<table>
<thead>
<tr>
<th>No.</th>
<th>Para/Line No.</th>
<th>Proposed Change/new regulatory text</th>
<th>Discussion/Reason</th>
<th>Recommendation/Reason for modification/rejection</th>
<th>WG Resolution</th>
</tr>
</thead>
</table>
| 16  | D/1.00/6 Germany | Tables 10, 11 | In Table 10, the lines under (i) and the heading of line (ii) should be deleted. In table 10 and table 11, under the requirements for sea going vessels, the term “large freight container” should be supplemented with the words “(closed containers)”.

**Text revisions (SSR-6):**

**In Table 10:**

Sea going vessel*

(i) Hold, compartment or defined deck area:
- Packages, overpacks, small freight containers: 50
- Large freight containers: 200

(ii) Total vessel:
- Packages, overpacks, small freight containers: 200
- Large freight containers: no limit

**In Table 11:**

Sea going vessel*

(i) Hold, compartment or defined deck area:
- Packages, overpacks, small freight containers: 50
- Large freight containers: 100

(ii) Total vessel:
- Packages, overpacks, small freight containers: 200
- Large freight containers: no limit


Table 10 contains, for seagoing vessels, limits for a hold, compartment or defined deck area. This limits result from former times, when the control of criticality safety was effected by means of TI values and when a distance of at least 6 m was required between different compartments and defined deck areas. Since the criticality safety is now covered by a specific CSI table (Table 11), there is no longer a requirement for a distance between different deck areas with respect to radiation control. According to Table 10, the total sum of TI for large freight containers is limited to 200 in a defined deck area. However, the next defined deck area, which may be directly adjacent, is permitted to include a TI of 200 as well. Thus, both defined deck areas could be considered as one defined deck area, having a total TI of 400, which however seems to be not permitted by the table. Therefore, there is confusion in the shipping industry on the interpretation of this part in Table 10.

For the purpose of radiation control onboard a seagoing vessel, the IMDG Codes provides in section 7.1.4.5.18 a table showing segregation distances of radioactive material from passengers and crew. Radiation control on board a vessel...
is ensured by applying the segregation distances in this table. There is no longer any need, to require a TI limit for a hold, compartment or defined deck area on a vessel.

For the case of seagoing vessels, Tables 10 and 11 show different values for the sum of TI or CSI for packages and small freight containers on the one side and for the sum of TI or CSI for large freight containers on the other side. In the past, the justification for the higher values in case of large freight containers was the fact that a large freight container was defined as transport equipment for intermodal use having a permanent enclosed character. In the present definition of a freight container however, the word "enclosed" is no longer included. Nevertheless, the increased values of TI and CSI on board a ship are applicable only to closed freight containers, not to open flat racks. This issue should be clarified in Tables 10 and 11.

| 19 | D/1.00/9 | 566, 575 | In para. 566 (b) the word "conveyance" should be replaced by "vehicle or freight container". In para 575 the word "vehicle" should be replaced by "vehicle or freight container". The reference to Table 10 footnote (a) should be replaced by a reference to para. 566 (b). | Related regulation: SSR-6. Related paragraphs: 566 (b) and 575 |
| Germany | | | Text revisions (SSR-6):
Para. 566 (b) The radiation level under routine conditions of transport shall not exceed 2 mSv/h at any point | The present wording in 566 (b) addresses the radiation level on the surface of and in a distance of 2 m from a conveyance. This applies when the conveyance is a vehicle. This is not applicable when the conveyance is an inland barge, a seagoing vessel or an aircraft. In the latter case the radiation level shall be determined for vehicles or |

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on, and 0.1 mSv/h at 2 m from, the external surface of the vehicle or freight container except for consignments under exclusive use by road or rail, for which the radiation limits around the vehicle are set forth in para. 573 (b) and 573 (c).

Para. 575

Packages or overpacks having a surface radiation level greater than 2 mSv/h, unless being carried in or on a vehicle or freight container under exclusive use in accordance with para. 566 (b) and Table 10, footnote a shall not be transported by vessel except under special arrangement.

Furthermore, Table 8 permits the transport of packages having a TI of more than 10 and a surface radiation level of more than 2 mSv/h but less than 10 mSv/h in a vehicle or freight container under exclusive use. Paragraph 575 however requires special arrangement for sea transport, when these packages are packed in a freight container under exclusive use. Only under the condition that these packages are stowed in a vehicle, a special arrangement is not necessary. When however the radiation level on the surface and in a distance of 2 m from a freight container under exclusive use complies with the limits set forth in paragraph 566 (b), there will be no longer a need to require special arrangement for such transports.

| 22 | B/1.00/1 | None proposed |
| 206, 210, 212 |

Belgium

The para's 206, 210 and 212 defined respectively Carrier, Consignor and Consignee. There are other stakeholders involved in the transport of radioactive material.

