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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-third session, 30 June -4 July 2003, agenda item 8)

HARMONIZATION WITH THE INTERNATIONAL ATOMIC AGENCY (IAEA) REGULATIONS FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL

Proposed changes to the IAEA Transport Regulations as accepted by the September 2002 Review Panel Meeting and endorsed by the February 2003 TRANSSC Meeting for 120 day review by member states and international organizations

Transmitted by the International Atomic Energy Agency (IAEA)

The secretariat reproduces hereafter a proposal from IAEA for harmonizing the Model Regulations on the Transport of Dangerous Goods with the IAEA Regulations for the Safe Transport of Radioactive Material.

PROPOSED CHANGES TO THE IAEA TRANSPORT REGULATIONS AS ACCEPTED BY THE SEPTEMBER 2002 REVIEW PANEL MEETING AND ENDORSED BY THE FEBRUARY 2003 TRANSSC MEETING FOR 120 DAY REVIEW BY MEMBER STATES AND INTERNATIONAL ORGANIZATIONS

SUMMARY

The proposed changes, as accepted by the September 2002 Review Panel meeting and endorsed by the February 2003 TRANSSC meeting for the 120 day review by Member States and International Organizations, are presented in this report in Tables and Appendices. Table 1 provides details on the accepted changes which are presented according to the paragraph order in the current regulations (TS-R-1). Table 2 provides a cross reference table where the accepted changes are also listed alphabetically in country order to facilitate checking which proposals have been accepted and what proposed change numbers have been assigned.

Please note that the Review Panel did not fully support proposed changes #9, # 16, #46 and #58.

There are 3 appendices to this report. The contents of these appendices are outlined following the further information on the tables.

TABLES

TABLE 1

The table contains the following 5 columns:

Column 1 provides the proposal number.

In some cases there are related proposals for the same or a similar change to a paragraph. These related proposals are listed together in column 1. For example, change #16 concerning paragraph 416. The accepted proposal is identified as UK/02/52. The related proposals, Canada/02/02, UK/02/48 and UK/02/49 are identified together with UK/02/52. This was done in order to recognize that they were also considered by the Review Panel and because the justification and explanation provided in these related proposals are also relevant for the review of the accepted text of the proposed change (which may be different from the originally proposed text in any of these proposals). Related proposals that were rejected by the Review Panel are not included.

In other cases there could be alternate proposals for the same intended change but the Review Panel did not decide on the preferred alternative. The 120 day review should help to identify the preferred option. For example, change #24 and #25.

In still other cases there are proposals concerning unrelated changes to the same paragraph. In those cases the accepted changes are listed as separate changes for the same paragraph. For example, changes #27, #31, #32 and #33 all concern changes to paragraph 672. Actually because there were so many proposals for different aspects of this rather lengthy paragraph these four changes were combined in Appendix 2 for easier review of the result if all these changes were eventually approved.

Sometimes a proposal number is split up in different parts. For example, Canada/02/12 is split up in 6 parts (changes #6, #7, #8, #42, #53 and # 56). This was done because as a result of accepting change #6 concerning paragraph 230, there are related changes to other paragraphs. If the changes to these other paragraphs do not involve other relevant proposals for these other paragraphs then the related parts are listed following the original proposal (for example #7 and #8). If the changes to these other paragraphs should be considered together with other proposals for these other paragraphs then the parts are listed with the other related proposals for these other paragraphs. For example, change #42 (Canada/02/12 (4 of 6) which relates to paragraph 805 needs to be considered together with changes #43 (UK/02/39 (1 of 4) and change #44 (UK/02/40) which are also concerned with paragraph 805). The main proposal number of the split proposals is needed to be able to review the related justification and explanation.

Column 2 provides the number of the affected paragraph of the regulations.

Proposed changes to Tables are listed where the Tables occur in the paragraph sequence. Where the change involves only consequential changes, for example change #5 involving consequential changes to paragraphs 226, 418 etc. provides first a reference to the change (paragraph 222) that is causing the consequential changes. This is important in case the original change is not accepted or modified during the further review process.

Column 3 provides the existing text in TS-R-1 for the paragraph for which a change is recommended.

If in this column a part of the paragraph is marked in **bold** then the proposal involves deleting the bold part of the existing text.

Column 4 provides the proposed new text as accepted by the Review Panel.

Any part in **bold** in this column indicates where the text is new or revised.

Column 5 provides the assigned change number.

The assigned change number is required for the further review process.

TABLE 2

A cross reference table is provided, first giving the accepted changes in paragraph order and then giving them in country order. The country order is provided to facilitate checking which proposals have been accepted for further review and to identify the related proposed change numbers.

APPENDICES

APPENDIX 1

Appendix 1 provides the details of Change #5 which is a substantial number of consequential changes if Change #4 is accepted.

APPENDIX 2

Appendix 2 provides a consolidated version of changes #27, #31, #32 and #33 to facilitate review of the separate proposed changes for the same lengthy paragraph. It should be noted that there is another proposed change (#37) related to the same paragraph which could not be merged into the consolidated paragraph and which was not considered complete by the Review Panel. In addition, Changes #28/30 and #34/36 are related consequential changes.

APPENDIX 3

Appendix 3 provides in detail proposed change #51 concerning paragraphs 815/818 TRANSITIONAL ARRANGEMENTS (Grandfathering arrangements). The detail also includes the justification/explanation. It should be noted that there are some other proposals (# 48/50) on specific aspects of these paragraphs.

NOTE. The use of **bold** text in the current and new text in Appendix 3 is not as it is in TABLE 1, columns 3 and 4. Instead it is reflecting the use of bold text in the current regulations.

TABLE 1

DETAILS OF ACCEPTED CHANGES IN PARAGRAPH ORDER

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/04	204	204. *Multilateral approval* shall mean approval by the relevant *competent authority* both of the country of origin of the *design* or *shipment* and of each country through or into which the *consignment* is to be transported. The term "through or into" specifically excludes "over", i.e. the approval and notification requirements shall not apply to a country over which *radioactive material* is carried in an *aircraft*, provided that there is no scheduled stop in that country.	204. *Multilateral approval* shall mean approval by the relevant *competent authority* both of the country of origin of the *design* or *shipment* and **also, where the design or shipment is to be transported through or into any other country, approval by the *competent authority* of that country.** The term "through or into" specifically excludes "over", i.e. the approval and notification requirements shall not apply to a country over which *radioactive material* is carried in an *aircraft*, provided that there is no scheduled stop in that country.	1
UK/02/05	204	204. *Multilateral approval* shall mean approval by the relevant *competent authority* both of the country of origin of the *design* or *shipment* and of each country through or into which the *consignment* is to be transported. The term "through or into" specifically excludes "over", i.e. the approval **and notification** requirements shall not apply to a country over which *radioactive material* is carried in an *aircraft*, provided that there is no scheduled stop in that country.	204. *Multilateral approval* shall mean approval by the relevant *competent authority* both of the country of origin of the *design* or *shipment* and of each country through or into which the *consignment* is to be transported. The term "through or into" specifically excludes "over", i.e. the approval requirements shall not apply to a country over which *radioactive material* is carried in an *aircraft*, provided that there is no scheduled stop in that country.	2
Canada/02/08	212	212. *Consignor* shall mean any person, organization or government which prepares a *consignment* for transport**, and is named as *consignor* in the transport documents**.	212. *Consignor* shall mean any person, organization or government which prepares a *consignment* for transport.	3
Sweden/02/02 (1 of 2) and France/02/06	222	222. *Fissile material* shall mean uranium-233, uranium-235, plutonium-239, plutonium-241, or any combination of these radionuclides. Excepted from this - definition is: (a) *natural uranium* or *depleted uranium* which is unirradiated, and (b) *natural uranium* or *depleted uranium* which has been irradiated in thermal reactors only.	222. *Fissile material* shall mean **the fissile nuclides uranium-233, uranium-235, plutonium-239 or plutonium-241, contained in any material**. Excepted from this definition is: (a) *natural uranium* or *depleted uranium* which is unirradiated, and (b) *natural uranium* or *depleted uranium* which has been irradiated in thermal reactors only.	4

