



**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****Thirty-seventh session**

Geneva, 21–30 June 2010

Item 7 of the provisional agenda

Cooperation with the International Atomic Energy Agency (IAEA)**Guidance for the security in transport of radioactive material****Transmitted by the International Atomic Energy Agency (IAEA)¹**

1. By resolution 724 (XXVIII) of 17 July 1959, the Economic and Social Council informed the IAEA of its desire that the Agency be entrusted with the drafting of recommendations on the transport of radioactive substances, provided that they are consistent with the framework and general principles of recommendations of the Committee of Experts on the Transport of Dangerous Goods, and that they are established in consultation with the United Nations and the specialized agencies concerned:
2. Since then, the IAEA has elaborated, in close cooperation with the United Nations and its specialized agencies, the Regulations for the Safe Transport of Radioactive Material, the provisions of which were incorporated in the Model Regulations annexed to the United Nations Recommendations on the Transport of Dangerous Goods (11th revised edition, 1999).
3. In 2002, the Sub-Committee of Experts on the Transport of Dangerous Goods adopted provisions concerning security, which were included in the 13th revised edition of the Recommendations (2003) as Chapter 1.4 and section 7.2.4 of the Model Regulations. The IAEA had been consulted and provided provisional criteria for classification of radioactive material as high consequence dangerous goods, namely a quantity threshold of 3000 A₁ (special form) or 3000 A₂, as applicable, in Type B(U) or Type B(C) or Type C packages.

¹ In accordance with the programme of work of the Sub-Committee for 2009-2010 approved by the Committee at its fourth session (refer to ST/SG/AC.10/C.3/68, para. 118 (a) and ST/SG/AC.10/36, para. 14).

4. Since then, the IAEA has also worked on security of the transport of radioactive material, taking account of the security provisions contained in the United Nations Model Regulations, and has now published (2008) an Implementing Guide in the IAEA Nuclear Security Series No. 9, entitled “Security in the Transport of Radioactive Material”, (www-pub.iaea.org/MTCD/publications/PDF/Pub1348_web.pdf).
5. This guidance has been developed in close cooperation with Members States and agreed for publication by consensus.
6. It contains in particular new suggested thresholds for identification of radioactive material as high consequence dangerous goods. The new threshold values are intended to identify, as high-consequence dangerous goods, all radioactive material which, if not securely protected and therefore accessible to persons with malicious intent, could cause damage to persons, property, society and the environment.
7. The IAEA Code of Conduct for the Safety and Security of Radioactive Sources lists 25 nuclides and their associated threshold values (D-values). The IAEA Nuclear Security Series No.9 sets the threshold for these 25 nuclides at 10D and at 3000 A₂ for all other nuclides.
8. Informal document INF.9 submitted at the thirty-fifth session of the Sub-Committee introduced an example on how these thresholds could be incorporated into Chapter 1.4 of the United Nations Model Regulations and was prepared in consultation with the secretariat of the Sub-Committee. This was discussed at the 35th session and comments were invited, received and addressed.
9. Attention is also drawn to the fact that the reference to document INFCIRC/225 (Rev.4) in current paragraph 1.4.3.2.3 should be corrected.
10. The Sub-Committee was further asked to consider some additional provisions contained in the IAEA Implementing Guide on “Security in the Transport of Radioactive Material” presented in Annex 2 of Informal document INF.38 submitted at the thirty-sixth session. Several industrial organizations questioned in two areas, but no Member State provided any adverse comments.
11. The provisions questioned are 1.4.1.4, where industry argue the consignor has no competence to provide security instructions or to follow them, and secondly 1.4.1.5 and 1.4.1.7 on the grounds that these provisions are standard industry practice and should not be included in Regulations.
12. Since no Member State has supported this industry comment the proposed text has not been altered. Industry suggests paragraphs 1.4.1.4, 1.4.1.5 and 1.4.1.7 should apply to class 7 only. This argument does not seem justified.
13. A proposal of new text incorporating the revised thresholds and updated reference has been prepared by the IAEA and is included in the annex to this document.
14. The Sub-Committee is invited to accept the amendments outlined in the annex to this document.
15. The Sub-Committee is further invited to note that the Agency is in a position to support Member States in enhancing security measures for the transport of radioactive material, including that for their industries, and would welcome expressions of interest.