The model regulations ADR, RID and ADN define other stakeholders as packer, loader.
To avoid confusion and different understanding of the regulations, we suggest to define and to harmonize the stakeholders involved in the transport of radioactive material as done in these model regulations.

Clearly define the duties and responsibilities of stakeholders involved in the transport of radioactive material can also improve the understanding of the regulations.

We've had discussion with some Belgian stakeholders on their duties and responsibilities.

<table>
<thead>
<tr>
<th>24 F/1.00/1</th>
<th>104, 304</th>
<th>France</th>
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</thead>
<tbody>
<tr>
<td><strong>First of all,</strong> it is proposed to clearly state in § 104 that emergency response planning and preparedness directly contributes to safety and protection goals. Secondly, it is proposed to make mandatory the emergency plans to be used by the consignors and carriers in § 304 and to state that those plans will have to be consistent with the national emergency response plans prepared by governments and competent authorities.</td>
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<tr>
<td><strong>Text revisions (SSR-6):</strong></td>
<td></td>
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<tr>
<td><strong>OBJECTIVE</strong></td>
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<tr>
<td>104. The objective of these Regulations is to establish requirements that must be satisfied to ensure safety and to protect human life and health and the environment from the effects of radiation in the transport of radioactive material. This protection is achieved by requiring: (a) Containment of the radioactive contents; (b) Control of external radiation levels; (c) Prevention of criticality; (d) Prevention of damage caused by heat. These requirements are satisfied firstly by applying a graded approach to contents limits for...</td>
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<tr>
<td><strong>The expected benefit of the proposal is more efficient emergency response in case of transport accident from consignors, carriers and other involved organisations, which should result in lower radiological consequences to the persons of public and the workers.</strong></td>
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</table>
| **The cost should be low for the companies which have already implemented such arrangements. For others, it should depend on the degree of the hazard raised by their activity. Since there seems to be an important lack in the transport safety policy, this modification, which is derived from the lessons of Fukushima accident, is perceived as urgently needed.**
packages and conveyances and to performance standards applied to package designs, depending upon the hazard of the radioactive contents. Secondly, they are satisfied by imposing conditions on the design and operation of packages and on the maintenance of packagings, including consideration of the nature of the radioactive contents. Thirdly they are satisfied by implementing arrangements for planning and preparing emergency response in order to mitigate the consequences of potential events. Finally, they are satisfied by requiring administrative controls, including, where appropriate, approval by competent authorities.

…

106. These Regulations apply to the transport of radioactive material by all modes on land, water, or in the air, including transport which is incidental to the use of the radioactive material. Transport comprises all operations and conditions associated with, and involved in, the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination of loads of radioactive material and packages, as well as emergency response actions. A graded approach is applied in specifying the performance standards in these Regulations which are characterized in terms of three general severity levels:

(a) Routine conditions of transport (incident free);
(b) Normal conditions of transport (minor mishaps);
(c) Accident conditions of transport.

…

EMERGENCY RESPONSE

304. In the event of accidents or incidents during the transport of radioactive material, emergency
provisions, as established by relevant national and/or international organizations, shall be observed to protect persons, property and the environment. Consignors, carriers, governments and relevant national and/or international organizations shall establish in advance consistent arrangements for preparedness and response for emergencies that may occur during transport to protect human life and health and the environment. Emergency plans of consignors and carriers shall be kept available on request for the competent authority. Appropriate guidelines for the establishment of such provisions are contained in Ref. [4].

Text revisions (TS-G-1.1):
104.1 In general the Transport Regulations aim to provide a uniform and adequate level of safety that is commensurate with the inherent hazard presented by the radioactive material being transported. To the extent feasible, safety features are required to be built into the design of the package. By placing primary reliance on the package design and preparation, the need for any special actions during carriage (i.e. by the carrier) is minimized. Nevertheless, some operational controls are required for safety purposes. In addition appropriate measures should be planned to reduce the radiation risks that may be raised in case of reasonably foreseeable accidents.

