

**WNTI
TODAY
2020**



**Connect
Influence
Share
Resolve**

**Dedicated to the safe,
secure, efficient and
reliable transport of
radioactive materials.**

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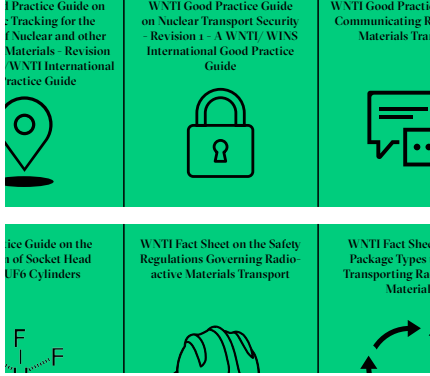
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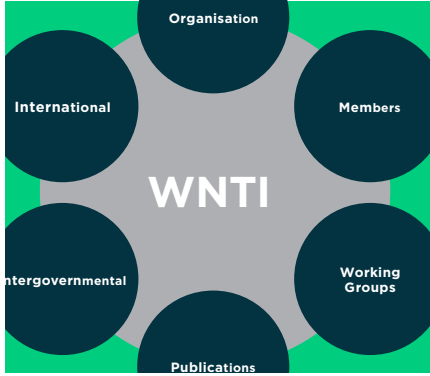
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Chairman's Message

As the WNTI Chairman it was great to see so many of our Members represented at PATRAM 2019 in New Orleans. It is an event that my parent company Orano also recognises as significant for our Industry and we are keen to support PATRAM both in the preparation work and the event itself. I hope that all the WNTI members who attended enjoyed both the conference and the Orano evening!



Having celebrated 20 years in 2018, it is important that we continue to be prepared and to focus on the work needed over the next 20 years.

Given this importance, the WNTI Board members agreed for a 'peer-review' of the recent Strategy work and we will be incorporating the key proposals from this work into the updated 2020 Strategy Action Plan. This work will be completed in early 2020.

During this year we have had some changes to the WNTI Board and I have been pleased to welcome Mr Nabeshima (ORC) and Mr Tokunaga (NFT) to the WNTI Board - I know they bring some extensive experience to the WNTI board.

For the record, we are extremely grateful for the earlier contributions from their predecessors Mr Kato and Mr Takasugi. 2019 has certainly been a period of 'Review and Refresh' for the Board and AC meetings.

Additionally, in line with our updated Strategy and the new Full Member category, I am delighted on behalf of the Board to welcome Mr Michael White from Sellafield Limited onto the WNTI Board. This will provide a slightly different perspective to our original Founder members and we look forward to this. There are still a few places left for Full Members and if a member is interested, they should initially speak to the Secretary General.

In addition to the changes at the Board, there have also been some changes in the Advisory Committee, which is chaired by the Secretary General. Orano is now represented by Anne Presta and Mathilde Gautier. On the Japan side, Mr Umeda (ORC) has replaced Mr

Sugiura and Mr Kunitomi (NFT) has replaced Mr Fukaya. From INS, Mr Thompson has replaced Mr Rose. Again we are grateful for the contributions of the previous AC members and look forward to the work of the new members. Consistent with the Board arrangements and their full member status, Sellafield Limited will take up a position in the AC meeting and Mr Martin Porter will take this role, alongside his BETWG Chairman role.

As is normal, we held our Summer SAMM meeting outside of London, this time in St Petersburg in May and the WNTI is extremely grateful for the support of our member TENEX in working with WNTI on the practical arrangements. My personal impression was that good progress continues to be made in the Working Groups. The Plenary presentations were extremely interesting and the site visit to the IZOTOP terminal was excellent. Our host TENEX ensured we had an enjoyable dinner on the Tuesday evening. It is always impressive to see how well the WNTI SAMM members

"As always, we continue our 'foundation stone' work with IAEA, IMO, ISO and we are extremely grateful for our members' ongoing support in ensuring that we are well represented as the 'Voice of the Transport Industry' at these meetings."



interact at the meetings and we are appreciative of the Members' feedback on the event.

Outside of our regular Members' interactions, we continue to look to engage with the emerging and developing nuclear markets. As such, the WNTI held a further Seminar, in cooperation with the Chinese Nuclear Society, in Beijing in November. We are hopeful this will also lead to further WNTI members. In addition, we have also been asked by the Namibian Uranium Association to hold a further Workshop in Spring 2020. I hope members will be able to also join these events.

As always, we continue our 'foundation stone' work with IAEA, IMO, ISO and we are extremely grateful for our members' ongoing support in ensuring that we are well represented as the 'Voice of the Transport Industry' at these meetings. Thank you for your continued support.

The WNTI Board members have committed that some of the Board members will attend each SAMM and we would certainly be pleased to hear your views at the SAMM in December.

Finally, whilst it currently seems a long way off, the WNTI looks forward to welcoming its members and others to the French Riviera in 2022. Of course there is much work to do in the interim and I am sure we can count on the contribution of the WNTI members

Bon Courage!
David Ohayon,
Chairman





Secretary General

Firstly, as last year, I would like to extend my thanks to the WNTI members for their on-going contribution to maintaining the WNTI as **‘The Voice of the Nuclear Transport Industry’.**

From my perspective, WNTI's collective standing and influence was extremely clear at PATRAM in New Orleans, with our Logo, and the INMM logo, on the main screen in the centre of the Plenary meeting room stage. I recognise that all the contributors from our member companies have challenging day jobs, so a genuine ‘Thank You’ for your efforts on PATRAM.

We have prepared WNTI TODAY 2020 for issue at the WNTI SAMM meeting in London, so it will reflect most of 2019 activities and allow us to get an early glimpse of the 2020 planned activities.

2019 has seen some significant events for WNTI. PATRAM 2019 brought together some 650 people from our Industry sector from around the world in New Orleans in August and, based on the feedback I have received, the WNTI has represented itself extremely well on this Global stage. In advance of the conference, WNTI members volunteered over the previous 12 months in preparing abstracts, papers, presentations, organising the conference schedule etc etc. Having been directly involved on the Symposium planning committee I now have first-hand experience of the time and effort needed to make such a conference run smoothly and be a success. WNTI members were present in all the key committees and I am certain this contributed significantly. As the saying goes ‘You get out what you put in’, and WNTI members certainly put a lot in.

During my own presentation I made the point, in line with the WNTI vision, that ‘the transport of nuclear material should be regarded as safe and secure and should be a model for the transport of other hazardous materials of all types’. We have a very good

track record, but of course cannot become complacent. As a side benefit, WNTI had several companies visiting our exhibition stand and discussing the work of WNTI and whether to become a member: the discussions are on-going.

Of course having the experience of PATRAM 2019 also means we are well placed for PATRAM 2022, where WNTI will take the lead (supported by INMM). Preparatory work on this also progressed during 2019 and we (almost) had a venue/city fixed and then the city had to withdraw some 10 days before PATRAM 2019, due to the venue being planned for refurbishment! Therefore in New Orleans I had to announce ‘The French Riviera’. Before the time of this publication we intend to have the venue secured. I hope that members will again be fully involved in the preparation work.



"2019 has seen some significant events for WNTI. PATRAM 2019 brought together over 650 specialists in our industry sector from around the world to News Orleans"

Also during 2019 the WNTI team have settled into the new (WeWork) offices in Holborn. Overall, it is a significant improvement on the old office for the WNTI team and for our members who visit. It is also positive to be able to hold our Advisory Committee and Board meetings within the building and this allows some more engagement between the WNTI Board and AC and the WNTI team. Additionally, it means we are also able to offer our members access to the meeting rooms at no cost. This presents a good opportunity for members to save cost (increase value) from the WNTI membership. Please continue to utilise this opportunity.

Within the Head Office we have had a few changes. Anne Presta moved back to Orano at the end of her 3 year period and Scott Edwards arrived from the US in mid-2019 and I know Scott is known to many members. Scott will focus on IAEA activities and provide the secretariat role for the HEXT and SSR-6 Working Groups. Within the broader WNTI group Captain Sen has left as the Southern Africa representative and has been replaced

by Ms Katinka Theron. Katinka has a strong operational background in nuclear materials transport and we are pleased she is able to represent WNTI in this region.

Similarly, and in line with the ‘Review and Refresh’ Strategy, we have reviewed the Working Groups and Bruno Desnoyers has kindly volunteered to take over as the Chair of the SSR-6 Working Group, with support from Marc Flynn of TAM. Of course I would like to record our thanks to Jan Van Aarle for his work in this group to date – we are pleased that he will continue to stay involved in the work of this group. One other important aspect of the Working Groups, in line with the approach used in the BETWG, is that we have now undertaken a ‘review and refresh’ of the activities and priorities of the other 4 Working Groups. This ensures that we focus on the priorities for our members. Thank you to all members who completed the questionnaires and the secretariat for progressing this. December SAMM should see all of this in operation.

In parallel to all of the above we are continuing to progress the overall ‘Review and Refresh’ Strategy. I will provide a further update on this work to the members at the SAMM. One key element of this is the update to the WNTI Website. This project has commenced and we are hopeful it will be live in early 2020. We intend to gain the views of members as it progresses. We have already taken into account the member views provided to date.

As always, thank you for your on-going support and, as also stated last year,

"Collectively we will continue to be the Voice of the Nuclear materials transport industry."



Introducing the World Nuclear Transport Institute

WNTI represents the nuclear transport industry worldwide.

Founded in 1998, by BNFL (now International Nuclear Services Ltd) of the United Kingdom, Cogema (now Orano) of France and the Federation of Electric Power Companies (FEPC) of Japan, the World Nuclear Transport Institute (WNTI), a Non-Governmental Organisation, was created to represent the collective interests of the nuclear and radioactive materials transport industry and those who rely on the safe, secure, efficient and reliable transport.

Through WNTI, members are working together to maintain a sound international transport framework through consensus, co-operation and understanding.

WNTI has grown to be an organisation with 3 possible levels of membership and almost 50 international member companies involved in activities across the nuclear fuel cycle. Relationships with the IMO, IAEA and other international organisations have been developed, and overall transport of nuclear materials has been undertaken in a safe and secure manner.

WNTI Vision

For the transport of nuclear materials to be regarded as safe and secure, and as a model for the transport of hazardous materials of all kinds.

Our Mission

To be recognised as the voice of the nuclear materials transport industry by utilising its members skills and knowledge to maintain and improve the safe, secure, efficient and reliable transport of nuclear materials.

