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**COMMITTEE OF EXPERTS ON THE TRANSPORT OF  
DANGEROUS GOODS AND ON THE GLOBALLY  
HARMONIZED SYSTEM OF CLASSIFICATION  
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the  
Transport of Dangerous Goods

Twenty-sixth session, 29 November-3 December 2004  
Item 3 (c) of the provisional agenda

**OUTSTANDING ISSUES OR PROPOSALS OF AMENDMENTS TO THE RECOMMENDATIONS  
ON THE TRANSPORT OF DANGEROUS GOODS**

Miscellaneous proposals

Harmonisation with the International Atomic Energy Agency (IAEA) Regulations  
for safe transport of radioactive material

Transmitted by the expert from the United Kingdom

**Introduction**

1. The Sub-Committee will recall that the expert from the United Kingdom produced ST/SG/AC.10/C.3/2004/57, which drew the attention of the Sub-Committee to the differences between the UN Model Regulations and the transport regulations of the International Atomic Energy Agency. The expert from the United Kingdom stated that now that the IAEA have moved to a biennial review of their regulations and that the UN Sub-Committee is regularly invited to comment on proposals for amendment, it would be appropriate to review the differences between the two texts so as to develop proposals wherever possible. In its paper the expert from the United Kingdom reproduced an Information paper which it presented at the IAEA TRANSCC IX meeting during March 2004. This process is being continued within the IAEA, The Sub-Committee may wish to note the attached Proposal For Change, which the United Kingdom has submitted to the IAEA, see Annex.
2. The expert from the United Kingdom promised to produce a further paper with initial proposals for consideration during the December 2004 session. Given that there might not be very much time for discussion, the expert from the United Kingdom feels it sensible to concentrate on those areas where it might be possible to reach agreement at the December session. The Sub-Committee will recall that

the information paper that the United Kingdom presented to the IAEA in Vienna during March 2004 contained two Annexes. Annex 2 listed substantial differences between the two sets of regulations which were more difficult to resolve and would need major work by both the UNSCOE and the IAEA before agreement could be reached. Annex 1 however listed those differences of an editorial nature that it was felt could be quickly resolved.

3. The expert from United Kingdom hopes this issue is considered further during the next biennium but in the meantime lists below certain definitions taken from Annex 1 which could be discussed and if possible agreed by the Sub-Committee. The Sub-Committee is invited to consider the definitions below.

#### **EXTRACT FROM ANNEX 1 TM-26528 Information Paper No 20**

##### **UN Actions**

<i>UN para</i>	1.1.2.4.1
<i>Definition</i>	Special arrangement
<i>UN action</i>	Current UN definition contains an error. Suggest change to : "Special arrangement shall mean those provisions, approved by the competent authority, under which consignments of radioactive material which do not satisfy all the applicable requirements of these Regulations may be transported." The consignment is then limited to one of radioactive material, and only the applicable requirements of the regulations related to radioactive material are applied.
<i>UN para</i>	1.2.1
<i>Definition</i>	Overpack
<i>UN action</i>	Remove examples from the definition (?place as a footnote). Question - does strapping on a pallet form an enclosure?
<i>UN para</i>	1.2.1
<i>Definition</i>	IBC
<i>UN action</i>	To note - some definitions are singular, some are plural. Suggest rationalising to the singular throughout.
<i>UN para</i>	1.2.1
<i>Definition</i>	Consignee
<i>UN action</i>	Consignee means any person, organization or government who receives or is the intended recipient of a consignment.
<i>UN para</i>	1.2.1
<i>Definition</i>	Competent authority
<i>UN action</i>	ADD "or international regulatory" after "national".

**Annex**  
(in English only)



INTERNATIONAL ATOMIC ENERGY AGENCY  
Division of Radiation and Waste Safety  
2004-2005 Review Cycle of the Agency's Transport Regulations TS-R-1 (ST-1, Rev.)  
FORM FOR SUBMITTING PROPOSAL FOR CHANGE

**Proposal Submitted by:**

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Principal objective of proposed change: (Delete what does not apply)

- Necessary to provide adequate protection to health and safety of public and occupational workers
- Involves defining or redefining level of protection to health and safety of public and occupational workers
- Required for consistency within the Regulations
- Required as a result of advances in technology
- Needed to improve implementation of the Regulations
- **Other (specify) Harmonisation with UN definitions**

Topic of proposed change: Harmonisation with UN definitions

Justification for proposed change: These changes remove the differences between class 7 and other classes of dangerous goods and so reduce costs. There is no safety change - so the change is justified.