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Sweden/02/02 (2 of 2)	222 (Sweden/02/02) related consequential changes in paras 226, 418, 543, 549, 559, 672, 831, 832, 833 and Table XII		See Appendix 1	5
Canada/02/12 (1 of 6)	230	230. *Package* shall mean the *packaging* with its *radioactive contents* as presented for transport. The types of *packages* covered by these Regulations, which are subject to the activity limits and material restrictions of Section IV and meet the corresponding requirements, are: (a) *Excepted package*; (b) *Industrial package Type 1 (Type IP-1)*; (c) *Industrial package Type 2 (Type IP-2)*; (d) *Industrial package Type 3 (Type IP-3)*; (e) *Type A package*; (f) *Type B(U) package*; (g) *Type B(M) package*; (h) *Type C package*. *Packages* containing *fissile material* or uranium hexafluoride are subject to additional requirements.	230. *Package* shall mean the *packaging* with its *radioactive contents* as presented for transport. The types of *packages* covered by these Regulations, which are subject to the activity limits and material restrictions of Section IV and meet the corresponding requirements, are: (a) *Excepted package*; (b) *Industrial package Type 1 (Type IP-1)*; (c) *Industrial package Type 2 (Type IP-2)*; (d) *Industrial package Type 3 (Type IP-3)*; (e) *Type A package*; (f) *Type B(U) package*; (g) *Type B(M) package*; (h) *Type C package;* **(i) *Type H(U) package;*** **(j) *Type H(M)package.*** *Packages* containing *fissile material* or uranium hexafluoride are subject to additional requirements.	6

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Canada/02/12 (2 of 6)	230 (Canada/02/12) related change in 538	538. Each *package* which conforms to a *design* approved under paras 805–814 or 816–817 shall be legibly and durably marked on the outside of the *packaging* with: (a) The identification mark allocated to that *design* by the *competent authority*; (b) A serial number to uniquely identify each *packaging* which conforms to that *design*; (c) In the case of a *Type B(U)* or *Type B(M) package design*, with "TYPE B(U)" or "TYPE B(M)"; and (d) In the case of a *Type C package design*, with "TYPE C".	*(possibly needed)* 538. Each *package* which conforms to a *design* approved under paras 805–814 or 816–817 shall be legibly and durably marked on the outside of the *packaging* with: (a) The identification mark allocated to that *design* by the *competent authority*; (b) A serial number to uniquely identify each *packaging* which conforms to that *design*; (c) In the case of a *Type B(U)* or *Type B(M) package design*, with "TYPE B(U)" or "TYPE B(M)"; ***In the case of a Type H(U) or Type H(M) design, with "Type H(U)" or "Type H(M)" unless under these regulations another certification type mark is applicable;*** and (d) In the case of a *Type C package design*, with "TYPE C".	7
Canada/02/12 (3 of 6)	230 (Canada/02/12) related change in 539	539. Each *package* which conforms to a *Type B(U)*, *Type B(M)* or *Type C package design* shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in Fig. 1.	539. Each *package* which conforms to a ***Type H(U), Type H(M),*** *Type B(U)*, *Type B(M)* or *Type C package design* shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in Fig. 1.	8
UK/02/13	246	246. *Natural uranium* shall mean chemically separated uranium containing the naturally occurring distribution of uranium isotopes (approximately 99.28% - uranium-238, and 0.72% uranium-235 by mass). *Depleted uranium* shall mean uranium containing a lesser mass percentage of uranium-235 than in *natural uranium*. *Enriched uranium* shall mean uranium containing a greater mass percentage of uranium-235 than 0.72%. **In all cases, a very small mass percentage of uranium-234 is present.**	246. *Natural uranium* shall mean chemically separated uranium containing the naturally occurring distribution of uranium isotopes (approximately 99.28% - uranium-238, and 0.72% uranium-235 by mass). *Depleted uranium* shall mean uranium containing a lesser mass percentage of uranium-235 than in *natural uranium*. *Enriched uranium* shall mean uranium containing a greater mass percentage of uranium-235 than 0.72%. **NOTE**. Deleted sentence moved to TS-G 1.1	9

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
USA/02/07 and UK/02/14 (1 of 2)	303	303. Workers shall receive appropriate training concerning the radiation hazards involved and the precautions to be observed in order to ensure restriction of their exposure and that of other persons who might be affected by their actions.	303. Workers shall receive appropriate training concerning the radiation hazards involved and the precautions to be observed in order to **control their occupational** exposure and that of other persons who might be affected by their actions.	10
USA/02/07 and UK/02/14 (2of 2)	305	305. For occupational exposures arising from transport activities, where it is assessed that the effective dose: **(a) is most unlikely to exceed 1 mSv in a year, neither special work patterns nor detailed monitoring nor dose assessment programmes nor individual record keeping shall be required;** (b) is likely to be between 1 and 6 mSv in a year, a dose assessment programme via work place monitoring or individual monitoring shall be conducted; (c) is likely to exceed 6 mSv in a year, individual monitoring shall be conducted. When individual monitoring or work place monitoring is conducted, appropriate records shall be kept.	305. For occupational exposures arising from transport activities, where it is assessed that the effective dose: (**a**) is likely to be between 1 and 6 mSv in a year, a dose assessment programme via work place monitoring or individual monitoring shall be conducted; (**b**) is likely to exceed 6 mSv in a year, individual monitoring shall be conducted. When individual monitoring or work place monitoring is conducted, appropriate records shall be kept.	11
UK/02/18	Table I footnote (a)	(a) A_1 and/or A_2 values for these parent radionuclides include contributions from daughter radionuclides with half-lives less than 10 days.	(a) A_1 and/or A_2 values for these parent radionuclides include contributions from daughter radionuclides with half-lives less than 10 days, **as listed in the following:** **Mg 28 Al 28** **Ar 42 K 42** **Ca 47 Sc 47** **Ti 44 Sc 44** **Fe 52 Mn 52m** **Fe 60 Co 60m** **Zn 69m Zn 69**	12