**EMERGENCY RESPONSE**

304.1. The requirements established in the Transport Regulations, when complied with by the package designer, consignor, carrier and consignee ensure a high level of safety for the transport of radioactive material. However, accidents involving such packages may happen. Paragraph 304 of the Transport Regulations recognizes that advance planning and preparation are required to provide a sufficient
and safe response to such accidents. The response, in most cases, will be similar to the response to radiation accidents at fixed site facilities. Thus, it is required that relevant national or international organizations, consignors and carriers establish emergency procedures, and that these procedures be followed in the event of a transport accident involving radioactive material.

304.1bis Consignor and carrier emergency response plans should be available for inspection by the competent authority. Their contents and extension should be graded according to the degree of the hazards that may be raised during transport events.

304.2 Further guidance can be found in Ref. [12].

305.1. The radioactive hazard may not be the only potential hazard posed by the contents of a package of radioactive material. Other hazards may exist, including pyrophoricity, corrosivity or oxidizing properties; or, if released, the contents may react with the environment (air, water, etc.), in turn producing hazardous substances. It is this latter phenomenon which para. 305 of the Transport Regulations addresses so as to ensure proper safety from chemical (i.e. non-radioactive) hazards, and specific attention is drawn to uranium hexafluoride because of its propensity to react, under certain conditions, both with moisture in the air and with water, to form hydrogen fluoride and uranyl fluoride (HF and UO₂F₂).

305.2. In the event that the containment system of a package is damaged in an accident, air and/or water may reach and, in some cases, chemically react with the contents. For some radioactive material, these chemical reactions may produce caustic, acidic, toxic or poisonous
<table>
<thead>
<tr>
<th>38</th>
<th>F/1.00/15</th>
<th>France</th>
<th>Recommend to UNECE to conduct a study to confirm or refute that UF6 subsidiary risk is toxicity. Then accordingly select the packaging specific instructions.</th>
<th>The reason for introduction of UN 3507 (URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 kg per package, non-fissile or fissile-excepted) in the 2012 Edition of the Transport Regulations was to facilitate the shipments by air of small samples of UF6. But it is still not clear under which conditions of class 7 or class 8 shipments of such packages should be performed.</th>
</tr>
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<tbody>
<tr>
<td>48</td>
<td>WNTI/1.00/1</td>
<td>WNTI</td>
<td>Separate the definition of “consignor” in two different definitions: one for “consignor”, and one for “shipper”. The “consignor” is the person, organization or government preparing a consignment for transport, the “shipper” is the person, organization or government contracting with an individual carriage company the carriage of a consignment by this company. The shipper may also contract to a freight forwarder, in that case the freight forwarder act on behalf the consignor.</td>
<td>A confusion exists regarding the definition of “consignor” in modal regulations (ADR, RID) about the exact definition and responsibilities of “consignor”: it could be the company preparing the consignment for transport (as the definition given by the IAEA) or the consignor according to the contract of carriage (in that case, consignor).</td>
</tr>
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</table>
shipper to contract with carriers. For each shipment, there will be only one consignor, and one or more shippers.

Text revisions (SSR-6):
212. Consignor shall mean any person, organization or government that prepares a consignment for transport. There is only one consignor per consignment, even in the case of a transport chain.
2xx. Shipper shall mean any person, organization or government that contracts a transport with a carrier for the carriage of a consignment. In the case of a transport chain there may be successive shippers for the carriage of a single consignment. A shipper may contract with a freight forwarder. In that case the freight forwarder acts on behalf the shipper to undertake the responsibilities of the shipper.

