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MANAGING THE TRANSPORT SUPPLY CHAIN: A NEW WORLD NUCLEAR TRANSPORT INSTITUTE WORKING GROUP

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ABSTRACT

The WNTI, through its membership, is dedicated to ensuring the safe, effective and reliable transport of Radioactive Material (RAM). To further this aim, over the past few years, the WNTI has set up a number of Working Groups to study issues that are relevant to RAM transport and are of particular importance to the WNTI membership.

The Transport Supply Chain Working Group proposes to WNTI members to put in common means to achieve quality of RAM transport operations through the management of the Supply chain, i.e. the development, maintenance and ongoing management of supply chain routes and their associated processes.

The management of RAM based supply chains generally comprise a mix of process based nodes involving direct or indirect process control mechanisms together with the need for the monitoring of activities by Consignors. The diversity, extent and need for such process control mechanisms and monitoring will depend on the type of RAM being transported, the geographical nature of each supply chain route along with any social or political sensitivities surrounding such transports from time to time.

The purpose of this Working Group is to meet international regulatory compliance whilst consistently ensuring the highest possible quality outcomes across and for all transport operations involving RAM.

This working group is looking to develop a suite of :

- specific requirements,
- acceptable industry best practices,

- performance based measures,
- assessment and evaluation methodologies,

For each leg of the supply chain the Working Group will take into account:

- the safeguards and security management requirements
- the overall safety management requirements
- the health and environmental management concerns
- community related concerns
- incident response plans
- equipment types, maintenance etc along with training of staff
- development and delivery of appropriate education and information based training

INTRODUCTION

This paper deals with a new WNTI working group: the Transport Supply Chain Working Group.

The World Nuclear Transport Institute (WNTI), through its membership, is dedicated to ensuring the safe, effective and reliable transport of Radioactive Material (RAM). To further this aim, over the past few years, the WNTI has set up a number of Working Groups to study issues that are relevant to RAM transport and are of particular importance to the WNTI membership.

The new Transport Supply Chain Working Group proposes to WNTI members to put in common means to achieve quality of RAM transport operations through the management of the supply chain, i.e. the development, maintenance and ongoing management of supply chain routes and their associated processes.

SUPPLY CHAIN IN THE NUCLEAR INDUSTRY

All producer suppliers of uranium concentrates converted or enriched materials, fresh or spent fuel rods through to waste materials share common issues in the management of their supply chain routes. The first major step is to determine the most appropriate methods for transporting the material from its point of manufacture to the end user by breaking down the supply chain route into segments and major sectors.

Many points of manufacture are in overseas lands or continents that require a mix of road, rail and sea transport (see Figure 1).