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
			Ge 68 Ga 68 **Rb 83 Kr 83m** **Sr 82 Rb 82** **Sr 90 Y 90** **Sr 91 Y 91m** **Sr 92 Y 92** **Y 87 Sr 87m** **Zr 95 Nb 95m** **Zr 97 Nb 97m, Nb 97** **Mo 99 Tc 99m** **Tc 95m Tc 95** **Tc 96m Tc 96** **Ru 103 Rh 103m** **Ru 106 Rh 106** **Pd 103 Rh 103m** **Ag 108m Ag 108** **Ag 110m Ag 110** **Cd 115 In 115m** **In 114m In 114** **Sn 113 In 113m** **Sn 121m Sn 121** **Sn 126 Sb 126m** **Te 118 Sb 118** **Te 127m Te 127** **Te 129m Te 129** **Te 131m Te 131** **Te 132 I 132** **I 135 Xe 135m** **Xe 122 I 122** **Cs 137 Ba 137m** **Ba 131 Cs 131** **Ba 140 La 140** **Ce 144 Pr 144m, Pr 144** **Pm 148m Pm 148** **Gd 146 Eu 146** **Dy 166 Ho 166** **Hf 172 Lu 172** **W 178 Ta 178** **W 188 Re 188** **Re 189 Os 189m**	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)		#
			Os 194	**Ir 194**	
			Ir 189	**Os 189m**	
			Pt 188	**Ir 188**	
			Hg 194	**Au 194**	
			Hg 195m	**Hg 195**	
			Pb 210	**Bi 210**	
			Pb 212	**Bi 212, Tl 208, Po 212**	
			Bi 210m	**Tl 206**	
			Bi 212	**Tl 208, Po 212**	
			At 211	**Po 211**	
			Rn 222	**Po 218, Pb 214, At 218, Bi 214, Po 214**	
			Ra 223	**Rn 219, Po 215, Pb 211, Bi 211, Po 211, Tl 207**	
			Ra 224	**Rn 220, Po 216, Pb 212, Bi 212, Tl 208, Po 212**	
			Ra 225	**Ac 225, Fr 221, At 217, Bi 213, Tl 209, Po 213, Pb 209**	
			Ra 226	**Rn 222, Po 218, Pb 214, At 218, Bi 214, Po 214**	
			Ra 228	**Ac 228**	
			Ac 225	**Fr 221, At 217, Bi 213, Tl 209, Po 213, Pb 209**	
			Ac 227	**Fr 223**	
			Th 228	**Ra 224, Rn 220, Po 216, Pb 212, Bi 212, Tl 208, Po 212**	
			Th 234	**Pa 234m, Pa 234**	
			Pa 230	**Ac 226, Th 226, Fr 222, Ra 222, Rn 218, Po 214**	
			U 230	**Th 226, Ra 222, Rn 218, Po 214**	
			U 235	**Th 231**	
			Pu 241	**U 237**	
			Pu 244	**U 240, Np 240m**	
			Am 242m	**Am 242, Np 238**	
			Am 243	**Np 239**	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
			Cm 247 Pu 243 **Bk 249 Am 245** **Cf 253 Cm 249**	
Germany/02/06	Table I footnote (b)	(b) Parent nuclides and their progeny included in secular equilibrium are listed in the following: Sr-90 Y-90 Zr-93 Nb-93m Zr-97 Nb-97 Ru-106 Rh-106 Cs-137 Ba-137m **Ce-134 La-134** Ce-144 Pr-144 Ba-140 La-140 Bi-212 Tl-208 (0.36), Po-212 (0.64) Pb-210 Bi-210, Po-210 Pb-212 Bi-212, Tl-208 (0.36), Po-212 (0.64) **Rn-220 Po-216** Rn-222 Po-218, Pb-214, Bi-214, Po-214 Ra-223 Rn-219, Po-215, Pb-211, Bi-211, Tl-207 Ra-224 Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Ra-226 Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210 Ra-228 Ac-228 **Th-226 Ra-222, Rn-218, Po-214** Th-228 Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Th-229 Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209 Th-nat Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Th-234 Pa-234m U-230 Th-226, Ra-222, Rn-218, Po-214 U-232 Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) U-235 Th-231 U-238 Th-234, Pa-234m	(b) Parent nuclides and their progeny included in secular equilibrium are listed in the following: Sr-90 Y-90 Zr-93 Nb-93m Zr-97 Nb-97 Ru-106 Rh-106 **Ag-108m Ag-108** Cs-137 Ba-137m Ce-144 Pr-144 Ba-140 La-140 Bi-212 Tl-208 (0.36), Po-212 (0.64) Pb-210 Bi-210, Po-210 Pb-212 Bi-212, Tl-208 (0.36), Po-212 (0.64) Rn-222 Po-218, Pb-214, Bi-214, Po-214 Ra-223 Rn-219, Po-215, Pb-211, Bi-211, Tl-207 Ra-224 Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Ra-226 Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210 Ra-228 Ac-228 Th-228 Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Th-229 Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209 Th-nat Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) Th-234 Pa-234m U-230 Th-226, Ra-222, Rn-218, Po-214 U-232 Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64) U-235 Th-231 U-238 Th-234, Pa-234m	13

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		U-nat Th-234, Pa-234m, U-234, Th-230, Ra-226, Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210 **U-240 Np-240m** Np-237 Pa-233 Am-242m Am-242 Am-243 Np-239	U-nat Th-234, Pa-234m, U-234, Th-230, Ra-226, Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210 Np-237 Pa-233 Am-242m Am-242 Am-243 Np-239	
UK/02/15	402	402. For individual radionuclides which are not listed in Table I the determination of the basic radionuclide values referred to in para. 401 shall require ***competent authority*** **approval or, for international transport,** *multilateral approval*. **Where the chemical form of each radionuclide is known,** it is permissible to use the A_2 value related to its solubility class as recommended by the International Commission on Radiological Protection, if the chemical forms under both normal and accident conditions of transport are taken into consideration. Alternatively, the radionuclide values in Table II may be used without obtaining *competent authority* approval.	402. For individual radionuclides which are not listed in Table I the determination of the basic radionuclide values referred to in para. 401 shall require *multilateral approval*. It is permissible to use the A2 value related to the solubility class, as recommended by the International Commission on Radiological Protection, if the chemical forms **of each radionuclide** under both normal and accident conditions of transport are taken into consideration. Alternatively, the radionuclide values in Table II may be used without obtaining *competent authority* approval.	14
Japan/02/02	TABLE II (first column)	TABLE II (first column) <u>*Radioactive contents*</u> Only beta or gamma emitting nuclides are known to be present Only alpha emitting nuclides are known to be present No relevant data are available	TABLE II (first column) <u>*Radioactive contents*</u> Only beta or gamma emitting nuclides are known to be present ***Alpha emitting nuclides without emitting neutrons in greater than 10^{-2} of their decays*** are known to be present No relevant data are available	15

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/52	416	416. *Type B(U)* and *Type B(M) packages*, if transported by air, shall meet the requirements of para. 415 and shall not contain activities greater than the following: (a) for *low dispersible radioactive material* — as authorized for the *package design* as specified in the certificate of approval, (b) for *special form radioactive material* — 3000 A_1 or 100 000 A_2, whichever is the lower; or (c) for all other *radioactive material* — 3000 A_2.	416. *Type B(U)* and *Type B(M) packages*, if transported by air, shall meet the requirements of para. 415 and shall not contain activities greater than the following: (a) for *low dispersible radioactive material* — as authorized for the *package design* as specified in the certificate of approval, **(b) for *special form* Co-60 – 30000 A_1** (**c**) for other *special form radioactive material* — 3000 A_1 or 100 000 A_2, whichever is the lower; or (**d**) for all other *radioactive material* — 3000 A_2.	16
UK/02/19	419	419. The mass of uranium hexafluoride in a *package* shall not exceed a value that would lead to an ullage smaller than 5% at the maximum temperature of the *package* as specified for the plant systems where the *package* shall be used. The uranium hexafluoride shall be in solid form and the internal pressure of the *package* shall be below atmospheric pressure when presented for transport.	419. The mass of uranium hexafluoride in a *package* **shall be within limits set in the certificate of approval, and** shall not exceed a value that would lead to an ullage smaller than 5% at the maximum temperature of the *package* as specified for the plant systems where the *package* shall be used. The uranium hexafluoride shall be in solid form and the internal pressure of the *package* shall be below atmospheric pressure when presented for transport.	17
France/02/22	502	502. Before each *shipment* of any *package*, the following requirements shall be fulfilled: (a) For any *package* it shall be ensured that all the requirements specified in the relevant provisions of these Regulations have been satisfied. (b) It shall be ensured that lifting attachments which do not meet the requirements of para. 607 have been removed or otherwise rendered incapable of being used for lifting the *package*, in accordance with para. 608. (c) For each *Type B(U)*, *Type B(M)* and *Type C package* and for each *package* containing *fissile material*, it shall be ensured that all the requirements specified in the approval certificates have been satisfied. (d) Each *Type B(U)*, *Type B(M)* and *Type C package* shall be held until equilibrium conditions have been approached closely enough to demonstrate compliance with the requirements for temperature and pressure unless an exemption from these requirements	502. Before each *shipment* of any *package*, the following requirements shall be fulfilled: (a) For any *package* it shall be ensured that all the requirements specified in the relevant provisions of these Regulations have been satisfied. (b) It shall be ensured that lifting attachments which do not meet the requirements of para. 607 have been removed or otherwise rendered incapable of being used for lifting the *package*, in accordance with para. 608. (c) For each *Type B(U)*, *Type B(M)* and *Type C package* and for each *package* containing *fissile material*, **or 0.1 kg or more of uranium hexafluoride,** it shall be ensured that all the requirements specified in the approval certificates have been satisfied. (d) Each *Type B(U)*, *Type B(M)* and *Type C package* shall be held until equilibrium conditions have been approached closely enough to demonstrate compliance with the requirements for temperature	18