Our acceptance as the Nuclear Materials Transport Industry representative at the IAEA, IMO, ISO and similar United Nations Agencies endorses the WNTI status, as set out in our Mission. The WNTI membership is honoured to be representing our overall sector at the many important meetings of these Agencies.

Our Objectives

WNTI reviewed its Vision, Mission and Objectives as part of its 'Review and Refresh' strategy update in 2018. These remain similar to the original versions and have thus stood the test of time. They form the cornerstones of the Annual Work programme and budget that WNTI produces each year. These enable our day-to-day activities to be linked to our formal company level objectives:

- To promote the continued development and worldwide use of Nuclear Power;
- To ensure that nuclear materials are transported by sea, land and air in a safe, secure, efficient and reliable manner;
- To support, consult and participate in the work of Governmental and Non-Governmental bodies to support the safe and secure transport of radioactive materials (IAEA, IMO, Domestic regulators etc);

- To establish and maintain a forum for the exchange of good practice, innovation and views on the foregoing (SAMM);
- To support research and development and testing for systems and components for Transport.



Above: IAEA 63rd General Conference in Vienna. Below: IMO Maritime Safety Committee

WNTI Organisational Structure and Team

WNTI involves a team of some 25 people with their own expertise and dedicated to our core objectives.

WNTI Board of Directors



David Ohayon (Chairman)
Orano TN



Peter Buchan
International Nuclear Services



Christopher Watson
International Nuclear Services



Masato Nabeshima
Overseas Reprocessing Committee



Yoshihisa Tokunaga
Nuclear Fuel Transport Co. Ltd



Eric Delaunay
Orano TN



Michael White
Sellafield Ltd

WNTI Advisory Committee



John Mulkern
Chairman



Ceinion Thomas
International Nuclear Services



Mathilde Gautier
Orano TN

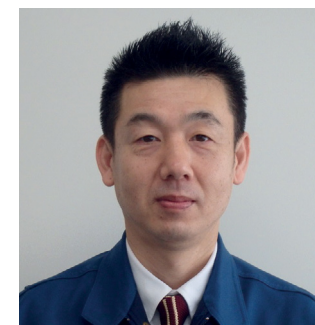


Toshiro Umeda
Overseas Reprocessing Committee
and Japan Regional Representative

WNTI Advisory Committee



Anne Presta
Orano TN



Katsuhito Kunitomi
Nuclear Fuel Transport Co. Ltd



Martin Porter
Sellafield Ltd



Adam Thompson
International Nuclear Services

WNTI Regional Representatives



Steven Shi
China Representative



Frank Boulton
Australasian Representative



Katinka Theron
Southern Africa Representative



Eileen Supko
North America Representative

Secretariat Headquarters, London



John Mulkern
Secretary General



Chris Chen
Company Secretary, Finance &
Operations Manager



Simon Chaplin
Specialist Advisor



Hirotaka Nojima
Specialist Advisor



Scott Edwards
Specialist Advisor



Amy Northage
Membership & Events Executive



Francesca Houslander
Communications Officer



Ayomide Agbaje
Finance & Admin Assistant

Membership

As a member, become a part of the leading international organisation that is representing the collective interests of the radioactive materials transport sector and shaping the future of nuclear transport for the better. Membership is open to companies involved in or which attach importance to the transport of radioactive materials for peaceful purposes.

Connect
Influence
Share
Resolve

WNTI is the only Nuclear Transport NGO granted Observer status at the International Atomic Energy Agency (IAEA) and Consultative status at the International Maritime Organisation (IMO). We are proud to be in a unique position to officially represent our members' interests, where updated regulations are developed.

Benefits of WNTI Membership:

- Support the promotion of safe, secure, efficient and reliable transportation of nuclear and radioactive materials.
- Connect with technical experts from across the nuclear fuel cycle to resolve common issues.
- Influence decisions and outcomes for industry progression.
- Access to technical and regulatory platforms to share and further develop common industry positions and good practices on strategic issues.
- Information Exchange - Lead others in good practice via Publications.
- Privileged access to reports, presentations and regulations updates through our members portal network.
- Network within a global forum for Nuclear Transport.
- Free attendance to all WNTI member events, meetings and workshops.
- Enhance your company's international profile and visibility.

Membership Categories:

With 3 categories to choose from, Membership to WNTI is available as follows:

FULL MEMBERS

Make a substantial commitment and are actively involved in WNTI's strategy and development via direct involvement in the WNTI Board and Advisory Committee.

ASSOCIATE MEMBERS

Actively participate in the development of Good Practices and Position papers through the Industry Working Groups. They have access to all information produced by the WNTI and all meetings held; and if applicable, provide expert advice and experience from lessons learnt in support of the WNTI activities.

SUPPORT MEMBERS

Smaller companies with lesser direct involvement in nuclear transport activities but play an important role in the overall supply chain. They will have access to information produced by the WNTI and are welcomed to participate in the WNTI Plenary Members Meetings and Seminars.

For further information on membership please contact
Amy Northage: amyn@wnti.co.uk

Highlights from 2019

January	February	March	April
<p>New Branding</p> <p>WNTI launched our new logo and branding</p>	<p>Members voiced opinions on IAEA NORM Documents</p> <p>Through WNTI, members had the opportunity to comment on two, IAEA draft documents on NORM (Naturally Occurring Radioactive Material)</p>	<p>Waste Management Symposia, Phoenix, Arizona</p> <p>We exhibited to over 2000 attendees at the largest conference in the world focussing on nuclear waste management</p>	<p>Project on EPR arrangements in Mediterranean region</p> <p>Contributed substantial input at IAEA CM to finalise training material for this project</p>
<p>WNA Symposium</p> <p>WNTI attended and advised on transport matters at their Transport Working Group</p>	<p>Sellafield became our first Full Member</p> <p>Sellafield joined the WNTI Board of Directors and was the first company to apply for our new, senior membership category</p>	<p>Presented at WINS Workshop on Security of Small Modular Reactors</p>	<p>IMO Editorial & Technical Group</p> <p>Discussed changes to IMDG code, concerning Class 7 material</p>
<p>Venue Preparation</p> <p>Initial visit to French Riviera for Patram 2022 venue preparation work</p>	<p>Attend PATRAM 2019 Paper Selection Committee</p>	<p>Attended a IAEA Consultancy meeting on the DS496 document in Vienna</p>	<p>World Maritime University Lecture</p> <p>Presented lecture on the maritime transportation of INF material</p>
May	June	July	August
<p>Summer Semi Annual Members Meeting in Russia</p> <p>With support from TENEX, hosted SAMM in St.Petersburg. 80 participants from over 20 organisations attended 5 Working Group meetings in Russia. We also co-organised an exclusive members' tour of the Izotop Terminal in St.Petersburg</p>	<p>U.S. Nuclear Regulatory Commission (NRC)</p> <p>Through WNTI, members submitted comments on the draft SSR-6 harmonisation documents issued by the U.S. Nuclear Regulatory Commission (NRC)</p>	<p>Attended IAEA Nuclear Security Guidance Committee (NSGC) 15th meeting</p>	<p>PATRAM 2019</p> <p>WNTI and INMM jointly organised the PATRAM 2019 conference in New Orleans, attracting over 650 delegates from the nuclear transport and packaging industries.</p>
<p>Participated in the Coastal & Shipping States Dialogue Workshop on social media crisis communication issues</p>	<p>IAEA TRANSCC 38th meeting</p> <p>Presented WNTI's position paper on Freight Containers at the IAEA</p>	<p>New Specialist Advisor Scott Edwards joined WNTI</p>	<p>Bruno Desnoyers became SSR-6 Working Group Chairman</p>
<p>ISO/TC85/SC5 Plenary and WG4 in Germany</p> <p>Discussed ISO 7195, ISO 10276 and new projects</p>	<p>IAEA Emergency Preparedness and Response Standards Committee (EPReSC) 8th meeting</p> <p>The draft of DS469 at Step11 was approved, reflecting WNTI comments appropriately</p>	<p>Presented lecture at the World Nuclear University</p>	
	<p>IAEA International Conference on the Management of Spent Fuel from Power Reactors</p>	<p>Participated in an IAEA Consultancy Meeting to revise the draft of SSG-26, Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material</p>	

September	October	November	December
<p>IMO CCC Sub-Committee</p> <p>A member state presented a paper on NORM material to which WNTI made an intervention, stating the collective position of the WNTI membership. WNTI also submitted a document supporting the proposal to develop a model training course for Class 7 training material</p>	<p>TRANSCC 39</p> <p>Presented WNTI position papers on Features Added to Package new Type of Package for Intermediate Level Waste and Confined Areas. Also discussed NORM issue previously brought to the IMO</p>	<p>China Seminar</p> <p>Held the China Seminar on the Transport and Packaging of Radioactive Materials in China. In partnership with CNS</p>	<p>Winter SAMM</p> <p>Winter SAMM took place between 4th -5th December in London, including 5 Working Group meetings and Plenary Day</p>
<p>IAEA General Conference</p>	<p>(IAEA) Technical Meeting on Technical and Operational Issues Related to the Transportation of High-burnup and Irradiated Mixed Oxide Fuels and the Transportability of Long-Term Stored Spent Fuel</p>	<p>Attended the IAEA Nuclear Security Guidance Committee (NSGC) 16th meeting</p>	<p>ECOSOC Sub-Committee of Experts on the Transport of Dangerous Goods in Genevas</p>



Radioactive Materials: International Regulations

Internationally harmonised regulations ensure the safe and secure transport of millions of shipments of radioactive materials throughout the world each year.

Radioactive materials are transported by road, rail, sea, inland waterways and air. Shipments range from smoke detectors to radiopharmaceuticals to nuclear fuel cycle materials used for power generation to waste. To sustain these important activities, organisations and people around the world depend on safe, secure, efficient and reliable transport of the full range of nuclear materials.

The safety record of these shipments is impressive.

"In over 50 years there has never been a transport incident involving nuclear materials that has caused significant radiological damage to people or the environment."

Over this period a stringent regulatory regime has been developed at both international and national levels. This regime includes standards, codes and regulations, which have been continuously revised and updated over

the past decades to keep abreast of the latest technologies, environmental concerns and political views.

THE IAEA REGULATIONS FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL

Regulations are based on the fundamental principle that radioactive material being transported should be packaged adequately, to provide protection against the various hazards of the material under both normal and potential accident conditions. Safety, therefore, relies on the packaging adapting to its radioactive contents, whatever the transport mode.

Since safety depends primarily on the packaging, the regulations provide performance standards for each type of packaging used for the transport of radioactive material.