Paragraphs affected and proposed text change to regulatory text in TS-R-1 (ST-1, Rev.)	Paragraphs affected and proposed text change to advisory material in TS-G-1.1
<p>203. <i>Passenger aircraft</i> shall mean an aircraft that carries any person other than a crew member, a <i>carrier's</i> employee in an official capacity, an authorized representative of an appropriate national authority, or a person accompanying a <i>consignment</i> <u>or other cargo</u>.</p> <p>210. <i>Consignee</i> shall mean any person, organization or government which receives <u>or is the intended recipient of</u> a <i>consignment</i>.</p> <p>219. <i>Defined deck area</i> shall mean the area<del>,</del> of the weather deck of a <i>vessel</i>, or of a <i>vehicle</i> deck of a roll-on/roll-off ship or a ferry, which is allocated for the stowage of <i>radioactive material</i>.</p> <p>224. <i>Intermediate bulk container (IBC)</i> shall mean a portable <i>packaging</i> that;</p> <ul style="list-style-type: none"> <li>(a) has a capacity of not more than 3 m<sup>3</sup>,</li> <li>(b) is designed for mechanical handling,</li> <li>(c) is resistant to the stresses produced in handling and transport, as determined by <del>performance</del> tests, and</li> <li>(d) is designed to conform to the standards in the chapter on Recommendations on Intermediate Bulk Containers (IBC's) of the United Nations Recommendations on the Transport of Dangerous Goods [7].</li> </ul> <p>229. <i>Overpack</i> shall mean an enclosure <del>such as a box or bag which is</del> used by a single <i>consignor</i> to <del>facilitate as a handling unit a consignment of</del> <u>contain</u> one or more <i>packages</i> <u>and to form one unit</u> for convenience of handling <del>and</del>; stowage <u>during transport and carriage</u>.</p> <p>232. <i>Quality assurance</i> shall mean a systematic programme of controls and inspections applied by any organization or body <del>involved in the transport of radioactive material</del> which is aimed at providing adequate confidence that the standard of safety prescribed in these Regulations is achieved in practice.</p> <p>247. <i>Vehicle</i> shall mean a road vehicle (including an articulated vehicle, i.e. a tractor and semi-trailer combination) <del>or</del> railroad car or railway wagon. Each trailer shall be considered as a separate <i>vehicle</i>.</p>	None
Proposal for transitional arrangements, if needed: None	
Applicable reference documents (if needed): See attached paper presented to both IAEA and UN.	
No. of additional sheets of supporting documentation attached (in electronic form please):	

Description of problem to be addressed: There are differences between the IAEA definitions and the UN definitions. Trevor Dixon of WNTI identified these. His paper was developed by the UK into the attached paper classifying the changes into different categories. This paper has been presented to both the UN and IAEA. The first category are the definitions which are different but with the same intent. This is the issue being dealt with here.

Summary of proposed solution to the Problem: The attached paper proposes to both IAEA and UN changes to their definitions which bring them into line with each other where the intent is the same. N.B Since this paper requires changes to both IAEA and UN it is important that these changes are progressed at the same time through both bodies.

### **UN - IAEA harmonisation**

A number of differences exist between the definitions section of the IAEA Regulations for the Safe Transport of Radioactive Material and the UN Recommendations on the Transport of Dangerous Goods Model Regulations. Several reviews of the differences have been made. This paper picks up some of the differences and proposes a way forward to eliminate them.

The proposals have been grouped into two sections, the first (Annex 1) is a set of minor wording changes which could quickly align some definitions. These are seen as minor deviations that have come about through technical editing and the like. It is believed that the intention was the same for both IAEA and UN in these cases. Perhaps the most significant of these changes is the definition of consignee. Both the IAEA and UN made attempts at a definition - and both had their own particular drawbacks. The intent seems clear however, that the person that a consignment is destined for and the person that accepts the consignment at the end of it's journey both need to be caught by this definition. Wording changes are suggested to both IAEA and UN. It is suggested that Annex 1 be reviewed by both organisations and revised and adopted as a single common document to prevent further differences. First as this information paper, then as change proposals at future meetings following appropriate consultation.

There are other differences in definitions that are more related to concept differences between the IAEA and the UN. These are set out in Annex 2. For these cases no revised wording is proposed - simply a proposal for a process by which these subjects may be taken forward. There are significant concept differences which would seem to present an insurmountable barrier to harmonisation. However unless these differences are addressed now the gap between the IAEA and UN regulations will continue to widen and it will be harder to bring the regulations together in the future. It is suggested that Annex 2 be reviewed by both organisations and revised and adopted as a single document proposing a joint approach to dealing with key concept differences.

Other differences that are not related to definitions also exist. An example can be found in the consignor's declaration. IAEA paragraph 550 suggests the following wording:

“I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked and labelled, and are in all respects in proper condition for transport by (insert mode(s) of transport involved) according to the applicable international and national governmental regulations.”

The key difference from UN being that IAEA suggests the declaration should include recognition that the consignment may not be suitable for all modes of transport. These differences are not presented here, however they represent issues that could take significant discussion to resolve. It is proposed that the inter agency co-ordination group be tasked with the duty of bringing these to the attention of IAEA and UN and propose a process to deal with each.