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		has received *unilateral approval*. (e) For each *Type B(U)*, *Type B(M)* and *Type C package*, it shall be ensured by inspection and/or appropriate tests that all closures, valve and other openings of the *containment system* through which the *radioactive contents* might escape are properly closed and, where appropriate, sealed in the manner for which the demonstrations of compliance with the requirements of paras 656 and 669 were made. (f) For each *special form radioactive material*, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of these Regulations have been satisfied. (g) For *packages* containing *fissile material* the measurement specified in para. 674(b) and the tests to demonstrate closure of each *package* as specified in para. 677 shall be performed where applicable. (h) For each *low dispersible radioactive material*, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of these Regulations have been satisfied.	and pressure unless an exemption from these requirements has received *unilateral approval*. (e) For each *Type B(U)*, *Type B(M)* and *Type C package*, it shall be ensured by inspection and/or appropriate tests that all closures, valve and other openings of the *containment system* through which the *radioactive contents* might escape are properly closed and, where appropriate, sealed in the manner for which the demonstrations of compliance with the requirements of paras 656 and 669 were made. (f) For each *special form radioactive material*, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of these Regulations have been satisfied. (g) For *packages* containing *fissile material* the measurement specified in para. 674(b) and the tests to demonstrate closure of each *package* as specified in para. 677 shall be performed where applicable. (h) For each *low dispersible radioactive material*, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of these Regulations have been satisfied.	
UK/02/22	503	503. A *package* shall not contain any other items except such articles and documents as are necessary for the use of the *radioactive material*. This requirement shall not preclude the transport of *low specific activity material* or *surface contaminated objects* with other items. The transport of such articles and documents in a *package*, or of *low specific activity material* or *surface contaminated objects* with other items may be permitted provided that there is no interaction between them and the *packaging* or its *radioactive contents* that would reduce the safety of the *package*.	**503.** A package shall not contain any other items **unless there is no interaction between them and the packaging or its radioactive contents, or that would reduce the safety of the package.**	19

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Canada/02/04 (1 of 2) and France/02/17	Table VIII footnote "c"	Table VIII footnote "c" [c] UN 2977 and UN 2978 are special cases without a unique relationship with the Schedules.	Table VIII footnote "c" [c] **In the case of non-fissile or fissile excepted uranium hexafluoride, the UN 2978 and the proper shipping name and description, "RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile excepted," takes precedence over other UN numbers applicable to non-fissile and fissile excepted. In the case of uranium hexafluoride that is fissile material the UN 2977 and the proper shipping name, "RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE," takes precedence over other UN numbers applicable to fissile material.**	20
UK/02/25	537	537. Each *package* which conforms to: (a) an *IP-1*, an *IP-2* or an *IP-3 design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE IP-1", "TYPE IP-2" or "TYPE IP-3" as appropriate; (b) a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE A"; (c) an *IP-2*, an *IP-3* or a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with the international *vehicle* registration code (VRI Code) of the country of origin of *design* and the name of the manufacturers, or other identification of the *packaging* specified by the *competent authority*.	537. Each *package* which conforms to: (a) an *IP-1*, an *IP-2* or an *IP-3 design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE IP-1", "TYPE IP-2" or "TYPE IP-3" as appropriate; (b) a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE A"; (c) **an *IP-1*,** an *IP-2*, an *IP-3* or a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with the international *vehicle* registration code (VRI Code) of the country of origin of *design* and the name of the manufacturers, or other identification of the *packaging* specified by the *competent authority*.	21
UK/02/66	537	537. Each *package* which conforms to: (a) an *IP-1*, an *IP-2* or an *IP-3 design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE IP-1", "TYPE IP-2" or "TYPE IP-3" as appropriate; (b) a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE A";	537. Each *package* which conforms to: (a) an *IP-1*, an *IP-2* or an *IP-3 design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE IP-1", "TYPE IP-2" or "TYPE IP-3" as appropriate; (b) a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with "TYPE A";	22

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(c) an *IP-2*, an *IP-3* or a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with the international *vehicle* registration code (VRI Code) of the country of origin of *design* and the name of the manufacturers, or other identification of the *packaging* specified by the *competent authority*.	(c) an *IP-2*, an *IP-3* or a *Type A package design* shall be legibly and durably marked on the outside of the *packaging* with the international *vehicle* registration code (VRI Code) of the country of origin of *design* and the name of the **designer of the package**, or other identification of the *packaging* specified by the *competent authority*.	
UK/02/28	566	566. Loading of *freight containers* and accumulation of *packages*, *overpacks* and *freight containers* shall be controlled as follows: (a) Except under the condition of *exclusive use*, the total number of *packages*, *overpacks* and *freight containers* aboard a single *conveyance* shall be so limited that the total sum of the *transport indexes* aboard the *conveyance* does not exceed the values shown in Table IX. **For *consignments* of *LSA-I material* there shall be no limit on the sum of the *transport indexes*.** **(b) Where a *consignment* is transported under *exclusive use*, there shall be no limit on the sum of the *transport indexes* aboard a single *conveyance*.** (c) The *radiation level* under routine conditions of transport shall not exceed 2 mSv/h at any point on, and 0.1 mSv/h at 2 m from, the external surface of the *conveyance*, except for *consignments* transported under *exclusive use* by road or rail, for which the radiation limits around the *vehicle* are set forth in para 572(b) and (c). (d) The total sum of the *criticality safety indexes* in a *freight container* and aboard a *conveyance* shall not exceed the values shown in Table X.	566. Loading of *freight containers* and accumulation of *packages*, *overpacks* and *freight containers* shall be controlled as follows: (a) Except under the condition of *exclusive use*, **and for consignments of LSA-I material,** the total number of *packages*, *overpacks* and *freight containers* aboard a single *conveyance* shall be so limited that the total sum of the *transport indexes* aboard the *conveyance* does not exceed the values shown in Table IX. (**b**) The *radiation level* under routine conditions of transport shall not exceed 2 mSv/h at any point on, and 0.1 mSv/h at 2 m from, the external surface of the *conveyance*, except for *consignments* transported under *exclusive use* by road or rail, for which the radiation limits around the *vehicle* are set forth in para 572(b) and (c). (**c**) The total sum of the *criticality safety indexes* in a *freight container* and aboard a *conveyance* shall not exceed the values shown in Table X.	23

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
EU/02/01 and Germany/02/01, UK/02/73	622 and consequential changes in 624, 625, 627, 628 and 646b	622. A *package*, to be qualified as a *Type IP-2*, shall be designed to meet the requirements for *Type IP-1* as specified in para. 621 and, in addition, if it were subjected to the tests specified in paras 722 and 723, it would - prevent: (a) loss or dispersal of the *radioactive contents*; and (b) loss of shielding integrity which would result in more than a 20% increase in the *radiation level* at any external surface of the *package*.	622. A *package*, to be qualified as a *Type IP-2*, shall be designed to meet the requirements for *Type IP-1* as specified in para. 621 and, in addition, if it were subjected to the tests specified in paras 722 and 723, it would - prevent: (a) loss or dispersal of the *radioactive contents*; and (b) loss of shielding integrity which would result in more than a 20% increase in the **maximum** *radiation level* at any external surface of the *package*.	24
France/02/04 and UK/02/30	622 (alternate proposal) and consequential changes in 624, 625, 627, 628 and 646b	622. A *package*, to be qualified as a *Type IP-2*, shall be designed to meet the requirements for *Type IP-1* as specified in para. 621 and, in addition, if it were subjected to the tests specified in paras 722 and 723, it would - prevent: (a) loss or dispersal of the *radioactive contents*; and (b) loss of shielding integrity which would result in more than a 20% increase in the *radiation level* at any external surface of the *package*.	622. A *package*, to be qualified as a *Type IP-2*, shall be designed to meet the requirements for *Type IP-1* as specified in para. 621 and, in addition, if it were subjected to the tests specified in paras 722 and 723, it would - prevent: (a) loss or dispersal of the *radioactive contents*; and (b) loss of shielding integrity which would result in more than a 20% increase in the **transport index** of the *package*	25
France/02/29	652 and 662	652. **Except as required in para. 617 for a *package* transported by air**, a *package* shall be so designed that, under the ambient condition specified in para. 653, the - temperature of the accessible surfaces of a *package* shall not exceed 50°C, unless the *package* is transported under *exclusive use*. 662. Except as required in para. 617 for a *package* transported by air, the maximum temperature of any surface readily accessible during transport of a *package* shall not exceed 85°C in the absence of insolation under the ambient conditions specified in para. 653. **The *package* shall be carried under *exclusive use*, as specified in para. 652, if this maximum temperature exceeds 50°C.** Account may be taken of barriers or screens intended to give protection to persons without the need for the barriers or screens being subject to any test.	652. A *package* shall be so designed that, under the ambient condition specified in para. 653 **and in the absence of insolation**, the temperature of the accessible surfaces of a *package* shall not exceed 50 °C, unless the package is transported under *exclusive use*. 652 bis. Except as required in para. 617 for a *package* transported by air, the maximum temperature of any surface readily accessible during transport of a *package* **under exclusive use** shall not exceed 85°C in the absence of insolation under the ambient conditions specified in para. 653. Account may be taken of barriers or screens intended to give protection to persons without the need for the barriers or screens being subject to any test. 662 : deleted and replaced with 652bis as above	26

