Chairman's Report

Technical Meeting (virtual): Denial of Shipment – Issues and Solutions

EVT 1907111, 23 – 26 March 2021

Chair: Dr Ingo Reiche, Federal Office for the Safety of Nuclear Waste Management (BASE), Germany

99 Participants registered from 31 Member States and 9 International Organisations – Table 1

International Organisations represented on the Panels (Day 1 & 2) –Table 2

Presentations submitted by participants – Table 3

Agenda – Draft 006, attached to this report

Day 1 - 'What we know'

The meeting was opened by Peter Johnston, Director of the Division of Radiation, Transport and Waste Safety (NSRW), followed by remarks by the Chair and introductory statements by Christophe Xerri, Director of Nuclear Fuel Cycle and Waste Technology (NEFW), and Ms Sama Bilbao y León, Director General of the World Nuclear Association (WNA).

19 papers submitted before the meeting were summarized by Frank Koch (Switzerland). These papers could not be presented due to time constraints, but they were uploaded to the IAEA cloud so that participant could download them. This summary was followed by 7 presentations by international organizations and a panel discussion. As panellists the representatives of CORAR, IAEA, IATA, ICAO, IFALPA, IMO, ISSPA, TIC, WHO, WNA and WNTI answered questions raised by meeting participants.

The discussion of Day 1 focused on the questions of how denial of shipment could be defined and what were the reasons and the available information that could characterise denial of shipment. The main results of the presentations and discussion (including clarifications from the following days) can be summarised as follows:

What does 'denial of shipment' mean?

- Limitation of routes and carriers available for Class 7 shipments (during planning phase, main manifestation of 'denial of shipment')
- Refusal of accepting a certain consignment during shipment (during shipment, rare cases, avoided by planning taking into account the limitations)

There was general agreement that the term 'denial of shipment' should be defined specifically.

What information is available concerning denial of shipment?

- Information on specific denials during shipment is not available, and is difficult to obtain
- Information on limited routes and carriers especially for sea transport (ports!) and to some extent also for other modes has been presented
- Sea transport is the mode that is most affected by denial of shipment
- Special situation in air transport due to Covid-19 pandemic: dramatic reduction in passenger flights disrupting supply chains especially for short-life radioisotopes. This is not considered as Denials in the context of this meeting.

Which problems are caused by denial of shipment?

- Longer and more complicated transport routes and missing flexibility in route selection increase cost, possible wrong declaration to enable shipment
- Indications that longer and more complicated transport routes may result in compromises to safety and security
- Insufficient delivery of radiopharmaceuticals and other radioactive sources, causing problems in medical treatment and industrial applications

What are the reasons for denial of shipment?

- Commercial decisions not to take Class 7 material (small volume, expensive additional requirements, risk of denial of the whole conveyance, does not fit for automated logistic processes)
- Public perception of the risk associated with radioactive material
- Perception of risk of shipping Class 7 by non-specialists in the transport area
- Regulations for Class 7 are different than for other classes of dangerous goods, and are more difficult to read for transport people not specialized in Class 7
- Requirement and limitations set by countries and local authorities (e.g. ports) on top of the modal requirements coming from the IAEA recommendations, including restrictions on storage of radioactive material, additional requirements e.g. on permits, insurance, training
- Merging of shipping lines has reduced the options available for the transport of Class 7 material
- Acceptance of Class 7 for air transport requires acceptance by the whole supply chain, including handling agents and air lines (operator variations)

Day 1 was concluded by a summary of the main statements from the presentations and the panel discussion given by Serge Gorlin (WNA).

Day 2 - 'What can be done to improve the situation'

Day 2 of the meeting was opened with introductions by the chair, the IAEA secretariat and WNA. Then Frank Koch summarized the presentations submitted to the meeting regarding the topic of the day. This was followed by an open discussion about possible measures to reduce denial of shipment.

