This Edition includes provisions concerning the transport of radioactive materials which have been revised in line with the IAEA TS-R-1 1996 Edition (As amended 2005).



above: INF3 Class vessel

Nuclear Insurance

Misperceptions or a lack of understanding about insurance requirements for the carriage of Class 7 materials can create problems as consignors seek carriers for their products.

Specialist nuclear insurance 'Pools' exist in a number of countries specifically to provide insurance cover for the activities of those involved in the nuclear fuel cycle.

Companies' requirements for insurance flow from the international nuclear liability regime. The Paris and Vienna Conventions channel nuclear liability to the responsible operator who is required to provide an amount of security, as specified under their domestic legislation, by insurance or other means acceptable to the authorities in the country concerned. Compensation above this amount up to a level set by the Conventions will be provided out of

public funds of the responsible operator's state and thereafter by the funds of all signatories of the relevant Convention.

The major countries participating in the nuclear fuel cycle which are not signatories to the main Conventions also have legislation which generally encompasses the channelling concept. Where a nuclear transit emanating from a Convention country is bound for a non-Convention country the liability usually rests with the operator sending the material, i.e. the consignor.

The amounts required by the Conventions have recently been reviewed and the Paris Convention in particular has been substantially revised. Consequently, the domestic legislation of the signatory countries is also under revision. The Convention has amended the minimum limits required, including those for

transport, and the insurance pools are cautiously optimistic that they will be able to raise sufficient capacity to meet operator needs; however there could be problems in this respect should the limits be substantially increased, particularly where terrorism cover is required.

The revised Convention also introduces the cost of measures for reinstatement of impaired environment under the definition of nuclear damage; this is something that is generally uninsurable throughout the world's insurance markets. Insurers will also seek to ensure that the existing ten year prescription arrangements for operators and their insurers are maintained.

It is to be hoped that the views of both operators and their insurers will be taken into consideration when new legislation is drafted by the signatory states.

Member Services and Public Communications

Member Services

During 2005, WNTI held two joint meetings of its Technical and Communications Advisory Groups – Tokyo in May and London in December. The Tokyo meeting, attended by representatives of various Japanese regulatory bodies, provided WNTI Members with an insight into regulatory issues from a Japanese perspective. A highlight of the meeting was participation by the Head of the IAEA Safety of Transport of Radioactive Materials Unit, Michael Wangler, who outlined the current status of the IAEA Action Plan for Transport. At the December meeting there was a strong focus on regulatory harmonisation issues with presentations by Arungunram Nandakumar, IAEA; and, Jim Stewart and Jeff Hart, UK Department for Transport.

WNTI also hosted a number of workshops and seminars for Members, in various parts of the world, addressing a variety of practical issues from criticality assessment to uranium ore concentrate transport.

Conferences

During 2005 the WNTI Secretariat attended several important conferences. In February, WNTI Communications Manager, Tracy Grant-Wilson attended the 17th International Workshop on Public Information Materials Exchange (PIME) and gave a poster presentation on public perceptions of risk. The conference addressed communication challenges facing the nuclear industry and provided guidance in best practice for effective communication in this complex environment.

One of the key gatherings for the radioactive materials transport industry is the Institution of Nuclear Engineers Radioactive Materials Transport Conference. In 2005, this conference was held in Cambridge in September. WNTI was involved at a strategic planning level with representatives on the Conference Steering Committee. During the conference, WNTI presented four papers, two of which highlighted the work of WNTI Industry-led Task Forces. WNTI representatives also took an active role in running a number of sessions.

As part of the WNTI strategy to gain a better insight into the causes of delays and denials of shipments, WNTI Specialist Advisor, Trevor Dixon, participated in a Maritime Conference held in Genoa in September. The conference focused on regulatory issues affecting the maritime industry, in particular the potential impact of enhanced security controls on international shipments.

In October, the Nuclear Energy Institute (NEI) hosted its International Uranium Seminar in Santa Fe, New Mexico. WNTI Secretary General, Lorne Green made a presentation describing the complex issues that industry faces in transporting fuel cycle materials and the various initiatives to address the problems of delays and denials, including industry efforts through WNTI.

In the interest of supporting organisations in the continued supply of services for radioactive transport, WNTI presented a paper at an international conference on Education and Training in Radiological Protection, held in Brussels in November. The paper made reference to the WNTI Dose Assessment Study (2001) and discussed the practical initiatives in education and training undertaken through WNTI with respect to radiation protection in the transport of radioactive materials.

Publications

An important communications function for WNTI is the publication of baseline information, reviews and studies in support of its principal activities.

The WNTI suite of material includes Fact Sheets, Information Papers and Conference Papers, as well as the more technical Review Series.

Website

The WNTI website is constantly reviewed to ensure it remains current and relevant to key audiences. New additions to the Members' Area in 2005 included a detailed section on WNTI's activities. To attract new visitors to the site and encourage existing visitors to return, further enhancements are planned in 2006. The WNTI website can be found at www.wnti.co.uk.

Media

WNTI increasingly is being recognised as an authoritative voice for industry by the media. In 2005 WNTI articles appeared in a number of trade publications. As part of WNTI's ongoing media relations programme, a network of contacts is being developed with key industry publications.

The Year Ahead - Some Priorities

The WNTI Work Programme is not driven by the calendar. In 2006, industry members will continue their active engagement in the several task forces and working groups, researching and preparing discussion papers and exploring possibilities for progress in such areas as:

- the potential benefits of industry-wide approaches to the preparation of criticality safety cases, leading possibly to a non-prescriptive, generic Industry Knowledge Base to assist companies while at the same time respecting the applicant's freedom of choice;
- the possible advantages to industry of a greater degree of standardisation in practices for the packing and international transport of uranium ore concentrates;
- alleviating the impediments encountered in the transport of essential radioactive materials which cause delays and sometimes, denials to shipments - this is an area of continuing concern for WNTI Members and has been recognised in the IAEA and elsewhere as one requiring continued attention;
- packaging issues related to the transport of Hex based on accumulating experience of operating within the latest package test criteria, in particular to encourage fuller consideration of the safety basis for the thermal test requirement.

In parallel, WNTI has a responsibility on behalf of its Members to participate in deliberations with key stakeholders on transport safety regulation review and implementation issues. WNTI will attend and participate in key meetings at the IAEA, IMO and elsewhere to present the industry perspective while also increasing industry understanding of the issues.

WNTI will continue vigorously to support its industry members in the pursuit of a stable, harmonised, well-understood international transport safety regulatory regime. There will be continued research, publication and representation. Exchanges within intergovernmental organisations, with national competent authorities and collaboration with related industry organisations such as FORATOM, the NEI and WNA are essential and remain a priority for WNTI.

Most importantly, WNTI will continue to provide a forum for companies around the world involved in or which rely on transport of radioactive materials to share their experiences and ideas, and to work with them in the pursuit of consolidated positions which protect and promote the shared interest in safe, efficient and reliable transport.

In each one of these cases the detailed work going forward is informed by the actual experiences of WNTI member companies, and represents a major commitment by industry to work together and with other major stakeholders in an effort to seek improvements.



top: Road transport of spent fuel in Japan

middle: Drums of uranium ore concentrate

bottom: Preparation of Cobalt-60 container for transport



above: Cask for fresh MOX fuel

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