Five different types of packages (Excepted, Industrial, Type A, Type B and Type C) have been established. The criteria for each package

design type is based on both the activity and the physical form of the radioactive material they may contain. The IAEA Regulations set out corresponding test or analysis procedures to demonstrate compliance with the required performance standards.

The provisions of the IAEA Regulations are adopted in the national requirements of Member States. The IAEA Regulations are also incorporated into the regulations relative to each mode of transport issued by international or regional bodies, such as the IMO IMDG code and ICAO Technical Instructions.

WNTI has Observer Status at the IAEA and other international bodies, so WNTI is able to participate in the discussions where new or revised regulations are determined.

WNTI's members collaborate to produce Best Practice documents, which provide methods and techniques to comply with IAEA regulations. These are freely accessible on our website.

REGULATIONS, STANDARDS AND CODES

IAEA Safety Standards

Regulations for the Safe Transport of Material

2018 Edition

Transport of dangerous goods

Model regulations

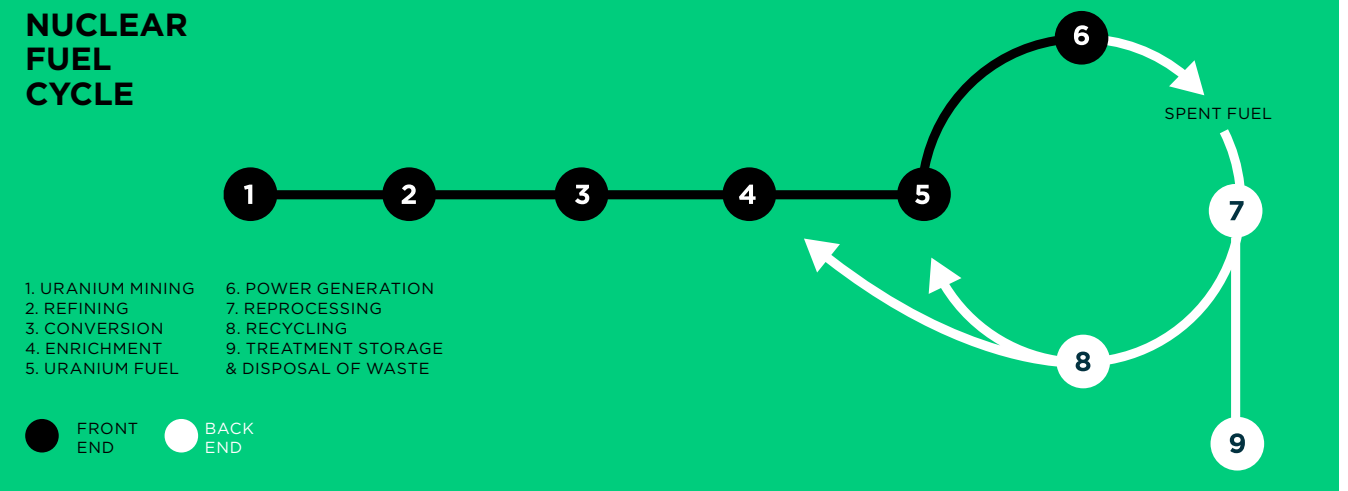
IMDG CODE 2018

Technical Instructions for the Safe Transport of Dangerous Goods by Air

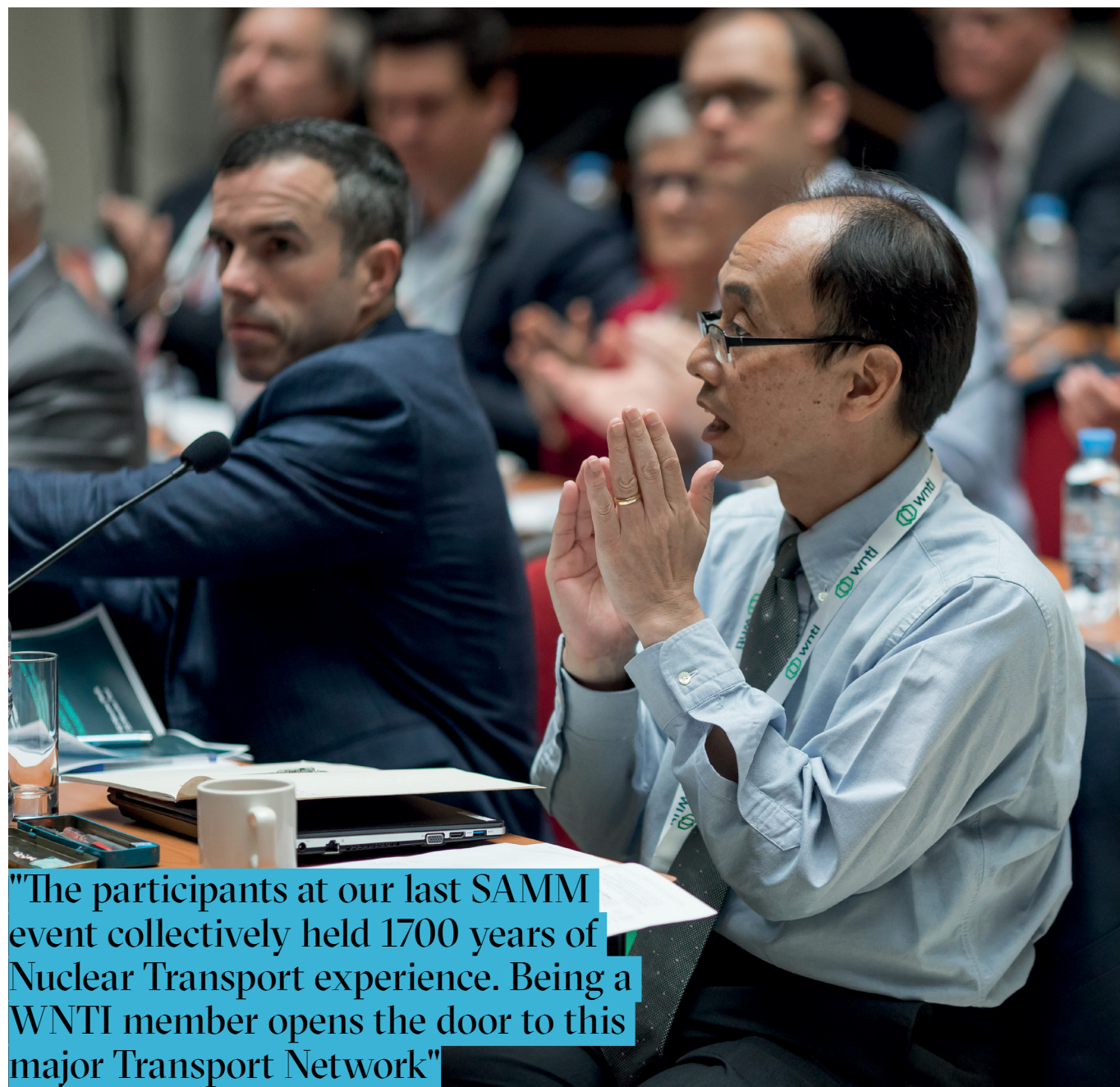
2019 Edition

ADR 2019

NUCLEAR FUEL CYCLE



Semi Annual Members Meeting (SAMM)



"The participants at our last SAMM event collectively held 1700 years of Nuclear Transport experience. Being a WNTI member opens the door to this major Transport Network"

The Semi-Annual Members Meetings (SAMM) are the featured events for WNTI and our Members; taking place each Summer in a Member destination and Winter in London.

The meetings are split across two days and attended by Transport, Security, Logistics, Mining, Compliance and Packaging experts from within the industry and from across the world.

There are five, bespoke working groups which are led by representative Chairmen from within the membership body. They provide a great platform to exchange ideas, debate disciplines, share knowledge and experience and the opportunity to work together on current issues and anticipate future needs.

80
DELEGATES

UP TO
14
COUNTRIES

35+
SPEAKERS

02
DAYS

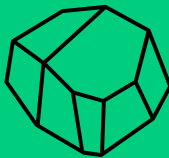
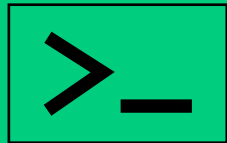

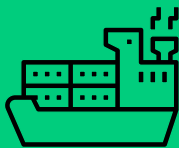





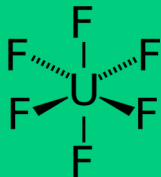
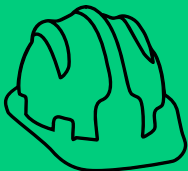
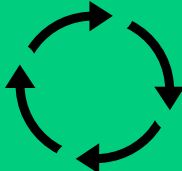
50
PRESENTATIONS

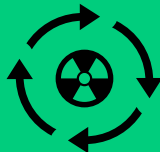



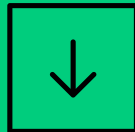






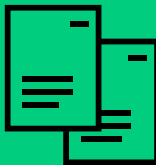



05
WORKING GROUPS

WNTI Publications

Our suite of publications includes Fact Sheets, Information Papers, Good Practice Guides and Standards

These are freely available to download on www.wnti.co.uk

WNTI Standard for the Packaging and Transport of Uranium Concentrates – Version 3	WNTI Standard for UF6 Cylinder Identification	WNTI Good Practice Guide on Transport Principles	WNTI Good Practice Guide on Radiation Protection Programmes for Road Carriers, Sea Carriers and Port Handlers
			
WNTI Good Practice Guide on the Preparation of Natural Uranium Samples for Shipment in an Excepted Package	WNTI Good Practice Guide on Electronic Tracking for the Transport of Nuclear and other Radioactive Materials – Revision 1.0 – A WINS/WNTI International Best Practice Guide	WNTI Good Practice Guide on Nuclear Transport Security – Revision 1 – A WNTI/ WINS International Good Practice Guide	WNTI Good Practice Guide on Communicating Radioactive Materials Transport
			
WNTI Good Practice Guide on the Transport of UN3507 by Air	Good Practice Guide on the Installation of Socket Head Plugs in UF6 Cylinders	WNTI Fact Sheet on the Safety Regulations Governing Radioactive Materials Transport	WNTI Fact Sheet on the Package Types used for Transporting Radioactive Materials
			

WNTI Fact Sheet on the Nuclear Fuel Cycle Transport – Back-End Materials	WNTI Fact Sheet on the INF Code and Purpose-built Vessels	WNTI Fact Sheet of Quick Facts on the Transport of Nuclear Fuel Cycle Transport	WNTI Fact Sheet on the Safe Transport of Uranium Ore Concentrates
			
WNTI Fact Sheet on the Transport of Large Objects and Special Arrangement	WNTI Fact Sheet on Uranium Hexafluoride (UF6)	WNTI Fact Sheet on Nuclear Liability for Transport	WNTI Fact Sheet on Industry Interpretation of TI and CSI Limits for the transport of UF6 packages by Sea
			
WNTI Fact Sheet on Nuclear Fuel Cycle Transport – Front End Materials	WNTI Information Paper on Nuclear Fuel Cycle Transport – The IAEA Regulations and their Relevance to Severe Accidents	WNTI Information Paper on Radioactive Materials Transport: The International Safety Regime – An Overview of Safety Regulations and the Organisations Responsible for their Development	
			
A WNTI Glossary Information Paper	WNTI Information Paper on New Fissile Exception Provisions in the IAEA Transport Regulations (SSR-6)	Good Practice Guide – Generic UOC Safety Data Sheet	WNTI Information Paper on Radioactive Materials Transport – Industry Experience
			

Working Groups



International Nuclear Services Terminal

BRUNO
DESNOYERS

SSR-6 Working Group



Established in 2000, this group permanently establishes and defends our industry's position at the IAEA Transport Safety Standards Committee (TRANSSC), with respect to the issuance and maintenance of IAEA Standards and Guides related to the Safe Transport of Radioactive Material. The scope of our group is to address any member concerns associated with the current IAEA Transport Regulations. Our members are package design, manufacturing and shipping companies.