Annex

Proposed amendments to Chapter 1.4 of the United Nations Model Regulations on the Transport of Dangerous Goods

1. Add paragraphs after 1.4.1.2, as follows:
 - "1.4.1.3 Carriers shall perform security inspections of conveyances and shall ensure that these security measures remain effective during transport.
 - 1.4.1.4 Consignors shall provide appropriate crew members with written instructions on any required security measures, including how to respond to a security event during transport.
 - 1.4.1.5 The consignor shall provide advance notification to the consignee of the planned shipment, mode of transport and expected delivery time.
 - 1.4.1.6 Existing 1.4.1.3.
 - 1.4.1.7 All consignors shall have procedures in place that would initiate an inquiry about the status of packages that are not delivered to the intended recipient at the expected time."
2. Insert a new 1.4.3.1 to read as follows:
 - "1.4.3.1 Definition of high consequence dangerous goods.
 - 1.4.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for class 7, mass socio-economic disruption.
 - 1.4.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in table 1.4.1 below.

Table 1.4.1: List of high consequence dangerous goods (other than radioactive material) [Existing Table 1.4.1, with the existing NOTE, but without the introductory text and without the entry for Class 7].
 - 1.4.3.1.3 For dangerous goods of Class 7, high consequence radioactive material are those with an activity exceeding a transport security threshold of 3000 A₂ per single package (see also 2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in table 1.4.2 below.

Table 1.4.2
Transport security thresholds for specific radionuclides

<i>Element</i>	<i>Radionuclide</i>	<i>Transport security threshold (TBq)</i>
Americium	Am-241	0.6
Gold	Au-198	2
Cadmium	Cd-109	200
Californium	Cf-252	0.2
Curium	Cm-244	0.5
Cobalt	Co-57	7
Cobalt	Co-60	0.3
Cesium	Cs-137	1
Iron	Fe-55	8000
Germanium	Ge-68	7
Gadolinium	Gd-153	10
Iridium	Ir-192	0.8
Nickel	Ni-63	600
Paladium	Pd-103	900
Promethium	Pm-147	400
Polonium	Po-210	0.6
Plutonium	Pu-238	0.6
Plutonium	Pu-239	0.6
Radium	Ra-226	0.4
Ruthenium	Ru-106	3
Selenium	Se-75	2
Strontium	Sr-90	10
Thallium	Tl-204	200
Thulium	Tm-170	200
Ytterbium	Yb-169	3

1.4.3.1.4 For mixtures of radionuclides, determination of whether or not the transport security threshold has been met or exceeded can be calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide. If the sum of the fractions is less than 1, then the radioactivity threshold for the mixture has not been exceeded.

This calculation can be made with the formula:

$$\sum_i \frac{A_i}{T_i} < 1$$

Where:

A_i = activity of radionuclide i that is present in a package (TBq)

T_i = transport security threshold for radionuclide i (TBq).

1.4.3.1.5 When radioactive material possess subsidiary risks of other classes or divisions, the criteria of table 1.4.1 shall also be taken into account (see also 1.5.5.1)."

Insert a new title:

"1.4.3.2 Basic security provisions."

1.4.3.2.1 Existing 1.4.3.1, but delete last sentence.

1.4.3.2.2 Existing 1.4.3.2.1 but final reference to 1.4.3.2.3

1.4.3.2.3 Existing 1.4.3.2.2

1.4.3.2.4 For radioactive material, the provisions of this chapter and of section 7.2.4 are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear material¹ and the IAEA information circular on ‘The Physical Protection of Nuclear Material and Nuclear facilities’² or the Nuclear Security Series No.9 ‘Security in the Transport of Radioactive Material’³ are applied.

Footnote 1 change IAEACIRC to INFCIRC

Footnote 2 Change IAEACIRC to INFCIRC and delete last sentence.

Footnote 3 Nuclear Security Series No.9. ‘Security in the Transport of Radioactive Material’, IAEA, Vienna (2008).