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/35 (1 of 4) and France/02/44	672	NOTE. Current para 672, as modified, becomes new para 417bis 672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII.	NOTE. Proposed para 417bis is based on current para 672 **417bis**. ***Packages* containing *fissile material*, other than *packages* approved for the carriage of *fissile material*, shall meet one of the exceptions (a)–(d).** Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in **Table IV**, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in **Table IV**.	27

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	(b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, -plutonium-241 or any combination of those radionuclides.	
UK/02/35 (2 of 4)	672 (417 bis) (UK/02/35) related consequential changes in Table numbers and location	TABLE Numbers IV/XII	**TABLE XII to be moved (becomes TABLE IV) – TABLES IV – XI to have table numbers increased by one**.	28
UK/02/35 (3 of 4)	672 (417bis) (UK/02/35) related consequential change in para 671	671. *Fissile material* shall be transported so as to; (a) maintain subcriticality during normal and accident conditions of transport; in particular, the following contingencies shall be considered: (i) water leaking into or out of *packages*; (ii) the loss of efficiency of built-in neutron absorbers or moderators; (iii) rearrangement of the contents either within the *package* or as a result of loss from the *package*; (iv) reduction of spaces within or between *packages*;	671. **Packages designed for the carriage of f*ssile material* shall**; (a) maintain subcriticality during normal and accident conditions of transport; in particular, the following contingencies shall be considered: (i) water leaking into or out of packages; (ii) the loss of efficiency of built-in neutron absorbers or moderators; (iii) rearrangement of the contents either within the package or as a result of loss from the *package*; (iv) reduction of spaces within or between packages;	29

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(v) *packages* becoming immersed in water or buried in snow; and (vi) temperature changes; and (b) meet the requirements: (i) of para. 634 for packages containing fissile material; (ii) prescribed elsewhere in these Regulations which pertain to the radio-active properties of the material; and (iii) specified in paras 673–682, **unless excepted by para. 672.**	(v) packages becoming immersed in water or buried in snow; and (vi) temperature changes; and (b) meet the requirements: (i) of para. 634 for packages containing fissile material; (ii) prescribed elsewhere in these Regulations which pertain to the radio-active properties of the material; and (iii) specified in paras 673–682.	
UK/02/35 (4 of 4)	672 (417bis) (UK/02/35) related consequential changes in paras 226, 515, TABLE VIII, 541, 549, 802, 812	Current reference to para 672 in : 226 (a) (iii) and (iv) 515 (c) TABLE VIII footnote 541 549 (i) 802 (a) (iv) 812	Change 672 to 417bis in: 226 (a) (iii) and (iv) 515 (c) TABLE VIII footnote 541 549 (i) 802 (a) (iv) 812	30
France/02/37	672	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$	31

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII**, except for deuterium in natural concentration in hydrogen.** (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, -plutonium-241 or any combination of those radionuclides.	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Sweden/02/03	672	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material***, provided that the smallest external dimension of each *package* is not less than 10 cm.** Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual package contains not more than 15 g of fissile material; for unpackaged material, this quantity limitation shall apply to the consignment being carried in or on the conveyance, or (ii) the fissile material is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of fissile material in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -	32

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	
UK/02/37 (1 of 4)	672	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material.	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: **CSI =** $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} \mathbf{* 50}$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual package contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material.	33

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of -uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	
UK/02/37 (2 of 4)	672 (UK/02/37) related change in 544	544. Each label conforming to the model in Fig. 5 shall be completed with the *criticality safety index (CSI)* as stated in the certificate of approval for *special arrangement* **or** the certificate of approval for the *package design* issued by the *competent authority*.	544. Each label conforming to the model in Fig. 5 shall be completed with the *criticality safety index (CSI)* as stated in the certificate of approval for *special arrangement*. the certificate of approval for the *package design* issued by the *competent authority* **or as calculated in accordance with 672 (a).**	34

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/37 (3 of 4)	672 (UK/02/37) related change to TABLE X header	TABLE X. CSI LIMITS FOR FREIGHT CONTAINERS AND CONVEYANCES **CONTAINING FISSILE MATERIAL**	TABLE X. CSI LIMITS FOR FREIGHT CONTAINERS AND CONVEYANCES	35
UK/02/37 (4 of 4)	672 (UK/02/37) related consequential changes in paras 541 and 549	Current reference to para 672 in: 541 and 549(i)	**Change references in paras 541 and 549(i) from 672 to 672(b)-(d)**	36
USA/02/02	672	672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. **Only one type of exception is allowed per *consignment*.** (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII.	Para 672. *Fissile material* meeting one of the provisions (a) - (d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673-682 as well as the other requirements of these Regulations that apply to *fissile material*. **The contents of each individual package contain 15 grams or less of the combination of uranium-233, uranium-235, and plutonium-239, provided there are more than 200 grams of non-fissile, non-combustible, insoluble-in-water contents per gram of *fissile material*; or the contents of each individual package contain 350 grams or less of the combination of uranium-233, uranium-235, and plutonium-239, provided there are more than 2000 grams of non-fissile, non-combustible, insoluble-in-water contents per gram of *fissile material.* All other radionuclides listed in para 222 shall not be present in quantities exceeding 1% by mass of the *fissile material*. Beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package, but shall not be included in determining the mass ratio for the package. The material can be packaged or unpackaged according to para 523.**	37

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of - uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement.	(b) Uranium enriched in uranium-235 to a maximum of 1 percent by mass, and with total plutonium and uranium-233 content not exceeding 1% of the mass of uranium-235, provided that **beryllium, graphite, and hydrogenous material enriched in deuterium constitute less than 1% of the fissile mass.**	
		(c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2.	(c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. **The package shall meet the requirements of para 646.**	
		(d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.	(d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those **two** radionuclides**.**	
USA/02/01	677	677. For a *package* in isolation, it shall be assumed that water can leak into or out of all void spaces of the *package*, including those within the *containment system*. However, if the *design* incorporates special features to prevent such leakage of water into or out of certain void spaces, even as a result of error, absence of leakage may be assumed in respect of those void spaces. Special features shall include the following: (a) Multiple high standard water barriers, each of which would remain watertight if the *package* were subject to the tests prescribed in para. 682(b), a high degree of quality control in the manufacture, maintenance and	677. For a *package* in isolation, it shall be assumed that water can leak into or out of all void spaces of the *package*, including those within the *containment system*. However, if the *design* incorporates special features to prevent such leakage of water into or out of certain void spaces, even as a result of error, absence of leakage may be assumed in respect of those void spaces. Special features shall include the following: (a) Multiple high standard water barriers, each of which would remain watertight if the *package* were subject to the tests prescribed in para. 682(b), a high degree of quality control in the manufacture, maintenance and	38