THE PURPOSE OF THE WORKING GROUP

The SSR-6 WG provides a forum for the discussion of regulatory issues that may be reviewed, or proposed for change, through the IAEA TRANSSC process.

The purpose of the SSR-6 WG is to help the IAEA and other regulators (IMO, ICAO, IATA, UNECE) to provide safe and practicable rules for the transport of radioactive material. Consistent with the process implemented by the IAEA for the establishment and revision of the IAEA Regulations for the Safe Transport of Radioactive Materials (SSR-6) and other publications within the TRANSSC competencies, the SSR-6 WG collects, discusses and synthesizes proposals for amendments or comments from WNTI members in relation to these texts, and to discuss and comment proposals for change submitted by other parties.

This SSR-6 WG is also where industry can discuss and propose potential amendments to the Dangerous Goods Modal Regulations to improve the implementation of the IAEA SSR-6 in these regulations.

The main documents in the scope of the SSR-6 WG are the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6) and associated Safety Guides. These include the Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (SSG-26). The International Dangerous Goods Regulations (UN Model Regulations, IMDG Code, ICAO TI, IATA-DGR, ADR, ADN and RID) are also analysed in our SSR-6 WG.

SUMMARY OF 2019 SUCCESES

In 2019, the SSR-6 WG provided and supported numerous proposals and comments and participated actively in the discussions at IAEA level in the drafting of the following safety guides being issued or revised due to the publication of Revision 1 of the IAEA SSR-6 in 2018:

- SSG-26 (Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material)
- SSG-33 (Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material)
- The Safety Guide related to PDSR (Package Design Safety Report) and the Safety Guide related to the transport of NORM (Naturally Occurring Radioactive Material).

Significant and numerous improvements in the explanatory texts and recommendations contained in these documents have been proposed by WNTI SSR-6 WG to ensure consistency with the requirements of SSR-6 and for their understanding. Most of them have been accepted by the TRANSSC Members.

Through the active participation of WNTI representatives in the different TRANSSC Technical Expert Groups, it was also possible to introduce certain industry issues into these discussions. These included the status of opened containers in the IMDG Code, CSI limits onboard containerships and other seagoing vessels, proposal for a new fissile exception for clean and washed out 30B cylinders.

FUTURE WORK IN 2020

The SSR-6 WG will maintain its vigilance and active participation in the establishment or revision of the texts relating to the transport of radioactive materials under the jurisdiction of the IAEA TRANSSC (Safety Guides on RPP and Management Systems).

Particular attention will be paid to the following items, in order to find a common position between WNTI Members: How to implement the new requirements regarding ageing mechanisms in the package design safety reports? What can be the simplest content of the PDSR for the simplest Package Designs (examples for Excepted Packages and IP-1 to be developed)? What can be done by WNTI Members to support a review of the CSI limits onboard ships? The SSR-6 WG must also prepare to make proposals for improvements and developments of SSR-6 and SSG-26 as part of the review cycle expected to be initiated by the IAEA TRANSSC in 2020.

For more information, contact:

Chair: Bruno Desnoyers
Orano TN, DQ3SE – Transportation Oversight Department,
bruno.desnoyers@orano.group

Secretary: Scott Edwards
WNTI Specialist Advisor
sedwards@wnti.co.uk

MARTIN
PORTER

Back End Transport Working Group



Spent fuel and radioactive waste from nuclear power reactors, the decommissioning of nuclear facilities and a wide range of industrial and medical facilities vary greatly in their chemical, physical and radioactive properties. Radioactive wastes have to be processed and packaged, transported for storage and eventually for disposal. The Back End Transport Working Group BET WG have developed a forward Workplan to identify specific BET issues and drive the delivery of tangible outputs.

THE PURPOSE OF THE WORKING GROUP

Spent nuclear fuel is intensely radioactive. It is transferred first from the reactor to the on-site storage ponds for shielding and to allow radioactivity to decay. For subsequent transport off the reactor site, either to on-site/off-site storage or to reprocessing facilities at home or abroad, it is transported in high-integrity packages, known as casks. These casks are massively constructed from steel weighing typically around 100 tonnes.

The Back End Transport Working Group was created by WNTI in 2009 and the first meeting was held during the June 2009 SAMM, in Paris.

The purpose of this BET WG is to develop discussions on back-end transport issues with the potential to affect radioactive materials transport in terms of safety requirements, costs, delays and any other aspects.

The activities of the BET WG involve the discussion and sharing of back-end transport issues in order to facilitate good practices in the packaging and the transport of waste materials.

In addition, the BET WG develops a WNTI industry perspective on these issues and communicates these views to the IAEA, when it is appropriate.

SUMMARY OF 2019 SUCCESES

The BET WG has continued to discuss a new type of package for intermediate level waste (ILW). This is aimed at simplifying the processes of decommissioning and reducing the number of packages to be shipped by allowing the packaging of a broader range of material in storage and transport packages.

In addition, we reviewed and evaluated the workplan of the BET WG, and collected members new interest.

Furthermore, we attended the International Symposium on the Packaging and Transportation of Radioactive Materials (PATRAM) held in New Orleans, USA. The BET WG submitted the paper 'WNTI: An overview of our current work on back end transport issues and the upcoming challenges facing our industry' and delivered the presentation.

Regarding WNTI Publication Revision, we almost finished revising WNTI Fact Sheet 'Transport of Large Objects and Special Arrangements' and commenced a new process of 2 WNTI Publications: 'The INF Code and purpose built vessels' and 'Nuclear Fuel Cycle Transport – Back end materials'.

FUTURE WORK IN 2020

Having reviewed and evaluated the workplan of the BET WG, the new workplan is:

- New Types of Waste Package
- Long-Term Storage of Spent Fuel and Wastes
- Cask Decommissioning
- Large Objects
- Dual Use Casks
- IAEA-TECDOC-1774: Potential Interface Issues in Spent Fuel Management
- NEW IAEA TECDOC: Transport of High Burnup UOX & MOX spent fuel

We will also continue to consider new types of packages for intermediate level waste (ILW) and decide the aims of the new workstreams which have been revised based on the members' request.

We will continue working with the IAEA and continue to review and update current WNTI Publications. We will develop new WNTI publications, where a need has been identified

For more information, contact:

Chair: Martin Porter
Sellafield Ltd, Head of Operations,
Infrastructure Consignment Services
martin.porter@sellafieldsites.com

Secretary: Hirotaka Nojima
WNTI Specialist Advisor
hirotakan@wnti.co.uk

MARC-ANDRE
CHARETTE

Uranium Ore Concentrates Working Group



The Uranium Ore Concentrates Industry Working Group (UOC WG) is a standing working group of experts from the WNTI Members and external consultants as necessary, established by the WNTI Secretary General. The Uranium Ore Concentrates Industry Working Group (UOC WG) is concerned with a general theme: Safe, secure and efficient transportation of Uranium Ore Concentrates internationally by road, rail and sea from the uranium producers to uranium converters.

THE PURPOSE OF THE WORKING GROUP

Uranium ore concentrates are transported internationally by road, rail and sea from the uranium producers to the uranium converters. These international transport routes involve large distances and in some cases, many jurisdictions.

In order to ensure safe, secure and efficient transport of uranium ore concentrate, the WNTI Uranium Ore Concentrates Industry Working Group (UOC WG) was formed and is now dedicated to developing Standards, Good Practice Guides and Fact Sheets. The primary function of our Working Group (UOC WG) is to discuss and explore the following aspects:

- The packaging used
- The shipping process - for example sea containers and package securing methods
- The requirements and controls for transport, such as safety marks, shipping documents, safety data sheets and radiation protection
- To develop and maintain publications such as Good Practice Guides, WNTI Standards and Fact Sheets related to the transport of Uranium Ore Concentrates, in particular within ISO Containers in Multimodal Transport.
- To act as a forum for sharing experiences, issues and incidents so that the industry can learn from each other.

SUMMARY OF 2019 SUCCESES

In 2019 the UOC WG embarked on the comprehensive review of the 'Standard for Packaging and Transport of Uranium Concentrates' with a view to incorporating the recommendations found in three other documents. This process involved extensive contributions from the subject matter experts among the WNTI membership. Version 3 of the standard will be available on the WNTI website in 2020.

We finalised the publication entitled 'Preparation of Natural Uranium Samples for Shipment in an Excepted Package'. This will be published as a Good Practice Guide in 2019. We also incorporated several publications into one WNTI standard:

- 'Good Practice for the Securing of Drums of Uranium Ore Concentrate in 20' ISO containers'
- WNTI Best Practice for Checking Shipping Containers Prior to Loading Drums of UOC and Before Dispatch'
- Uranium Concentrates Industry Best Practice for Avoiding Contamination of Packages and Shipping Containers in Multimodal Transports'.

We also reviewed and commented on the IAEA NORM document: 'Radiation Safety in the Transport of Naturally Occurring Radioactive Material' as well as reviewing and commenting on the IAEA NORM document: 'The Determination of Exemption from the International Atomic Energy Agency Regulations for the Safe Transport of Naturally Occurring Radioactive Material'.

FUTURE WORK IN 2020

The future challenges are, amongst others, to ensure the safe, secure, efficient and resilience transport of uranium ore concentrate. Against this background, monitoring of regulatory developments at the IMO, IAEA and nationally as well as the availability of transport routes is the main focus of our UOC WG.