Types of transport supply chain route

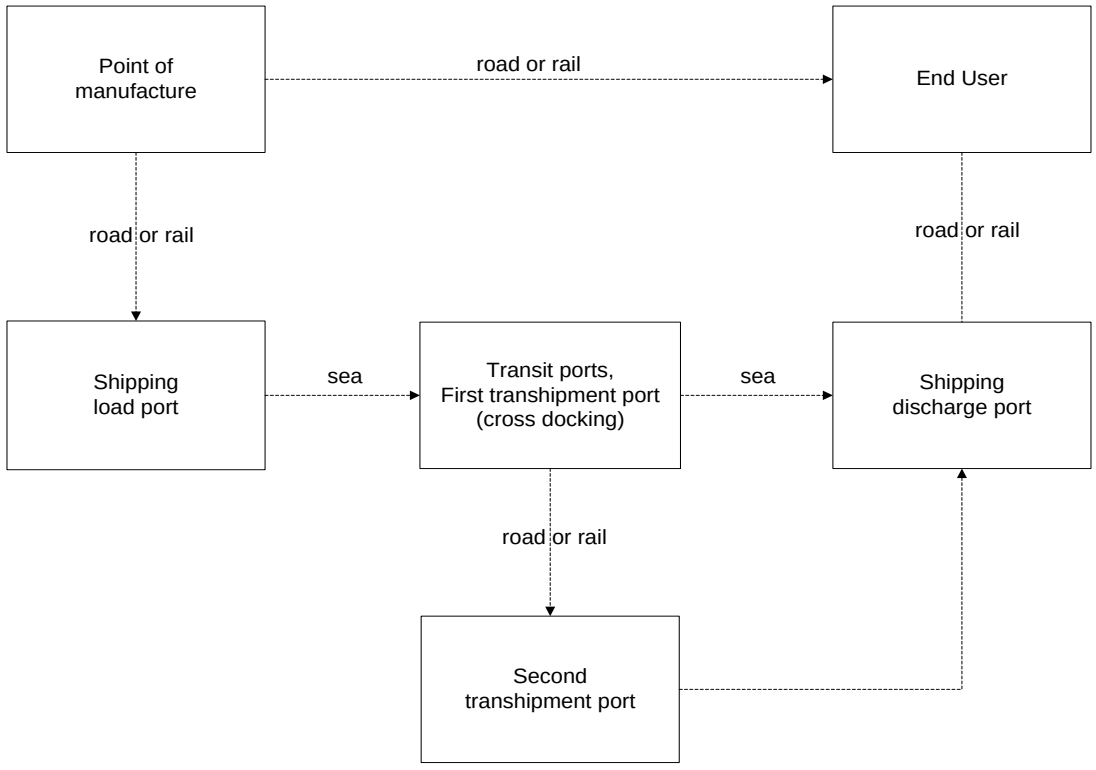

Figure 1. Types of transport supply chain route

Irrespective of the type of material being transported, all out-bound supply chains to some degree involve the utilization of un-controlled external service providers, requiring producer shippers of RAM to have a high degree of confidence in the capability of such service providers to deliver the highest levels of security and safety that ensure minimal impact to the wider community and environment during the transportation of radioactive material (RAM).

Producer shippers of RAM can achieve a high degree of confidence in the capability of potential service providers through the careful pre selection of transport routes and feedback from other suppliers and specialist on carriers of RAM. Levels of confidence can also be greatly increased as a result of education and information or knowledge based training sessions.

The management of RAM based supply chains will generally comprise a mix of process based nodes involving either direct or indirect controls together with the need for the monitoring of a number of activities by producer suppliers.

The diversity, extent and need for such controls and monitoring will depend on the type of RAM being transported, the geographical nature of each supply chain route along with any social or political sensitivities surrounding such transports from time to time.

WNTI TRANSPORT SUPPLY CHAIN WORKING GROUP

The World Nuclear Transport Institute (WNTI) was founded in 1998 by British Nuclear Fuels plc (BNFL), now International Nuclear Services (INS) of the United Kingdom, COGEMA, now AREVA of France, and the Federation of Electric Power Companies (FEPC) of Japan to represent the collective interests of the radioactive materials transport sector, and those who rely on safe, efficient and reliable transport. Over the past decade, the WNTI has grown dramatically with member companies drawn from a wide range of industry sectors, including major utilities, fuel producers and fabricators, transport companies, package producers, and the production and supply of large radiation sources. Through the WNTI, companies are working together to promote a sound international framework for the future by helping to build international consensus, co-operation and understanding.

The WNTI Transport Supply Chain Working Group was created in 2012. Its objectives were discussed on its first meeting in St Petersburg (Russia) held on the 30th of May 2012.

The Working Group objectives are proposed according to the following plan:

<u>Define specific products under consideration.</u>

The products under consideration are nuclear materials that are currently transported for the need of nuclear industry:

- Uranium ore concentrates
- Converted
- Enriched
- Depleted

- Fuel rods
- Spent fuel
- Waste matter

Supply chain route matrix

The proposed method is to breakdown all components of the supply chain route into activities classification and assigned responsible party either internal producer shipper or external service provider.

Agree on minimum 'across industry' international global based level of appropriate regulatory standards

- We need to define requirements/specifications according to type of transported material (fuel, waste, sources).
- We need to define requirements/specifications according to modal transport (sea, rail, road or air).
- Whilst our products cross numerous international borders, we need to agree on the agreed standard regulation for each type of RAM.

Provide clarity

- Around the safeguards and security management requirements for each supply chain.

- Around the overall safety management requirements for each supply chain: consider standardizing Safety Data Sheets for each type of RAM being transported making them available through the WNTI website; conducting periodical reviews of the Transport Plan to ensure compatibility and consistency with current external regulatory internal policies, procedures and processes; conducting regular operational and occasional political based risk assessments across all supply chains; vetting and auditing of all service providers, their operations and facilities.

- Around the health and environmental management plan: awareness and inclusion of needs to comply with local domestic and broader global international cross border requirements such as EU, GHS REACH, TCSA, DOE, DOT etc.

- Around the community plan: awareness of the need for inclusion of external industry initiatives to develop and disseminate information throughout the wider community relating to the safe and effective transport of uranium.

- Around the incident response plan: identify those standardized and harmonized approach relating.

Equipment maintenance programs

The Working Group will define best practices for the maintenance of transport packagings according to their use in the industry.

Training of staff

The Working Group will define best practices for the training of persons according to their responsibilities.

CONCLUSIONS

The working group will collectively and in collaboration across industry follow an agreed process map for each of the various types of RAM to be transported. It will draw on the experience and overall expertise of its membership to develop and promote best practice guidelines and expectations of the appropriate levels of service delivery from vendors and transport suppliers. It will focus on delivering the highest standards of excellence in transport service aimed at mitigating the likelihood, consequence and overall degree of risk to the health of our communities and the wider environment arising from the transportation of RAM.

With the overall desire for harmonization and standardization of process procedure and practice wherever possible and or appropriate the use of common and or shared methodologies and approaches will be encouraged. To that end common approaches to auditing of the handling, transportation and storage of RAM will also be developed.

REFERENCES

WNTI web site: **www.wnti.co.uk**