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		repair of *packagings* and tests to demonstrate the closure of each *package* before each *shipment*; or (b) For *packages* containing uranium hexafluoride only: (i) *packages* where, following the tests prescribed in para. 682(b), there is no physical contact between the valve and any other component of the *packaging* other than at its original point of attachment and where, in addition, following the test prescribed in para. 728 the valves remain - leaktight; and (ii) a high degree of quality control in the manufacture, maintenance and repair of *packagings* coupled with tests to demonstrate closure of each *package* before each *shipment.*	repair of *packagings* and tests to demonstrate the closure of each *package* before each *shipment*; or (b) For *packages* containing uranium hexafluoride, **with enrichmentof 5 mass percent uranium-235 or less:** (i) *packages* where, following the tests prescribed in para. 682(b), there is no physical contact between the valve and any other component of the *packaging* other than at its original point of attachment and where, in addition, following the test prescribed in para. 728 the valves remain - leaktight; and (ii) a high degree of quality control in the manufacture, maintenance and repair of *packagings* coupled with tests to demonstrate closure of each *package* before each *shipment.*	
Canada/02/05	709	709. Specimens that comprise or simulate *radioactive material* enclosed in a sealed capsule may be excepted from: (a) The tests prescribed in paras 705 and 706 provided the mass of the *special form radioactive material* is less than 200 g and they are alternatively subjected to the Class 4 impact test prescribed in the International Organization for Standardization document ISO 2919: "Sealed Radioactive Sources —Classification" [11], and (b) The test prescribed in para. 708 provided they are alternatively subjected to the Class 6 temperature test specified in the International Organization for Standardization document ISO 2919: "Sealed Radioactive Sources —Classification" [11].	709. Specimens that comprise or simulate *radioactive material* enclosed in a sealed capsule may be excepted from: (a) The tests prescribed in paras 705 and 706 provided the mass of the *special form radioactive material* (i) is less than 200 g and they are alternately subjected to the Class 4 impact test prescribed in the International Organization for Standardization document ISO 2919: "Sealed Radioactive Sources – Classification" [11], or (ii) **is less than 500 g and they are alternately subjected to the Class 5 impact test prescribed in the International Organization for Standardization document ISO 2919: "Sealed Radioactive Sources – Classification" [11]**, and (b) The test prescribed in para. 708 provided they are alternatively subjected to the Class 6 temperature test specified in the International Organization for Standardization document ISO 2919: "Sealed Radioactive Sources —Classification" [11].	39

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
France/02/34	722	722. Free drop test: The specimen shall drop onto the target so as to suffer maximum damage in respect of the safety features to be tested. (a) The height of drop measured from the lowest point of the specimen to the upper surface of the target shall be not less than the distance specified in Table XIII for the applicable mass. The target shall be as defined in para. 717. (b) For rectangular fibreboard or wood *packages* not exceeding a mass of 50 kg, a separate specimen shall be subjected to a free drop onto each corner from a height of 0.3 m. (c) For cylindrical fibreboard *packages* not exceeding a mass of 100 kg, a separate specimen shall be subjected to a free drop onto each of the quarters of each rim from a height of 0.3 m.	722. Free drop test: The specimen shall drop onto the target so as to suffer maximum damage in respect of the safety features to be tested. (a) The height of drop measured from the lowest point of the specimen to the upper surface of the target shall be not less than the distance specified in Table XIII for the applicable mass. **For packages with a dimension exceeding 1.2 m, the height of drop measured for any point from its theoretical position considering the package laying on the target (with the orientation it has in routine conditions of transport or handling) and its position in the specimen before drop shall not exceed 1.2 m plus the distance specified in Table XIII for the applicable mass.** The target shall be as defined in para. 717. (b) For rectangular fibreboard or wood *packages* not exceeding a mass of 50 kg, a separate specimen shall be subjected to a free drop onto each corner from a height of 0.3 m. (c) For cylindrical fibreboard *packages* not exceeding a mass of 100 kg, a separate specimen shall be subjected to a free drop onto each of the quarters of each rim from a height of 0.3 m.	40

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/71	803	803. The *design* for *special form radioactive material* shall require *unilateral approval*. The *design* for *low dispersible radioactive material* shall require *multilateral approval*. In both cases, an application for approval shall include: (a) a detailed description of the *radioactive material* or, if a capsule, the contents; particular reference shall be made to both physical and chemical states; (b) a detailed statement of the *design* of any capsule to be used; (c) a statement of the tests which have been done and their results, or evidence based on calculative methods to show that the *radioactive material* is capable of meeting the performance standards, or other evidence that the *special form radioactive material* or *low dispersible radioactive material* meets the applicable requirements of these Regulations; (d) a specification of the applicable *quality assurance* programme as required in para. 310; and (e) any proposed pre-shipment actions for use in the *consignment* of *special form radioactive material* or *low dispersible radioactive material*.	803. The *design* for *special form radioactive material* shall require *unilateral approval*. The *design* for *low dispersible radioactive material* shall require *multilateral approval*. In both cases, an application for approval shall include: (a) a detailed description of the *radioactive material* or, if a capsule, the contents; particular reference shall be made to both physical and chemical states; (b) a detailed statement of the *design* of any capsule to be used; (c) a statement of the tests which have been done and their results, or evidence based on calculative methods to show that the *radioactive material* is capable of meeting the performance standards, or other evidence that the *special form radioactive material* or *low dispersible radioactive material* meets the applicable requirements of these Regulations; (d) **A quantitative statement of any time-dependent features of a special form *design* likely to affect its ability to meet the requirements for *special form radioactive material* in paras 602 to 604**. (**e**) a specification of the applicable *quality assurance* programme as required in para. 310; and (**f**) any proposed pre-shipment actions for use in the *consignment* of *special form radioactive material* or *low dispersible radioactive material*.	41
Canada/02/12 (4 of 6)	805	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) After 31 December 2000, each *design* that meets the requirements of para. 632 shall require *multilateral approval*. After 31 December 2003, each *design* that meets the requirements of paras 629–631 shall require *unilateral approval* by the *competent authority* of the country of origin of the *design*;	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) **Each design that meets the requirements of para. 632 shall require multilateral approval.** **(a bis) Each design that meets the requirement of paras 629-631 shall require unilateral approval by the competent authority of the country of origin of the design, unless multilateral approval is otherwise required by these regulations.**	42

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The *competent authority* shall establish an approval certificate stating that the approved *design* meets the requirements of para. 629 and shall attribute to that *design* an identification mark.	(b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The *competent authority* shall establish an approval certificate stating that the approved *design* meets the requirements of para. 629 and shall attribute to that *design* an identification mark.	
UK/02/39 (1 of 4)	805	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) **After 31 December 2000,** each *design* that meets the requirements of para. 632 shall require *multilateral approval*. **After 31 December 2003,** each *design* that meets the requirements of paras 629–631 shall require *unilateral approval* by the *competent authority* of the country of origin of the *design*; (b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The *competent authority* shall establish an approval certificate stating that the approved *design* meets the requirements of para. 629 and shall attribute to that *design* an identification mark.	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) Each *design* that meets the requirements of para. 632 shall require *multilateral approval*. Each *design* that meets the requirements of paras 629–631 shall require *unilateral approval* by the *competent authority* of the country of origin of the *design*; (b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The *competent authority* shall establish an approval certificate stating that the approved *design* meets the requirements of para. 629 and shall attribute to that *design* an identification mark.	43