In order to assure the long term viability of the uranium industry, our UOC WG continues to evaluate new technologies for packaging, transport, safety and security. In addition, the UOC WG continues to:

- Work with the IAEA in order to develop publications
- Review and update current WNTI publications
- Develop new WNTI publications, where a need has been identified
- Encourage the use of the WNTI Standard for Packaging and Transport of Uranium Concentrates

For more information, contact:

Chair: Marc-Andre Charette
Cameco Corporation, Director -
Transportation, Security &
Regulatory Relations
marc-andre_charette@cameco.com

Secretary: Simon Chaplin
WNTI, Specialist Advisor
simonc@wnti.co.uk

BEN
WHITTARD

Transport Security Working Group



By its very nature, the security of nuclear and other radioactive materials during transport continues to attract international attention. The unique challenges posed during transport, particularly when compared with fixed facilities, often require a dedicated and risk managed approach. At WNTI, we are committed to supporting our members navigate through this ever-changing environment to ensure the safe, secure, efficient and reliable transport of radioactive materials globally.

THE PURPOSE OF THE WORKING GROUP

The WNTI Transport Security Working Group (TSWG) continues to act as an important central forum where members can come together to share and discuss transport security matters. Acting as our members' voice at the IMO and IAEA, the TSWG works collaboratively with our members to ensure their views and opinions count. We also discuss new and emerging threats or risks of interest and seek to enable the early identification of issues and risks to our sector.

In 2019, the TSWG has provided a platform for important discussions on cyber security in transport, security in the supply chain, security culture and human factors and the sharing of important threat information from relevant international agencies such as the IMO. Our TSWG workplan focusses on three key pillars:

Industry Voice and Influence.

To provide WNTI members with early and comprehensive notice of intended changes to international regulations and good practice to enable an inclusive and comprehensive consultation.

Competency and Professionalism.

To improve the general awareness and competency of transport security through the provision of training, good practice guides and specialist advice.

Learning from experience.

Member and non-Member sharing of security learning, experience and good

practice to benefit the wider transport membership and community.

SUMMARY OF 2019 SUCCESES

Meetings of the IAEA Nuclear Security Guidance Committee took place in July and November 2019. This committee is open to all the member states of the IAEA, as well as selected NGOs and makes recommendations on the development and review of IAEA Nuclear Security Series publications. The WNTI are represented by the TSWG secretary.

The Summer SAMM in St. Petersburg, Russia was a key success for our group. Among other topics, this meeting included two presentations given by member companies as part of the 'Shared Experience' initiative. This gave those members an opportunity to share and discuss in confidence transport security issues and resolutions. An update was also given on the current status of piracy and armed robbery at sea.

The TSWG is currently reviewing the WNTI publication 'Electronic Tracking for the Transport of Nuclear and Other Radioactive Material – A WINS/WNTI International Best Practice Guide.' A revised version of this publication will be reissued once a final draft has been agreed.

In August 2019 WNTI co-hosted PATRAM 2019 and this included several sessions focused on security, in which many TSWG members were involved. Ben Whittard presented an overview of the current work of the WNTI on transport security issues.

FUTURE WORK IN 2020

We will continue to follow our workplan of Industry Voice and Influence, Competency and Professionalism, Learning from experience.

We will continue to monitor outcomes from the UN agencies, making comments and interventions as and when appropriate. These will be reported back to the working group. The TSWG will also continue to support the development of publications that are produced by these UN agencies.

There are plans to hold future briefings on topics deemed appropriate following consideration of the working group member requests, such as unmanned aerial vehicles (UAV's) and drones.

We will also progress our review of WNTI publications concerning transport security. The publication 'Electronic Tracking for the Transport of Nuclear and Other Radioactive Material – A WNTI/WINS International Best Practice Guide' should be finalised and published. We will then commence to review publication 'WNTI/WINS International Best Practice Guide – Nuclear Transport Security'.

For more information, contact:

Chair: Ben Whittard
International Nuclear Services, Director of Security, Security & Environment (SSE)
Ben.whittard@innuserv.com

Secretary: Simon Chaplin

WNTI Specialist Advisor
simonc@wnti.co.uk

JOEL
KRUEHLER

HEXT Working Group



Uranium Hexafluoride (UF6) is the main component for the production of clean and low-carbon nuclear energy. It is transported internationally by road, rail and sea from the conversion facilities to the enrichment and fuel production facilities. Like other nuclear products, these international transport routes involve large distances and in some cases, the packages may traverse many jurisdictions on their way to the final destination.

THE PURPOSE OF THE WORKING GROUP

Our Working Group provides a forum for WNTI members to exchange information on a wide range of topics including regulatory and operational matters. In particular, this involves discussions surrounding UF6 package approvals and validations, UF6 cylinder standards, the publication of WNTI Good Practice Guides and Fact Sheets, as well as solutions orientated discussions about technical and operational challenges.

Publications include the Uranium a Hexafluoride (UF6) Fact Sheet, which includes an introduction into the preparation, properties, application and transportation of Uranium Hexafluoride (UF6). There is also the Fact Sheet entitled 'Industry Interpretation of TI and CSI Limits for the transport of UF6 packages by Sea', and the WNTI Standard for UF6 Cylinder Identification.

This working group is where industry can discuss and propose potential common responses to and methods to comply with transport regulation changes. It is a forum for members to share lessons learned from transportation and packaging activities and understand how other members have addressed common issues. As a result, this provides a detailed information base for our members regarding compliance to the regulatory environment and best practice for the safe handling and transportation of UF6 around the world.

SUMMARY OF 2019 SUCCESES

2019 has been an eventful year for the majority of the HEXT WG members. Although the challenging market situation has forced members to concentrate on their company's businesses, diverse HEXT topics have been progressed and moved forward.

An industry consortium of HEXT WG members have contributed to a revision of the 48X/Y safety case for the approval application in the UK. Several additional UF6 package applications have been filed with national authorities, in particular for packages to transport fissile UF6.

Besides the ongoing revision of the UF6 Fact Sheet and the Guideline for the Transport of UF6 samples, the revision of the Good Practice Guide for the Installation of Valves and Plugs has been finalised.

Further to this members have been actively involved in the revision of the industry standards ANSI N14.1 and ISO 7195, which will likely be finalised at the end of 2019 or beginning of 2020. A presentation on UF6, entitled "Why is Uranium Hexafluoride not regulated in a similar manner as radioactive material with subsidiary hazards" was given during PATRAM 2019.

This paper generated a provocative conclusion that there is a need to either harmonise the packaging requirements for UF6 with the UN Model Regulations or discontinue the constant re-examination of conformity with the IAEA Regulations and not impose further requirements for UF6 packages.

FUTURE WORK IN 2020

With regard to our Working Group the future challenges are, amongst others, to monitor the regulatory developments especially with regard to the management of ageing packages. The longterm integrity of packages will become more focussed upon and it is desired that the HEXT WG members collaborate to address this topic for the available packages.

Regarding day to day business, we will plan to improve the available publications and also set-up a Good Practice Guide for the load securing of UF6 packages.

Additional topics to be considered for the future are the application of activity values for UF6 packages, following on-going revisions to the International Standards for Packaging of UF6 for transport, the progressing of package certifications and the continuous improvement of operational processes for the safe handling and transport of UF6.

For more information, contact:

Chair: Joel Kruehler
URENCO, Logistics
Compliance Manager
Joel.kruehler@urenco.com

Secretary: Scott Edwards

WNTI Specialist Advisor
sedwards@wnti.co.uk

WNTI Membership

Our growing worldwide membership is open to all companies involved in nuclear transport including generators, suppliers, uranium producers, fuel cycle and other nuclear supply chain companies

AUSTRALIA

BHP

BELGIUM

ELINI – European Liability Insurance
for the Nuclear Industry

SATRANSRAD NV

CANADA

Cameco Corporation

CISNAV – Commonwealth
Independent States Navigation

Nuclear Waste Management
Organization (NWMO)

TAM International Inc.

CHINA

Nantong CIMC Energy Equipment Co, Ltd

DENMARK

Maersk Line

FRANCE

Orano

Assuratome

CMA CGM Logistics

Descote s.a.s

Deugro

Électricité de France (EDF)

GEODIS Wilson/STSI

TN International

GERMANY

BGZ Gesellschaft für Zwischelagerung
mbH (BGZ)

DAHER Nuclear Technologies GmbH

GNS Gesellschaft für Nuklear-Service mbH

RSB LOGISTIC Projektspeidition GmbH

JAPAN

The Federation of Electric
Power Companies of Japan (FEPC)

Hitachi Zosen Corporation

Japan Nuclear Fuel Ltd. (JNFL)

Marubeni Corporation

Nuclear Fuel Industries, Ltd. (NFI)

Nuclear Fuel Transport Co., Ltd. (NFT)

Sojitz Corporation

Sumitomo Corporation

KAZAKHSTAN

NAC Kazatomprom JSC

RUSSIA

J.S.C Saint Petersburg “IZOTOP”

J.S.C Techsnabexport (TENEX)

SOUTH AFRICA

NTP Logistics (Pty) Ltd

SPAIN

ENUSA Industrias Avanzadas S.A.

SWITZERLAND

Swiss Nuclear Fuel Commission
(Axpo Power AG)

UK

International Nuclear Services Ltd

Sellafield Ltd.

Bureau Veritas UK Ltd

Direct Rail Services Ltd. (DRS)

Low Level Waste Repository (LLWR)

Nuclear Insurance Pools/
General Purposes Committee (GPC)

Nuclear Risk Insurers Ltd. (NRI)

Pacific Nuclear Transport Ltd. (PNTL)

Radioactive Waste Management (RWM).

Serco

URENCO Ltd.