CONSIGNOR’S, SHIPPER’S AND CARRIER’S RESPONSIBILITIES
545. Except as otherwise provided in these Regulations, no person may offer radioactive material for transport unless it is properly marked, labelled, placarded, described and certified on a transport document, and otherwise in a condition for transport as required by these Regulations. The consignor is responsible to prepare the transport documents and for compliance of the consignment to the applicable regulations. The shipper is responsible for the selection of the carrier(s) in compliance with these Regulations even when he has mandated a freight forwarder to organize the transport and contract with the carrier(s). The carrier is responsible to provide the transport documents to the next successive carrier.
546. The consignor shall include in the transport documents with each consignment the identification of the consignor, the shipper (if different from the consignor) and the consignee, including their names and addresses and the
following information, as applicable, in the order given:
555. The consignor, and the successive carriers, shall retain a copy of each of the transport documents containing the information specified in paras 546, 547, 551, 552 and 554, as applicable, for a minimum period of three months.
When the documents are kept electronically, the consignor, and the successive carriers, shall be able to reproduce them in a printed form.
556. The applicable competent authority certificates need not necessarily accompany the consignment. The consignor, and the successive shippers or carriers, shall make them available to the carrier(s) before loading and unloading.
558. For each shipment listed in (a), (b), (c) or (d) below, the consignor, or the successive shippers or carriers, shall notify the competent authority of the country of origin of the shipment and the competent authority of each country through or into which the consignment is to be transported. This notification shall be in the hands of each competent authority prior to the commencement of the shipment, and preferably at least 7 days in advance.
560. The consignor, or the successive shippers or carriers, is not required to send a separate notification if the required information has been included in the application for approval of shipment (see para. 827).
Text revisions (TS-G-1.1):
545.1. The consignor should take appropriate actions according to its management system to ensure that compliance with the requirements can be demonstrated. This does not mean that actions such as placarding the vehicle have to be carried out by the consignor itself.
545.2. The fact that shipper is responsible for the selection of the carrier(s) in compliance with the Regulations means that the shipper exerts this responsibility in accordance with a
| WNTI/1.00/2 | WNTI | 217 | Enlarge the definition of “conveyance” to “cargo compartments” of an aircraft. 
Text revisions (SSR-6): 
217. Conveyance shall mean: 
(a) For transport by road or rail: any vehicle; 
(b) For transport by water: any vessel, or any hold, compartment, or defined deck area of a vessel; 
(c) For transport by air: any aircraft or any cargo compartment of an aircraft.  
Airplanes’ cargo bay may be split into several compartments. Linked to the definition of “exclusive use shipment”, and taking account of the size of current commercial planes, it should be possible to consider a “compartment” as a “conveyance” as it is already allowed for a hold or a compartment of a sea going vessel.  
Link to make with cargo compartment classification:  
• FAR Part 25, 25.857 — Cargo compartment classification (Federal Aviation Regulation).  
• ICAO-TI already refers to cargo compartments classification (see ICAO TI Part 7, para 2.4.1). Cargo compartment classification is described in the ICAO document Emergency Response Guidance for Aircraft Incidents involving Dangerous Goods (Doc 9481).  
• ICAO TI Part 7, para 2.4.1: Dangerous goods with "cargo aircraft only" have to be in a class C aircraft cargo compartment or equivalent – this does not apply to class 7 up to now  |
| WNTI/1.00/13 | WNTI | 223 | Harmonize, as far as practicable, the definition in para 223 with that given in UN Model Regulations for covering all types of containers, as in UN Model regulations and Modal Regulations. |
Add information about various kinds of freight containers in TS-G-1.1.

Text revisions (SSR-6):

223. Freight container shall mean an article of transport equipment that is of a permanent character and accordingly strong enough to be suitable for repeated use; specially designed to facilitate the transport of goods, by one or other modes of transport, without intermediate reloading, designed to be secured and/or readily handled, having fittings for these purposes. The term “freight container” does not include the vehicle.

A small freight container shall mean a freight container that has an internal volume of not more than 3 m³. Any other freight container is considered to be a large freight container. A large freight container shall mean a freight container that has an internal volume of more than 3 m³. In particular, Freight containers which conform to the definition of “container” in the International Convention for Safe Containers (CSC), 1972, as amended, are large freight containers, and ISO containers (container complying with all relevant ISO container standards in existence at the time of its manufacture) are also large freight containers.

Alternative:

Freight containers which conform to the definition of “container” in the International Convention for Safe Containers (CSC), 1972, as amended, and ISO containers (container complying with all relevant ISO container standards in existence at the time of its manufacture) are large freight containers. Any example, to confusion when determining if certain large packages or large boxes have to be considered as “freight-containers” or not, and if multiplication factors from Table 7 has to be used or not.

The definition given for “large freight container” in para. 223 is also slightly different to the one given in the UN Model Regulations, and subsequently in Modal Regulations, leading to confusion about the applicable rules (in terms of labelling, placarding, exclusive use…) to certain kinds of freight containers like platform-based containers with incomplete superstructure and fixed or folding ends (flat-racks) as defined in ISO 830 standard, currently used for the carriage of UF6 cylinders worldwide, or platforms as defined in the same ISO standard, also currently used for the carriage of packages for fresh nuclear fuel. Those containers are considered as “cargo transport units” in modal regulations and are submitted to labelling and placarding as it is the case for enclosed containers.

The definitions of freight container, large freight container and small freight container, as stated in the UN Model regulations, and subsequently used in the modal regulations, are also questionable:

- It is required that containers shall be compliant with the CSC, when containers compliant with CSC shall have
other freight container is considered to be a small freight container.