During the presentations and discussion (including clarifications from the following days) the following possible measures to reduce denial of shipment were proposed:

- Acting on Member States and industry based on a new detailed analysis of the causes and specific solutions. The measures taken by the previous IAEA initiative that ended in 2013 had improved the situation to some extent, but support by new approaches is preferred.
- Improving communication about the transport of Class 7 material: with the general public, Member States, local authorities, carriers, handling agents, within the supply chain. Developing a communication strategy for Member States and industry
- Re-establishment of national focal points and connection in networks, supported by guidance and training
- Approaching Member States: developing a non-binding or binding document – a Code of Conduct has been discussed
- Approaching globalized companies by global organizations such as IAEA, WHO

- Developing a Code of Conduct for carriers
- Reviewing the IAEA regulations for transport of radioactive material and their implementation in the UN Model Regulations, e.g. application of well understood UN dangerous goods concepts for Class 7 such as excepted quantities and low quantities (EQ/LQ)
- Improving information about national/local deviations from the international modal regulations and about additional permits required, harmonization of requirements if possible
- Provision of electronic platforms for stakeholder information
- Implementation of efficient processes for acceptance and control of radioactive material at a national level that involves key stakeholders

Finally the main statements from the presentations and the discussion were summarized by Serge Gorlin (WNA).

Day 3 – Consideration of Establishing a Working Group and a Code of Conduct (GC RESOLUTION GC64/RES/9/81)

Day 3 started, after an introduction by the chair, with a comprehensive presentation by Judit Silye (Office of Legal Affaires (OLA/IAEA) about the status, format and elements of a Code of Conduct, followed by a presentation from Abel Gonzalez (Argentina) on thoughts about the aim, contents (including possible preambular declarations and pronouncements) of a Code of Contact for facilitating safe and secure shipment of radioactive material.

A Code of Conduct is a non-legally binding type of agreement used by the IAEA, which can give a uniform basis for national policies. The Code of Conduct of the Safety and Security of Radioactive Sources (adopted by 100 countries) and its associated guidance documents on the Import and Export of Radioactive Sources and the Management of Disused Radioactive Sources have been proven quite effective. The formalized process for a periodic exchange of information and lessons learned and for the evaluation of progress made by States was explained. Differences between binding and non-binding agreements that have been developed under the auspices of various international organizations including the IAEA were presented, as well as the various elements and steps forming a Code of Conduct.

There was support, caution and difficulties voiced from several delegates for the establishment of a Code of Conduct for facilitation of safe and secure shipment of radioactive material, the term Code of Conduct being used several times in general discussion over the 4 days of the meeting.

It was suggested that the term 'Code of Conduct' was just an example of what was needed to bring together Member States to agree to address the denial and delay issue. The actual format of the document is still to be discussed and agreed. Important aims of the process would be communication between Member States and IAEA and harmonization of regulations within regions.

It was mentioned by some participants that the central message for implementing a Code of Conduct (or similar document) should be that it would improve safety and security [1] during shipment of radioactive material. Title and wording and strategy of communication to Member States should be carefully selected.

It was agreed that the subject of a Code of Conduct (or any other type of document) will require extensive discussion and it would be a topic for the Working group to discuss further to reach conclusion.

[1] This is a perception that is not universally accepted. By definition, a denial of shipment is the refusal to carry / handle a Class 7 consignment that complies with all the applicable regulatory requirements

Regarding a working group for taking forward the outcome of this meeting, the Secretariat presented main considerations that need to be addressed, like mandate, drafting terms of reference, term, how long should the Working Group exist? This was followed by an open discussion.

Establishing a Working Group in accordance with the GC Resolution was strongly supported by the meeting participants. It was proposed by several participants that there should be subgroups for different tasks.

It was agreed that as a first step a Consultancy Meeting would be called to develop a draft Terms of Reference to be discussed and agreed in the first meeting of the WG later this year.

The main statements from the presentations and the discussion were summarized by Serge Gorlin (WNA).

Day 4 – Chairman's report and update on international freight delivery during pandemic

A summary of the discussions and the way forward was presented by the Meeting Chair. The following summary of the way forward as proposed in the meeting was presented:

- Setting up a working group including all interested Member States and experts from industry and international organizations for further analysis and implementation of identified measures
- Supporting the working group by establishing subgroups and/or IAEA meetings for drafting and preparing proposals or deliverables to the working group
- Considering a code of conduct as one possible way of involving Member States: drafting text, preparing background information to approach Member State representatives in a consistent way to increase their awareness and cooperation, improving text based on feedback, approval, negotiation by Member States. Other possibilities to be analyzed by the working group.
- Preparing a summary report for the Member States of this meeting and the first steps decided until June 2021 (required by the General Conference resolution)

In the following discussion these points were supported. It was mentioned that only repeating the previous measures would not be sufficient for reducing denial of shipment. The working group should be well organized for being transparent to Member States and capable of working efficiently. Some participants mentioned that the current meeting was well organized by the IAEA and hoped for continuation in the working group.