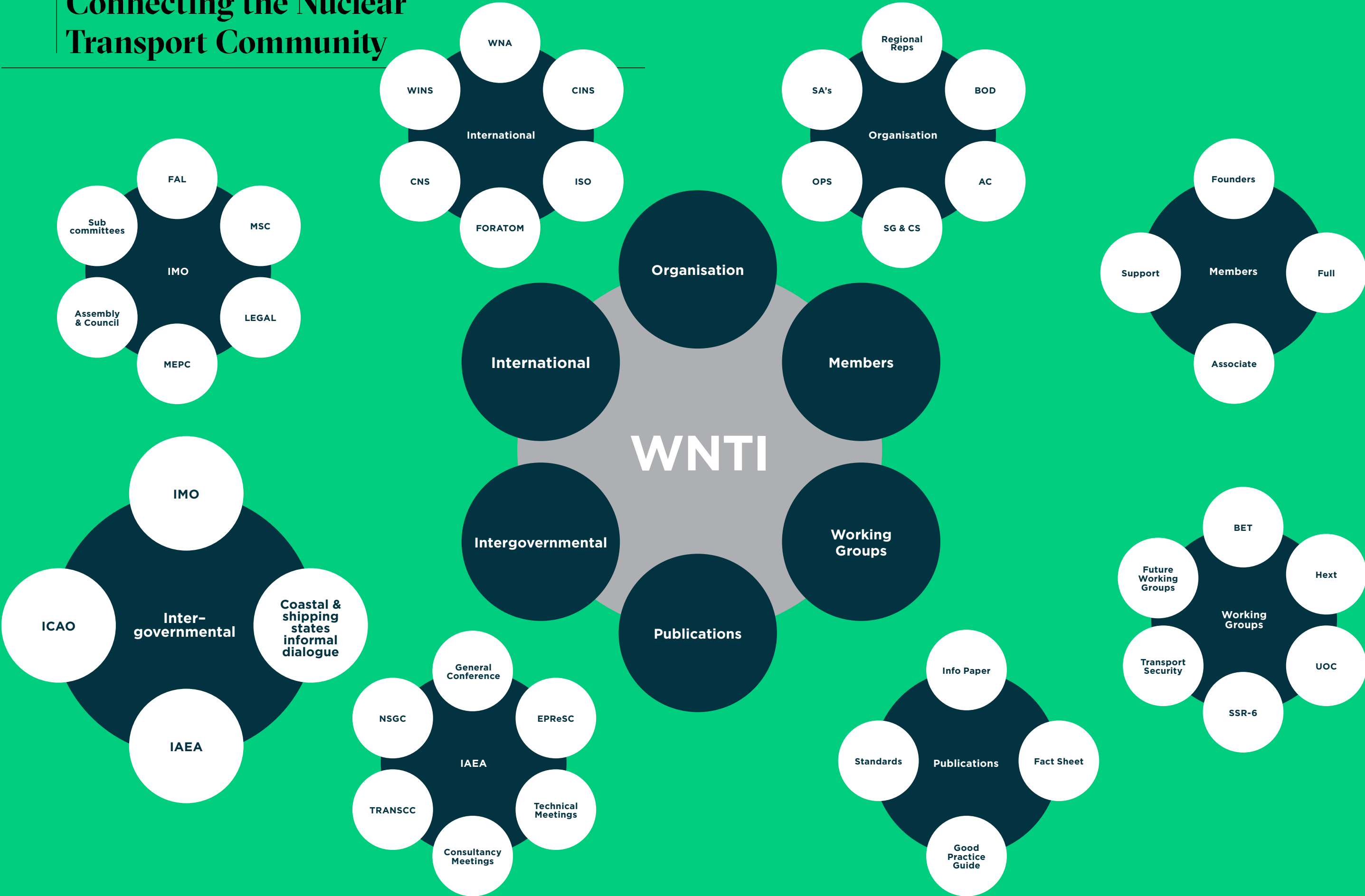
USA

Alara Logistics Group

ConverDyn-General Atomics-Honeywell

Westinghouse Electric Company

Connecting the Nuclear Transport Community



Services to Members



Observer Status at the International Atomic Energy Agency (IAEA)



Above: IAEA 63rd General Conference

WNTI's Industry Position at the IAEA

WNTI represents the voices of the Nuclear Transport and our members at the IAEA. We have held Observer Status at the IAEA for over 20 years, working closely with the IAEA in various meetings, including the Transport Safety Standard Committee (TRANSSC), the Emergency Preparedness and Response Standards Committee (EPRReSC) and the Nuclear Security Guidance Committee (NSGC).

NSGC Committee

The NSGC is open to all Member States and invited NGOs. Its purpose is to make recommendations on the development and review of the IAEA Nuclear Security Series publications for which WNTI provides an expert opinion on the Transport aspects. The NSGC works closely with other IAEA committees such as TRANSSC and EPRReSC.

TRANSSC Committee

The Transport Safety Standard Committee (TRANSSC) meets twice a year with each session lasting a week. TRANSSC consists of national regulators and observer organisations. TRANSSC also holds Technical Expert Groups that focus on specific issues in greater detail. The committee focuses on writing and revising SSR-6 and its accompanying guidance documents.

EPRReSC Committee

The first meeting of the Emergency Preparedness and Response Standards Committee (EPRReSC) took place in 2015. The EPRReSC is the 5th Safety Standards Committee and its creation reflected the importance given to the cross-cutting nature of emergency preparedness and response. WNTI has been invited to a series of IAEA meetings relating with Transport EPR since the committee started in 2015.

International Organization for Standardization (ISO)



ISO is a nongovernmental body with a mission to promote the development of standardization and related activities worldwide. Standards relating to the transport of radioactive materials are included in the activities of the ISO TC85/SC5 Working Group 4 (WG4: Transportation of radioactive material). We focus on three standards: ISO 12807, 'Leakage testing on packages', ISO 7195, 'Packaging of Uranium Hexafluoride (UF6) for transport' and ISO 10276, 'Trunnions for packages used to transport radioactive material'. WNTI makes an effective contribution to ISO as a Category A Liaison Organisation and can deliver Industry's opinions via its participation in WG4 as an expert.



Consultative Status at the International Maritime Organisation (IMO)

WNTI at the IMO

The International Maritime Organization (IMO), based in London, UK, is the United Nations specialised agency responsible for the safety and security of shipping and the prevention of pollution by ships. The IMO's main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.

The WNTI is the only NGO at the IMO that is an industry expert in Class 7 radioactive material transports.

The function of the IMO is achieved through an Assembly, a council and 5 main committees supported by several subcommittees. WNTI attends meetings within these committees as appropriate.

FAL Committee

The Facilitation Committee (FAL) considers all aspects of implementing the Convention on Facilitation of International Maritime Traffic 1965, such as eliminating unnecessary 'red tape' barriers to international shipping. The balance between ensuring maritime security and the facilitation of international maritime trade is also a focus.

MSC Committee

The Maritime Safety Committee (MSC) is the highest technical body in the IMO and is concerned with all IMO matters concerning maritime safety.

This includes the handling of dangerous goods, vessel design and construction, maritime safety procedures and requirements, salvage and rescue.

MEPC Committee

The Marine Environment Protection Committee (MEPC) considers all IMO matters concerning the prevention and control of pollution from ships. The adoption and amendment of regulations such as the International Convention for the Prevention of Pollution from Ships (MARPOL) is a focus for the committee. This regulation covers oil, chemical, and harmful substance pollution as well as garbage, sewage and air pollution from ships.

CCC Committee

WNTI attends the Sub-Committee on the Carriage of Cargoes and Containers (CCC) which deals with, among others, the carriage of packaged dangerous goods and therefore keeps the International Maritime Dangerous Goods (IMDG) Code updated. The Sub-Committee also collaborates with other UN bodies dealing with similar issues.

WNTI also has a long and beneficial association with other International Organisations:



Above: IMO Maritime Safety Committee

Members' & Stakeholders' Voices

Thoughts on the Blockchain Ecosystem

Monique Ginoux,
Sensitive Cargo Division
Manager, CMA CGM &
WNTI Associate Member



Blockchain: with this flagship, any start up could raise millions of USD. A lot of new concepts have appeared: ICO (Initial Coin Offering), Smart Contract, Consensus, DLT (Digital Ledger technology), crypto currency. But what is all about, anyway?

Why are banks and fintech companies, supply chain actors, the certification industry, the food sector and so many others rushing to this technology with passion and large investments? Why are competitors sitting at the same table in the name of blockchain (Komgo, GSBN, Tradelens)?

Why is Facebook trying to get its own cryptocurrency (LIBRA) thus triggering a unanimous protest from many of the central banks around the world? Welcome to a revolution shaking all sectors, including the transportation industry.

Blockchain built its reputation around three main pillars. Firstly, it can record events in a digital ledger (or chain of blocks) by the entity at the source of the

information. Transparent and unchangeable information is then accessible to all authorised participants. Validation of an event is ruled by consensus put in place by the main actors of the blockchain.

Secondly, it can encode contracts linked to the events recorded in the blockchain. If a series of events is confirmed then an action is taking place. A "smart contract" is coded: if a serial of events is confirmed then an action takes place: if the plane is late then a compensation is given to the passenger. If the cargo is loaded on board, then the payment of the cargo by the buyer is confirmed. With the smart contract « TECH is LAW ». It allows parties with a lack of trust to have business together without a trusted third party. This smart contract brought by Ethereum blockchain brings this technology from the geeks' world to the business sector.

Thirdly, it can create an internal economic environment, allowing the exchange of tokens (cryptocurrencies) between the participants of the blockchain. Once you have many actors of the same industry on the same platform you can create a specific economic environment where a token will be used instead of fiat currencies, with potential savings for the users and potential substantial gains for the administrator of the platform.

The ability to generate a new crypto via a smart contract will allow a start-up to be financed by selling its cryptocurrency via an initial coin offering (ICO). It became a new way to be financed. There are a large variety of cryptocurrencies but the most

popular one is not yet launched: LIBRA. This cryptocurrency would allow all Facebook and WhatsApp users to exchange LIBRA as easy as sending a text message.

Many central banks and governments are fighting against LIBRA putting their own financial central system in danger. Where your power is revealed by the size of your enemies...

The blockchain ecosystem is now entering a phase of maturity, where only solid use cases will survive to participate in the digitalisation of various industries. It will work hard to push towards paperless processes and break the walls between the main stakeholders for their own benefits, by pushing away all the intermediary out of the picture.

Transparencies of B2B data will become the norm but data will not be consumed anymore for free. B2B Data (Events and documents) will be exchanged as a trading commodity as a new source of revenues.

Blockchains and platforms being still at quite an early stage and Class 7 cargo remaining so regulated and feared by shipping operators (including port and terminal authorities/most of the shipping lines except CMA CGM, to serve you well).

It is thus too early to consider launching a blockchain on the transportation of these commodities. CMA CGM will not fail to invite all players of this assistance to participate in a working session once a solid base will be available

"The blockchain ecosystem is now entering a phase of maturity, where only solid use cases will survive to participate in the digitalisation of various industries."

Working with WNTI to Harmonise a UF6 Shipping Process

Jay Thomas,
Director, Transportation –
TN Americas, Orano TN &
WNTI Founder member



Working with WNTI has helped establish a solution that will simplify the shipment of washed uranium hexafluoride (UF6) cylinders.