Text revisions (TS-G-1.1):
223.1. The methods and systems employed in the trans-shipment of goods have undergone a transformation since about 1965; the freight container has largely taken the place of parcelled freight or general cargo which was formerly loaded individually. Packaged as well as unpackaged goods are loaded by the consignor into freight containers and are transported to the consignee without intermediate handling. In this manner, the risk of damage to packages is reduced, unpackaged goods are consolidated into conveniently handled units and transport economies are realized. In the case of large articles such as contaminated structural parts from nuclear power stations, the container may perform the function of the packaging as allowed under para. 629. The are various kind of freight containers: “platform” (only the base with corner fittings at the four angles, those containers cannot be stacked when carrying cargo), “flat racks” (platform with four corner posts, or 2 end frames, with corner fittings at the bottom and top corners, those containers may be stacked), “general purpose containers” (enclosed and water-proof container having rigid roof and side walls), “open-top containers” (the roof is removable), …

223.2. When freight containers are typically designed and tested in accordance with the standards of the ISO [3], they are called “ISO containers”. An “ISO container” following the definition given to that term in the ISO standards, is a container complying with all relevant ISO container standards in existence at the time of its manufacture. The minimum dimensions of ISO containers lead to classify them in the large freight containers category a size such that the area enclosed by the four outer bottom corners is either:
  o at least 14 m² (150 sq ft), or,
  o at least 7 m² (75 sq ft) if it is fitted with top corner fittings.

- The definition of small container is not really compliant with that of container (a container compliant with CSC convention does not really comply with the definition of a small container).

What is a small container?
- It has the same capacity as an IBC or a Large Packaging (capacity up to 3 m³ each);
- It can be used as a package (IP-2 or IP-3) with the condition to conform to the ISO1496-1 standard, excluding dimensions and ratings;

Which are the specific requirements to small freight containers which differ from those applicable to large freight containers?
- Exclusive use definition (a large freight container is considered equivalent to a conveyance);
- The definition of container given in para. 223;
- The placarding in para. 543 (only required for large freight containers);
- Orange panels in para.
When complying with the definition of container in the International Convention for Safe Containers (CSC) [4], they should be approved and maintained in accordance with that convention in order to facilitate international transport operations. In that Convention containers shall have a minimum size such that the area enclosed by the four outer bottom corners is either at least 14 m² (150 sq. ft.) or, at least 7 m² (75 sq. ft.) if it is fitted with top corner fittings. Such containers are to be considered as large freight containers. Smaller freight containers are not subject to CSC (ISO containers “platforms” of length less than 20 feet (6m) are not subjected to CSC, all other categories of ISO containers with corner fittings at the top are subject to CSC). If other freight containers are used, the competent authority should be consulted. It should be noted, however, that the testing prescribed in CSC is not equivalent to that prescribed in ISO 1496-1. For this reason the Transport Regulations require the design standard to be ISO if it is intended to use the container as an IP-2 or IP-3 package.

223.3. In addition, special rules may be specified by modal transport organizations. As an example, the IMDG Code [5] contains the provisions for the transport by sea of dangerous goods in freight containers including radioactive material. It is also the case in ADR for road carriage and in RID for rail carriage.

Confusion about what is a “freight container” is leading to disagreement between Competent Authorities and/or consignors and/or carriers in the determination of the TI of certain packages, or on labelling, placarding and exclusive use of non-closed freight containers.

| Minimum length of 3 m, minimum width of 2.438 m | Minimum size such that the area enclosed by the four outer bottom corners is either at least 14 m² (150 sq. ft.) or, at least 7 m² (75 sq. ft.) if it is fitted with top corner fittings. Such containers are to be considered as large freight containers. Smaller freight containers are not subject to CSC (ISO containers “platforms” of length less than 20 feet (6m) are not subjected to CSC, all other categories of ISO containers with corner fittings at the top are subject to CSC). If other freight containers are used, the competent authority should be consulted. It should be noted, however, that the testing prescribed in CSC is not equivalent to that prescribed in ISO 1496-1. For this reason the Transport Regulations require the design standard to be ISO if it is intended to use the container as an IP-2 or IP-3 package. |
| 544 (as written, seems to be applicable only for large freight containers): |
| - TI limitation in a hold of a vessel and in the vessel (higher limit in case of large freight containers); |
| - CSI limitation in a total vessel (higher limit in case of large freight containers). CSI limits in case of exclusive use (not applicable to small freight containers). |
| Confusion about what is a “freight container” is leading to disagreement between Competent Authorities and/or consignors and/or carriers in the determination of the TI of certain packages, or on labelling, placarding and exclusive use of non-closed freight containers. |