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/40	805	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) After 31 December 2000, each *design* that meets the requirements of para. 632 shall require *multilateral approval*. After 31 December 2003, each *design* that meets the requirements of paras 629–631 shall require *unilateral approval* by the *competent authority* of the country of origin of the *design*; (b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The *competent authority* shall establish an approval certificate stating that the approved *design* meets the requirements of para. 629 and shall attribute to that *design* an identification mark.	805. The approval of *designs* for *packages* containing 0.1 kg or more of uranium hexafluoride requires that: (a) After 31 December 2000, each *design* that meets the requirements of para. 632 **or contains fissile material** shall require *multilateral approval*. After 31 December 2003, each *design* that meets the requirements of paras 629–631**, except for those containing fissile material,** shall require *unilateral approval* by the *competent authority* of the country of origin of the *design*; (b) The application for approval shall include all information necessary to satisfy the *competent authority* that the *design* meets the requirements of para. 629, and a specification of the applicable *quality assurance* programme as required in para. 310; (c) The competent authority shall establish an approval certificate stating that the approved design meets the requirements of para. 629 and shall attribute to that design an identification mark.	44
UK/02/41 and UK/02/58	806	806. Each *Type B(U)* and *Type C package design* shall require *unilateral approval*, except that: (a) a *package design* for *fissile material*, which is also subject to paras 812–814, shall require *multilateral approval*; and (b) a *Type B(U) package design* for *low dispersible radioactive material* shall require *multilateral approval*.	806. Each *Type B(U)* and *Type C package design* shall require *unilateral approval*, except that: (a) a *package design* for *fissile material*, which is also subject to paras 812–814, shall require *multilateral approval*; and (b) a *Type B(U) package design* for *low dispersible radioactive material* shall require *multilateral approval* **for carriage by air.**	45
UK/02/52 (2 of 2) and UK/02/58	806	806. Each *Type B(U)* and *Type C package design* shall require *unilateral approval*, except that: (a) a *package design* for *fissile material*, which is also subject to paras 812–814, shall require *multilateral approval*; **and** (b) a Type B(U) package design for low dispersible radioactive material shall require multilateral approval.	806. Each *Type B(U)* and *Type C package design* shall require *unilateral approval*, except that: (a) a *package design* for *fissile material*, which is also subject to paras 812–814, shall require *multilateral approval*	46

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/38	814bis	The proposal involves new text, complete with heading, (currently missing from the regulations) to be incorporated between existing paras 814 and 815	**APPROVAL OF RADIONUCLIDE VALUES** **814bis. Each calculation of radionuclide values that are not listed in Table I shall require *multilateral approval*.** **814bis+1. An application for approval shall include:** **(a) The effective dose rate coefficient for external dose due to photons calculated at 1m (Sv.Bq-1.h-1);** **(b) the effective dose rate coefficient for external dose due to beta emission calculated at 1m (Sv.Bq-1.h-1);** **(c) the effective dose coefficient for the inhalation of a 5 µm aerosol of the radionuclide by workers, in the most restrictive lung absorption category (Sv.Bq-1);** **(d) the skin dose coefficient for skin contamination (Sv.m2.TBq-1.s-1);** **(e) if the radionuclide is a noble gas, the effective dose coefficient for submersion dose (Sv.Bq-1.s-1.m3); and** **(f) the calculated values for A1 and A2 in TBq the activity concentration for exempt material in Bq/g; and the activity limits for exempt *consignments* in Bq.** **814bis+2. The *competent authority* shall establish an approval stating that the calculated radionuclide values are approved.**	47

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
UK/02/39	815	Packages not requiring competent authority approval of design under the 1985 and 1985 (As Amended 1990) Editions of these Regulations 815. *Excepted packages*, *Type IP-1*, *Type IP-2* and *Type IP-3* and *Type A packages* that did not require *approval* of *design* by the *competent authority* and which meet the requirements of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used subject to the mandatory programme of *quality assurance* in accordance with the requirements of para. 310 and the activity limits and material restrictions of Section IV. Any *packaging* modified, unless to improve safety**, or manufactured after 31 December 2003,** shall meet this Edition of the Regulations in full. *Packages* prepared for transport not later than 31 December 2003 under the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue in transport. *Packages* prepared for transport after this date shall meet this Edition of the Regulations in full.	Packages not requiring competent authority approval of design under the 1985 and 1985 (As Amended 1990) Editions of these Regulations 815. *Excepted packages*, *Type IP-1*, *Type IP-2* and *Type IP-3* and *Type A packages* that did not require *approval* of *design* by the *competent authority* and which meet the requirements of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used subject to the mandatory programme of *quality assurance* in accordance with the requirements of para. 310 and the activity limits and material restrictions of Section IV. Any *packaging* modified, unless to improve safety, shall meet this Edition of the Regulations in full. *Packages* prepared for transport not later than 31 December 2003 under the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue in transport. *Packages* prepared for transport after this date shall meet this Edition of the Regulations in full.	48
UK/02/39 (3 of 4)	817	Packages approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations 817. *Packagings* manufactured to a *package design* approved by the *competent authority* under the provisions of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used **until 31 December 2003,** subject to: the mandatory programme of *quality assurance* in accordance with the requirements of para. 310; the activity limits and material restrictions of Section IV; and, for a *package* containing *fissile material* and transported by air, the requirement of para. 680. **After this date use may continue subject, additionally, to *multilateral approval* of *package design.*** Changes in the *design* of the *packaging* or in the nature or quantity of the authorized *radioactive contents* which, as determined by the *competent authority*, would significantly affect safety	Packages approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations 817. *Packagings* manufactured to a *package design* approved by the *competent authority* under the provisions of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used, subject to: **multilateral approval of package design,** the mandatory programme of *quality assurance* in accordance with the requirements of para. 310; the activity limits and material restrictions of Section IV; and, for a *package* containing *fissile material* and transported by air, the requirement of para. 680. Changes in the *design* of the *packaging* or in the nature or quantity of the authorized *radioactive contents* which, as determined by the *competent authority*, would significantly affect safety shall require that this Edition of the Regulations be met in full. All *packagings*	49

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		shall require that this Edition of the Regulations be met in full. All *packagings* for which manufacture begins after 31 December 2006 shall meet this Edition of the Regulations in full.	for which manufacture begins after 31 December 2006 shall meet this Edition of the Regulations in full.	
UK/02/39 (4 of 4)	818	Special form radioactive material approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations 818. *Special form radioactive material* manufactured to a *design* which had received *unilateral approval* by the *competent authority* under the 1973, 1973 (As Amended), 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used when in compliance with the mandatory programme of *quality assurance* in accordance with the applicable requirements of para. 310. All *special form radioactive material* manufactured **after 31 December 2003** shall meet this Edition of the Regulations in full.	Special form radioactive material approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations 818. *Special form radioactive material* manufactured to a *design* which had received *unilateral approval* by the *competent authority* under the 1973, 1973 (As Amended), 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used when in compliance with the mandatory programme of *quality assurance* in accordance with the applicable requirements of para. 310. All *special form radioactive material* manufactured shall meet this Edition of the Regulations in full.	50
France/02/42	815/818	See Appendix 3	See Appendix 3	51
UK/02/43	819	819. The *competent authority* shall be informed of the serial number of each *packaging* manufactured to a *design* approved under paras 806, 809, 812, and 816–817. **The *competent authority* should, consistent with para. 311, maintain a register of such serial numbers.**	819. The *competent authority* shall be informed of the serial number of each *packaging* manufactured to a *design* approved under paras 806, 809, 812, and 816–817	52
Canada/02/12 (5 of 6)	819	819. The *competent authority* shall be informed of the serial number of each *packaging* manufactured to a *design* approved under paras 806, 809, 812, and 816–817. The *competent authority* should, consistent with para. 311, maintain a register of such serial numbers.	819. The *competent authority* shall be informed of the serial number of each *packaging* manufactured to a *design* approved under paras **805,** 806, 809, 812, and 816–817. The *competent authority* should, consistent with para. 311, maintain a register of such serial numbers.	53