The 2012 revision of the International Atomic Energy Agency (IAEA) transport regulations included changes to the exemptions related to fissile material classification. Those revised IAEA regulations, which were implemented in the international modal regulations in 2016, impacted the historically routine shipments of empty, cleaned and washed UF6 cylinders.

The IAEA changes to the fissile exemption limits focused on addressing concerns with shipments of very small UF6 sample containers. However, the fissile exemption changes adversely affected the shipments of the large cylinders which had been emptied of up to the 5% enriched UF6 material and cleaned and washed to the maximum extent practicable.

The result of this regulatory change was to complicate the process for declaring washed UF6 cylinders with small amounts of residual material to be fissile exempt, even though the small amount of fissile material in the large volume of the cylinder is not a safety issue.

Once Orano had become aware of the consequences of this regulatory change, WNTI was contacted to see if other members in the industry were also affected by the change.

WNTI responded by organising special HEXT Working Group conference calls for interested members and the issue was discussed at several HEXT Working Group meetings.

An effort was implemented to compile accurate contents information for the washed cylinders and this information was shared with WNTI members.

This information was very useful in supporting several potential solutions that were identified. As some of the solutions resulted in the need for further changes to the IAEA regulations, the SSR-6 Working Group also became involved.

The competent authority feedback was provided to WNTI members and a best solution for the issue was identified. That solution went to the SSR-6 Working Group, who was able to get TRANSSC to endorse it.

That solution is expected to be included in the next revision of the IAEA regulations and will involve categorically excluding large, washed and emptied UF6 cylinders from the definition of fissile material.

"The timely and expert involvement of WNTI with a resolution for this issue was invaluable."

Firstly, WNTI provided the opportunity to interact with others in the industry, in order to determine the extent of this condition. Then, having consulted the expertise within our member network, we identified a workable solution to the issue. Finally, the relationship WNTI has with the IAEA ensured that the proposed solution was heard by the appropriate people within the IAEA who had the ability to approve it.

"WNTI then helped organise meetings with multiple, national competent authorities at international events such as PATRAM 2016 and IAEA TRANSSC meetings, in order to bring attention to the issues and share possible solutions."

View from the IAEA

Christophe Xerri, Director of the IAEA's Division of Nuclear Fuel Cycle, Waste Technology



When something is at the same time essential and running smoothly, it becomes perceived as granted and kind of forgotten. Such is the case of the transportation of radioactive material: an essential link which allows nuclear power plants to run, hospitals to receive radioactive sources to treat cancer and waste to be sent to the final disposal site.

This is made possible by the commitment of professionals all around the world, working tirelessly to package and deliver on time, with the highest level of safety and security in mind and aware that their operation takes place in a public space. Transportation is an outstanding example of international cooperation. The transportation safety standards published by the International Atomic Energy Agency (IAEA) are widely accepted and implemented; they are regularly assessed and revised.

The IAEA fulfils its mission by promoting them and providing training. The end result of these efforts is the efficient and

effective regulation of safety and security by Member States during their transports worldwide. Transportation, over the years, is keeping up with the current trends.

Trends in technology: tracking systems to improve security, new material to design more efficient packages and the adoption of digitalization for design and of virtual reality for training.

With this record of reliability and innovation, the transportation community is well geared to address the coming challenges of an ever changing world. Just to mention some of the challenges:

- Decommissioning will generate large amounts of waste and some of it may have different characteristics from what is currently being transported. The regulatory framework is being upgraded, and transportation solutions are being developed accordingly.
- The long term storage of spent fuel calls for specific logistic solutions, transportation to interim storage facilities and consideration of the transportability after 50 to 100 years in storage.
- The lower number of specialised research reactors in the world, in particular those used for material testing, may result in more international cooperation and moving in larger numbers not only researchers but also samples.
- The emergence of a new generation of nuclear reactors, from light water technology SMRs to High Temperature Gas Cooled Reactors, will generate new types of material to be transported. The fuel cycle of these reactors should be developed, as well as the related transportation solutions, as a condition for their deployment.

Widely known as the world's "Atoms for Peace and Development" organisation within the United Nations family, the IAEA is the international centre for cooperation in the nuclear field. In the field of transportation, from technology development to safety and security, the Agency works with its Member States and multiple partners worldwide for the safe, secure and peaceful uses of nuclear science and technology, contributing to international peace and security and the United Nations' Sustainable Development Goals.

"WNTI is one of these partners, and it brings a valuable contribution through expertise to share knowledge from the field and identify good practices and through its network of members to disseminate information".

The Agency is striving to serve its member states. Feel free to visit our website and access our on-line resources: reference publication, e-learning material, network of professionals.

In cooperation with International Partners

Chinese Nuclear Society (CNS) Connects with WNTI in China to Share Best Practices



Chinese Nuclear Society (CNS), WNTI's International Partner

Like WNTI, the Chinese Nuclear Society (CNS) is a not-for-profit organisation, with their focus being to represent individuals and companies contributing to and supporting nuclear science, nuclear technology and nuclear engineering in China.

CNS was established in 1980 with an objective to promote the advancement and peaceful use of nuclear science and technology, undertake scientific and technical exchange, engage in public communication and enhance international cooperation.

The Society commits to carrying out conferences, seminars, workshops, lectures and producing publications and materials for the public. They facilitate visits to and from other overseas partners, as well as policy suggestions to government authorities.

On November 12th, 2019 John Mulkern, WNTI Secretary General met with Zhi Wang, Deputy Secretary-General, CNS. This meeting provided an opportunity for WNTI and CNS to reiterate and strengthen the cooperations that has previously been established between the two organisations.

"Bringing international and national representatives together created the opportunity to share best practices and examine how different bodies interpreted international and national regulations"

During the meeting, it was agreed that WNTI and CNS should continue to partner events that promote the nuclear transport industry and provide an opportunity for those organisations involved in these transports to discuss the continued safe, secure and efficient transportation of nuclear materials.

Following on from the successful workshops WNTI arranged in both Shanghai (2013) and in Beijing (2015 and 2017) it was considered to be of value, to current and potential WNTI members, to hold a 4th Seminar.

In cooperation with CNS, the 'WNTI/CNS Transport Seminar on the Regional Transports of Radioactive Materials and International Lessons Learnt' took place on the 13th November 2019 in Beijing.

The seminar focussed on international and national regulations for the maritime, road and rail transport and port infrastructure sectors in China. In addition, there were many updates from the international companies attending.

The seminar explained the lessons learnt from both national and international shipments from international companies with track records in such transports.

The seminar also brought together major international stakeholders including China national competent authorities and industry representatives committed to the safe, efficient and reliable transport of radioactive materials including packaging.

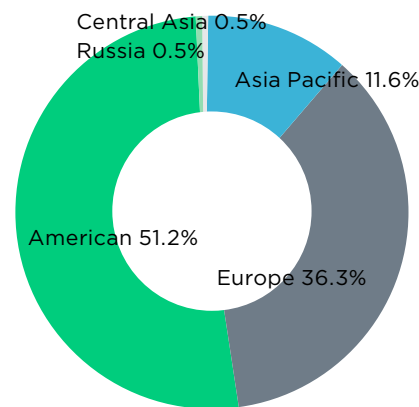
This included the International Atomic Energy Agency Regulations for the Safe Transport of Radioactive Material (SSR-6), the International Maritime Organization Dangerous Goods Code for maritime shipments and also those for inland land transports.

Our sincere thanks go to our international partners CNS and to Steven Shi, WNTI China Representative, for coordinating this event, with Amy Northage.



International Symposium on the Packaging and Transportation of Radioactive Materials (PATRAM)

Hosted by WNTI and INMM, PATRAM is the premier event for professionals in the nuclear packaging and transportation industry.



PATRAM is the leading event in our industry. Taking place every three years and alternating between the USA and countries other than USA, it brings together worldwide experts from government, industry and research organisations to exchange information on all aspects of the packaging and transportation of radioactive materials.

International exchange is a fundamental part of advancing professionalism in packaging and transportation, with PATRAM providing a forum for information sharing.

It takes place across 5 days, with hundreds of delegates presenting their research and proposals, covering every detail of our industry's current challenges. These technical presentations are chosen as the result of careful selection process from our various PATRAM committees.

Some topics include:

- Package Design (including Materials and Testing)
- Analysis (including Structural, Thermal, Shielding, Criticality and Risk Assessment)
- Transport Operations (including Regulations, Codes and Standards, Communications, Liability, Security)
- Content Specific Challenges (including Spent Fuel, Radio Pharmaceuticals, Large Items, UF₆, NORM, Waste, Fissile Material, Orphan Sources, Manufactured Items)

A poster exhibition takes place exclusively disclosing top quality research from various attendees. Companies also have the opportunity to have an exhibition stand.

With many networking opportunities each evening, the week culminates in a banquet dinner where outstanding speakers and poster research presenters are awarded.

647
Delegates

23
Countries

404
Technical Presentations

32
Exhibitors

“As the nuclear industry continues to see rapid changes and shifts in direction, a conference like Patram is critical to ensure the global community remains engaged together in understanding the latest developments in technical innovations, regulatory concerns, and operational lessons learned. In fact, it's a pity it isn't an annual event!”

Rocco Catanzarite
Sales and Marketing Director
Orano TN Americas

PATRAM 2019

WNTI was fully involved in planning PATRAM 2019, which was held in New Orleans, USA from 4th-9th August 2019 and which we co-hosted with the Institute of Nuclear Materials Management (INMM).

Our representatives and members proactively promoted industry debate, leading panel discussions, chairing sessions, presenting and chairing committees.

Thanks go to members Joel Kruehler (Urenco) and Marc-Andre Charette (Cameco) whose presentation entitled ‘Why is Uranium Hexafluoride not regulated in a similar manner as radioactive material with subsidiary hazards?’ attracted much interest. WNTI Consultant Pierre Malesys’

presentation entitled ‘A new edition of the IAEA Transport Regulations: which consequences and lessons for the industry?’ was a standing-room only.

We are grateful to our dedicated Working Group Chairmen Martin Porter (Sellafield), with support from Hirotaka Nojima and Ben Whittard (INS) who presented the findings of our Back End and Transport Security Working Groups.

We were delighted to be represented by accomplished women in nuclear Anne Presta (Orano) and Eileen Supko (Supko Resources) who led discussions on international regulations. During the opening Plenary Session, Mr John Mulkern, our Secretary General, spoke of the importance of continuing a proactive dialogue between the regulators and industry: a role in which

we play a major part. John also challenged industry to look at how it approaches the very real challenges of maintaining its future knowledge base with an increasingly aging workforce.