After the discussion of the way forward representatives of ICAO, IATA, IMO and the IAEA presented about the current extreme situation in air transport of dangerous goods due to the cancellation of passenger flights (for many destinations an important way of shipment of short lived radioisotopes) caused by the pandemic.

The meeting was closed with remarks from the IAEA secretariat, the Chair and DDG-NSNS.

The relative proportions each day of the different sectors were approximately:

44% - Member States
34% Industry
7% International Organisations
15% IAEA Secretariat

TABLE 1
Member States and International Organisations represented

Member State		Member State		International Organisations	
1	Argentina	**17**	Iraq	**1**	CORAR
2	Australia	**18**	Japan	**2**	IATA
3	Belgium	**19**	Jordan	**3**	ICAO
4	Brazil	**20**	Lesotho	**4**	IFALPA
5	Brunei	**21**	Malta	**5**	IMO
6	Bulgaria	**22**	New Zealand	**6**	ISSPA
7	Canada	**23**	Nicaragua	**7**	T.I.C.
8	Croatia	**24**	Oman	**8**	WNA (+Rapporteur)
9	Egypt	**25**	Portugal	**9**	WNTI
10	El Salvador	**26**	Russian Federation		
11	Finland	**27**	Slovenia		
12	France	**28**	Sweden		
13	Germany (Chair)	**29**	Switzerland (+Rapporteur)		
14	Greece	**30**	United Kingdom		
15	Indonesia	**31**	United States of America		
16	Italy				

TABLE 2
International Organisations represented on the Panels (Day 1 & 2)

CORAR	Council on Radionuclides and Radiopharmaceuticals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organsation
IFALPA	International Federation of Airline Pilots Association
IAEA	NSRW-TSU
IMO	International Maritime Organisation
ISSPA	International Source Suppliers and Producers Association
TIC	Tantalum - Niobium International Study Center
WNA	World Nuclear Association
WNTI	World Nuclear Transport Institute

Table 3
Presentations and Papers submitted

Title	Author	Organization
MEMBER STATES		
Towards a Code of Conduct	Gonzalez, Abel	Nuclear Regulatory Authority (ARN), Argentina
A Potential Solution for the Conundrum of Denials of Shipment	Gonzalez, Abel	Nuclear Regulatory Authority (ARN), Argentina
Addressing Denials of Shipment in Brazil – 10 years experience	Bruno, Natanael	National Commission of Nuclear Energy (CNEN), Brazil
Denial of Shipment - The Pilot Perspective	Lempiäinen, T.	International Federation of Air Line Pilots' Associations (IFALPA)
Denial of Shipment across the Baltic Sea (Paper)	Wallin, M.	Swedish Radiation Safety Authority (SRSA), Sweden
Denial of Shipment Across the Baltic Sea (Presentation)	Wallin, M.	Swedish Radiation Safety Authority (SRSA), Sweden
Transport of Excepted Packages by Courier Services	Kock, F.	Swiss Federal Nuclear Safety Inspectorate (ENSI)
Operator's Examples for Shipment Problems in the Research Domain	Zimmerman, U.	Paul Scherrer Institute, Switzerland
INDUSTRY		
Delays and Denials		Indústrias Nucleares do Brasil (INB), Brazil
Predictability in Requirements for hipping Radioactive Materials	Cardoso, V.; Valente, T.	Indústrias Nucleares do Brasil (INB), Brazil
Denials of Shipment Update	Guastella, M.	Council on Radionuclides and Radiopharmaceuticals, Inc. (CORAR)
Experience with Denials of Shipments in Canada	Hinz, K.	World Nuclear Association (WNA)
Characterising the denial of shipment of radioactive material, and identifying potential remedial policies	Gorlin, S.	World Nuclear Association (WNA)
The Role of Communications in addressing Denial and Delay of Class 7 shipments	Ring, J.	World Nuclear Association (WNA)
Denial of Shipment - Can Communications Help?	Ring, J.	World Nuclear Association (WNA)
Denial of Shipments, A Big Challenge for Class 7	Meier, M.	Orano
Transport Challenges – The Urenco Experience	Mance, I.	URENCO
Japanese Situation with Regard to Denial or delay of Class 7 shipment		Sumimoto Corporation
The Crisis in Our Industry	Edlow, J.; Russell, N.	Edlow International
Difficulties in tantalum raw materials transport, and Potential Solutions	Schwela, U.	Tantalum-Niobium International Study Center (TIC)