ANNEX 1 DEFINITION DIFFERENCES RELATED TO "EDITORIAL" DIFFERENCES

Definition	IAEA para	UN para	IAEA action	UN action
Competent authority	207	1.2.1		ADD "or international regulatory" after "national".
Consignee	210	1.2.1	Consignee means any person, organisation or government who receives or is the intended recipient of a consignment.	Consignee means any person, organisation or government who receives or is the intended recipient of a consignment.
Consignor	212	1.2.1	Proposal to adopt UN definition already being progressed.	
Defined deck area	219	1.2.1	Delete first comma (between "area" and "of")	
IBC	224	1.2.1	Delete the word performance in para (C)	To note - some definitions are singular, some are plural. Suggest rationalising to the singular throughout.

<b>Definition</b>	<b>IAEA para</b>	<b>UN para</b>	<b>IAEA action</b>	<b>UN action</b>
Overpack	229	1.2.1	Adopt UN text: Overpack shall mean an enclosure used by a single consignor to contain one or more packages and to form one unit for convenience of handling and stowage during transport.	Remove examples from the definition (?place as a footnote). Question - does strapping on a pallet form an enclosure?
Passenger aircraft	203	1.2.1	ADD to end "or other cargo"	
Quality Assurance	232	1.2.1	Delete "involved in the transport of radioactive material "	
Special arrangement	238	1.1.2.4.1		Current UN definition contains an error. Suggest change to : "Special arrangement shall mean those provisions, approved by the competent authority, under which consignments of radioactive material which do not satisfy all the applicable requirements of these Regulations may be transported." The consignment is then limited to one of radioactive material, and only the applicable requirements of the regulations related to radioactive material are applied.
vehicle	247	1.2.1	Change to "and semi-trailer combination), railroad car" - by changing "or" to ","	

## ANNEX 2 DEFINITION DIFFERENCES RELATED TO CONCEPT

There are several terms used in definitions that have key differences in the concepts lying behind them. As a result it is important to examine the concepts rather than the simple wording differences, otherwise further differences will result in future. The primary differences lie "behind" the following definitions.

### Package/Packaging

One of the key issues here is that IAEA, possibly because it deals with very large packagings (100Te and over) has developed the term packaging to include service equipment. For example a very large package may require specialist handling equipment, which is key to it's safe use. How should this service equipment be addressed? Is it appropriate to consider it along with the packaging, or should there be a different way to deal with it?

UN talks of the performance of the containment function as the purpose of packaging. IAEA talks of an enclosure. In essence the UN definition is performance based, while the IAEA definition is item based. Which is more appropriate?

### MNOP

The pressures and temperatures that should be considered during transport vary between Class 7 and other classes. Class 7 uses a term MNOP to cover the highest pressure in the package during transport, it means "Maximum Normal Operating Pressure". Other classes consider different means of determining the pressure to be considered. At the very least there ought to be a standard set of environmental conditions to be applied across the different classes. How should we deal with the effects of the environment on packages (high and low temperatures - high and low pressures)?

### Freight Container

The IAEA allows a freight container to be classed as a packaging in its own right. Now that UN is extended to large packagings should it accept that freight containers may be classed as packagings if they meet the appropriate tests? Or should the IAEA change it's requirements to prevent freight containers being used as packagings?

### Contamination

For Class 7 there is a concept of contamination. This comes from the acceptance that it is impossible to eliminate substances on the surface of packages (for example household dust is radioactive - so household dust on a package would look like the outside was contaminated). At what level of contamination do you become concerned? IAEA sets a "cleanliness goal" which is risk informed. With other classes what would be the appropriate means of defining the safe amount of a dangerous good on the outside of a package? It would not seem appropriate to have the same limits for all classes. This highlights a key difference between IAEA and UN. The package limits in IAEA are risk based. Irrespective of which radioactive material you are carrying and in which amount - by following the IAEA regulations risks are limited to comparable maximums. Could such a risk based methodology be introduced at UN, or should IAEA adopt a more pragmatic approach - taking less cognisance of the risks involved?

### Tank

The key difference here is that IAEA treats tanks as packagings in the same way that it treats freight containers as packagings - if it passes the packaging tests. Thus we have the problem that something that is a packaging (but not a tank) for Class 7 could be considered as a tank for another class of material. With the advent of large packagings in UN should the issue of how to treat tanks be examined? Or should IAEA introduce additional provisions for packagings that may be used as tanks?

The differences here can seem trivial in places, however looking at the simple issue of contamination gives the indication of the problem that needs to be addressed if these definitions are to be harmonised. It comes down to the basis of the regulations in their entirety - and the basis on which they ought to be developed. Where should the balance between science and pragmatism be? Given that IAEA and UN have developed self-consistent regulations based on different points on the science-pragmatism curve, is there any chance that one set of regulations (or both) can move to another point on the curve? This would require a full review and restructure of one set of regulations against a set of principles the normal drafting group is not familiar with. This is not a simple task.

It is proposed that the IAEA and UN set up a small joint working group to look at these issues and to report back on the effort estimated to harmonise each of the concepts and definitions in three ways, and on the potential benefits from each way:

1. To adopt the UN principles in IAEA.
  2. To adopt the IAEA principles in UN.
  3. To adopt a compromise position.
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