We were very grateful for the chance to catch-up with our members more at several evening receptions generously hosted by our members Orano, INS/DRS, TAM International and Alara Logistics. This ended in the final closing banquet where several members won awards. Huge congratulations to members NFT Japan who received an Aoki Award for their Long Term contribution to our industry, as well as Yang Sui of NWMO Canada who was awarded a belated 2016 Aoki Award for an outstanding presentation and research.

Save the date

Patram 2022

Aug 28th - Sept 01
French Riviera
www.patram.org
Under the auspices of IRSN

Hosted by WNTI & INMM
With the support of Orano TN
& Bureau Veritas.
In collaboration with SFEN

Events 2020

January

Nuclear Fuel Supply Forum
Consultancy Meeting on
PDSR Format and Content
Guide
IMO Sub-comm NCSR

Feburary

IMO Sub-comm SDC
CN-278 - International
Conference of Nuclear
Security - Sustaining
and Strengthening
Efforts

March

IMO Sub-Comm Ship
systems and equipment
Waste Management Symposia
IMO LEG
IMO MEPC
WMU lecture (INF
Maritime shipments)

April

IMO FAL
World Nuclear
Fuel Cycle
WNTI Namibia Training
Workshop

May

IMO MSC 102
WNTI Semi-Annual
Members Meeting
(SAMM)
ISO/TC85/SC5/WG444th
44th WNTI Advisory Committee

June

46th WNTI Board of
Directors Meeting
IAEA TRANSSC 40
IAEA EPRES 10
IAEA NSGC
Int. Conf. on Nuclear Knowledge
Management and
Human Resources
WNE - World Nuclear
Exhibition 2020

July

Nuclear Fuel Supply Forum
World Nuclear University
Lecture (WNU)

August

4th Consultancy Meeting
on Safety Security Interface
6th Consultancy Meeting
on EPR TS-G-L2 revision

September

WNA Symposium
IAEA General Conference 64
IMO Sub-Comm CCC

October

November

IAEA TRANSSC 41
IAEA EPRES 11
IAEA NSGC
45th WNTI Advisory
Committee

December

47th WNTI Board of
Directors Meeting
WNTI Semi-Annual
Members Meeting (SAMM)



WNTI Internship Programme

Our Summer programme in 2019 revolved around Small Modular Reactor research. Arthur Cadoux, a former Engineering student at the Ecoles des Mines, investigated varying reactor designs and offered some refreshing insight into this developing sector.



My 3 months at WNTI in early Summer 2019 were a real pleasure and I learnt a lot about future nuclear technologies and how they might be managed safely.

The main focus of my internship was SMRs and researching the transport aspects related to them. These are costcutting, compact reactors, aimed at meeting variable energy needs and implementable almost everywhere. They also reduce on-site construction, as they are shop fabricated and totally modular.

Our WNTI research guided me to contact international companies, such as Seaborg and Rolls-Royce and I was very grateful for how collaborative they were. The transport of SMRs involves protection and security aspects, as well as the difficulty of handling any size of SMR, be it the size of a human or the size of a house. When it comes to transporting SMRs, challenges emerge. Many SMR companies have designed reactors but are still exploring methods of transportation. We may count on the compactness of the reactor to make any type of transportation possible.

"In a nutshell, the biggest advantage of an SMR is that it can be implemented almost anywhere."

SMALLER	COST CUTTING	SAFER	GREEN ENERGY	APPLICATIONS
Easier to carry, quicker construction and implementable in remote locations.	Much cheaper to construct and to supply than a power plant.	Less fuel in the reactor, safer new technologies.	Efficiency and low carbon emissions. Can use spent fuel from classic reactors.	Adapted to the location, can provide variable heat electricity, and more.

In addition to my detailed research in London, I had the chance to visit one of the ships at Pacific Nuclear Transport Limited in Barrow-in-Furness. I also visited International Nuclear Services in Warrington and shadowed several departments such as the Safety, Security, Finance and Engineering departments.

This intensive week allowed me to understand the real issues of the transport of radioactive materials and to have a more practical view on these aspects and on the general functioning of a nuclear company.

I also had the opportunity to work on the WNTI website redesign project and was glad to bring some new ideas and to handle the content management system. I was also involved in some communication tasks related to WNTI membership.

I am very grateful to all the WNTI and INS workers and all the people who helped me throughout this experience.

London is an incredible place to be, full of surprises. You can find many cultures, different people and make new friends. If you have such an opportunity, seize it!



Digital Communication & Member Resources

The WNTI Members' Portal offers access to specialist information and advice, including monthly global updates, IAEA regulation updates, as well as the opportunity to link to transport professionals across the world.



Over 100

Industry Reports a year are shared in our private members' area

Members-Only Information Email

Our bi-weekly newsletter is exclusively sent to members and contains the latest news and updates from our global representatives. It contains updates from all the committees we sit on at the International Maritime Organization, updates from regulation changes at the International Atomic Energy Agency, as well as our position papers within these agencies.

The New WNTI Website & Members' Portal

In 2019/2020 we have commenced work on our website upgrade project, bringing it up to date, improving functionality and establishing

clearer channels of communication between WNTI and our members. The new and improved website will see enhanced community and social features and better search functions. There will also be further opportunities to personalise your online account so that it more closely reflects your requirements.

Publications

Increase your understanding on key Nuclear Transport areas with the WNTI publications. Our suite of up to 30 publications include Standards, Good Practice Guides, Fact Sheets and Information Papers. These are freely available to access on our website and carefully crafted by our members and WNTI specialists.

Connect with us!

We feel that communication between nuclear transport professionals is vital for the progress of our industry.

Interact with us publicly through our WNTI social media channels or confidentially, within the safe environment of our Member network.

Corporate Social Responsibility

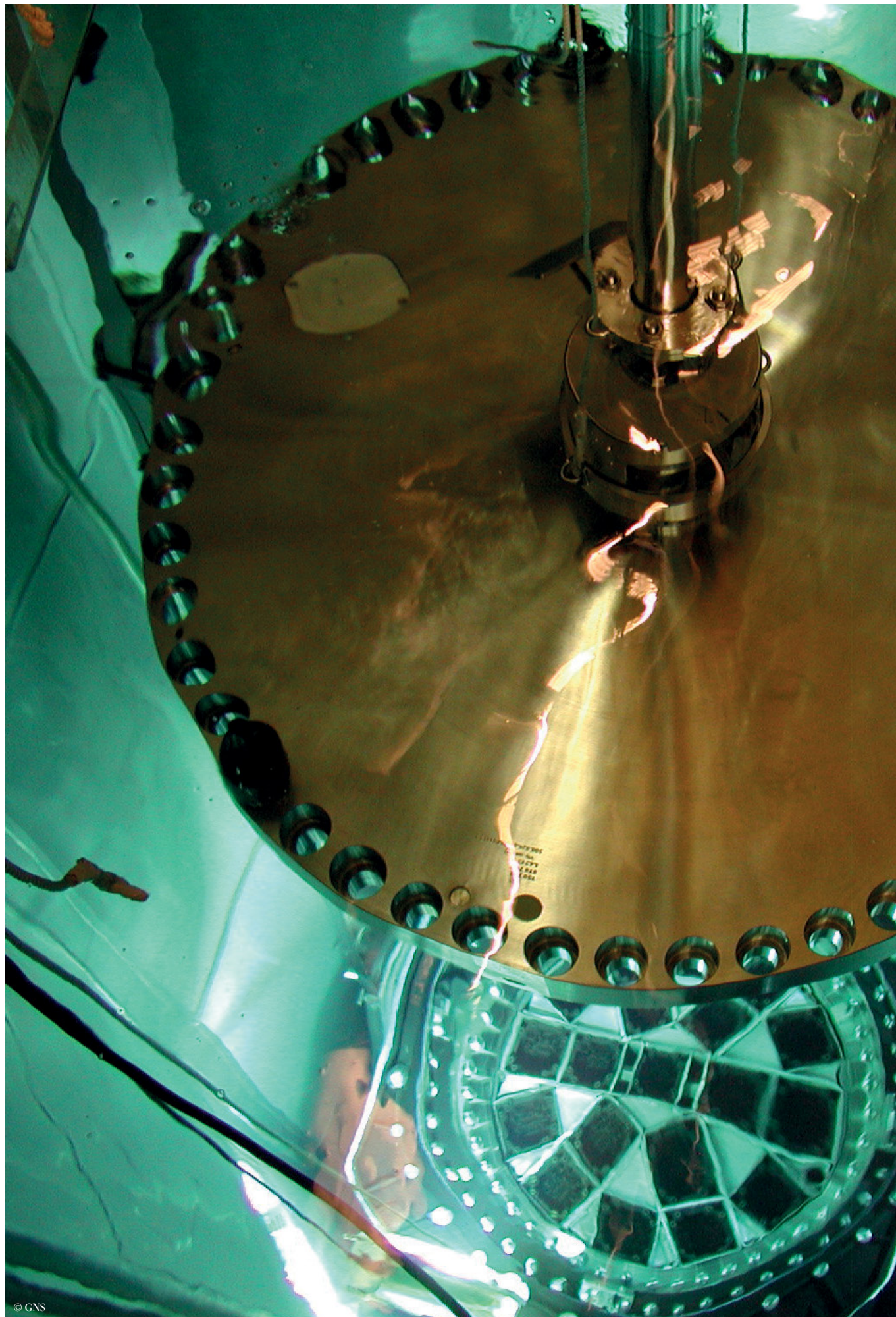
Whilst the WNTI is recognised as an Institute rather than a corporation, we are officially a registered company in the United Kingdom and keen to increase our active contributions to the local community, in London.

In 2019, we identified some means to utilise our new office space to recover some of the costs we pay each month, by offering our communal meeting rooms to some members and non-members, for their personal use. Where such meetings involved non-members, we looked to charge a reduced fee (small contribution) and this hopefully presented

an advantage for both parties. The member (and non-member) companies received a reduced fee for their meeting rooms in Central London and this enabled WNTI to set aside funds for the start of our Corporate Social Responsibility work. Whilst this has only just started, we have managed, with the help of the WNTI UK

member Radioactive Waste Management (RWM), to set aside some funds and are looking to donate this to a London charity for homeless people. Unfortunately, it is very noticeable that homelessness is a continuing problem in London and especially difficult for people in the months of winter. We look forward to continuing our actions in 2020.





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World Nuclear Transport Institute

Head Office

World Nuclear Transport Institute
WeWork
4th Floor
Aviation House
125 Kingsway
London
WC2B 6NH
United Kingdom

Tel: +44 (0)20 7580 1144

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