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Germany/02/02	820	820. *Multilateral approval* shall be required for: (a) the *shipment* of *Type B(M) packages* not conforming with the requirements of para. 637 or designed to allow controlled intermittent venting; (b) the *shipment* of *Type B(M) packages* containing *radioactive material* with an activity greater than 3000 A_1 or 3000 A_2, as appropriate, or 1000 TBq, whichever is the lower; (c) the *shipment* of *packages* containing *fissile materials* if the sum of the *criticality safety indexes* of the *packages* exceeds 50; and (d) *radiation protection programmes* for *shipments* by special use *vessels* according to para. 575(a).	820. *Multilateral approval* shall be required for: (a) the *shipment* of *Type B(M) packages* not conforming with the requirements of para. 637 or designed to allow controlled intermittent venting; (b) the *shipment* of *Type B(M) packages* containing *radioactive material* with an activity greater than 3000 A_1 or 3000 A_2, as appropriate, or 1000 TBq, whichever is the lower; (c) the *shipment* of *packages* containing *fissile materials* if the sum of the *criticality safety indexes* of the *packages* **in a freight container or in any group aboard a conveyance** exceeds 50 **as provided in para 566 (d)**; and (d) *radiation protection programmes* for *shipments* by special use *vessels* according to para. 575(a).	54
UK/02/45	824	824. Each *consignment* transported **internationally** under *special arrangement* shall require *multilateral approval*.	824. Each *consignment* transported under *special arrangement* shall require *multilateral approval*.	55
Canada/02/12 (2 of 6)	833	833. Each approval certificate of the *design* of a *package* issued by a *competent authority* shall include the following information: (a) Type of certificate. (b) The *competent authority* identification mark. (c) The issue date and an expiry date. (d) Any restriction on the modes of transport, if appropriate. (e) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the *design* is approved. (f) The following statement: "This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported." (g) References to certificates for alternative *radioactive contents*, other *competent authority* validation, or	833. Each approval certificate of the *design* of a *package* issued by a *competent authority* shall include the following information: (a) Type of certificate. (b) The *competent authority* identification mark. (c) The issue date and an expiry date. (d) Any restriction on the modes of transport, if appropriate. (e) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the *design* is approved. (f) The following statement: "This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported." (g) References to certificates for alternative *radioactive contents*, other *competent authority* validation, or	56

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		additional technical data or information, as deemed appropriate by the *competent authority*. (h) A statement authorizing *shipment* where *shipment* approval is required under para. 820, if deemed appropriate. (i) Identification of the *packaging*. (j) Description of the *packaging* by a reference to the drawings or specification of the *design*. If deemed appropriate by the *competent authority*, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the *package* should also be provided, accompanied by a brief description of the *packaging*, including materials of manufacture, gross mass, general outside dimensions and appearance. (k) Specification of the *design* by reference to the drawings. (l) A specification of the authorized *radioactive content*, including any restrictions on the *radioactive contents* which might not be obvious from the nature of the *packaging*. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for *fissile material*), and whether *special form radioactive material* or *low dispersible radioactive material*, if applicable. (m) Additionally, for *packages* containing *fissile material*: (i) a detailed description of the authorized *radioactive contents*; (ii) the value of the *criticality safety index*; (iii) reference to the documentation that demonstrates the criticality safety of the contents; (iv) any special features, on the basis of which the absence of water from certain void spaces has	additional technical data or information, as deemed appropriate by the *competent authority*. (h) A statement authorizing *shipment* where *shipment* approval is required under para. 820, if deemed appropriate. (i) Identification of the *packaging*. (j) Description of the *packaging* by a reference to the drawings or specification of the *design*. If deemed appropriate by the *competent authority*, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the *package* should also be provided, accompanied by a brief description of the *packaging*, including materials of manufacture, gross mass, general outside dimensions and appearance. (k) Specification of the *design* by reference to the drawings. (l) A specification of the authorized *radioactive content*, including any restrictions on the *radioactive contents* which might not be obvious from the nature of the *packaging*. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for *fissile material*), and whether *special form radioactive material* or *low dispersible radioactive material*, if applicable. (m) Additionally, for *packages* containing *fissile material*: (i) a detailed description of the authorized *radioactive contents*; (ii) the value of the *criticality safety index*; (iii) reference to the documentation that demonstrates the criticality safety of the contents; (iv) any special features, on the basis of which the absence of water from certain void spaces has	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		been assumed in the criticality assessment; (v) any allowance (based on para. 674(b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and (vi) the ambient temperature range for which the *package design* has been approved. (n) For *Type B(M) packages*, a statement specifying those prescriptions of paras 637, 653, 654 and 657–664 with which the *package* does not conform and any amplifying information which may be useful to other *competent authorities*. (o) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the *consignment*, including any special stowage provisions for the safe dissipation of heat. (p) Reference to information provided by the applicant relating to the use of the *packaging* or specific actions to be taken prior to *shipment*. (q) A statement regarding the ambient conditions assumed for purposes of *design* if these are not in accordance with those specified in paras 653, 654 and 664, as applicable. (r) A specification of the applicable *quality assurance* programme as required in para. 310. (s) Any emergency arrangements deemed necessary by the *competent authority*. (t) If deemed appropriate by the *competent authority*, reference to the identity of the applicant. (u) Signature and identification of the certifying official.	been assumed in the criticality assessment; (v) any allowance (based on para. 674(b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and (vi) the ambient temperature range for which the *package design* has been approved. (n) For *Type B(M) packages*, a statement specifying those prescriptions of paras 637, 653, 654 and 657–664 with which the *package* does not conform and any amplifying information which may be useful to other *competent authorities*. **(n) (bis) For *packages* containing more than 0.1 kg of uranium hexafluoride, a statement specifying those prescriptions of paras 630 and 631 with which the *package* does not conform and any amplifying information which may be useful to other competent authorities."** (o) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the *consignment*, including any special stowage provisions for the safe dissipation of heat. (p) Reference to information provided by the applicant relating to the use of the *packaging* or specific actions to be taken prior to *shipment*. (q) A statement regarding the ambient conditions assumed for purposes of *design* if these are not in accordance with those specified in paras 653, 654 and 664, as applicable. (r) A specification of the applicable *quality assurance* programme as required in para. 310. (s) Any emergency arrangements deemed necessary by the *competent authority*. (t) If deemed appropriate by the *competent authority*, reference to the identity of the applicant. (u) Signature and identification of the certifying official.	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Sweden/02/07	833	833. Each approval certificate of the *design* of a *package* issued by a *competent authority* shall include the following information: (a) Type of certificate. (b) The *competent authority* identification mark. (c) The issue date and an expiry date. (d) Any restriction on the modes of transport, if appropriate. (e) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the *design* is approved. (f) The following statement: "This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported." (g) References to certificates for alternative *radioactive contents*, other *competent authority* validation, or additional technical data or information, as deemed appropriate by the *competent authority*. (h) A statement authorizing *shipment* where *shipment* approval is required under para. 820, if deemed appropriate. (i) Identification of the *packaging*. (j) Description of the *packaging* by a reference to the drawings or specification of the *design*. If deemed appropriate by the *competent authority*, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the *package* should also be provided, accompanied by a brief description of the *packaging*, including materials of manufacture, gross mass, general outside dimensions and appearance.	833. Each approval certificate of the *design* of a *package* issued by a *competent authority* shall include the following information: (a) Type of certificate. (b) The *competent authority* identification mark. (c) The issue date and an expiry date. (d) Any restriction on the modes of transport, if appropriate. (e) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the *design* is approved. (f) The following statement: "This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported." (g) References to certificates for alternative *radioactive contents*, other *competent authority* validation, or additional technical data or information, as deemed appropriate by the *competent authority*. (h) A statement authorizing *shipment* where *shipment* approval is required under para. 820, if deemed appropriate. (i) Identification of the *packaging*. (j) Description of the *packaging* by a reference to the drawings or specification of the *design*. If deemed appropriate by the *competent authority*, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the *package* should also be provided, accompanied by a brief description of the *packaging*, including materials of manufacture, gross mass, general outside dimensions and appearance.	57

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
			(j bis) Description(s) of the *containment system* (para. 213) and, for packages containing fissile material that are not excepted by para. 672, the *confinement system* (para. 209)	
		(k) Specification of the *design* by reference to the drawings.	(k) Specification of the *design* by reference to the drawings.	
		(l) A specification of the authorized *radioactive content*, including any restrictions on the *radioactive contents* which might not be obvious from the nature of the *packaging*. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for *fissile material*), and whether *special form radioactive material* or *low dispersible radioactive material*, if applicable.	(l) A specification of the authorized *radioactive content*, including any restrictions on the *radioactive contents* which might not be obvious from the nature of the *packaging*. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for *fissile material*), and whether *special form radioactive material* or *low dispersible radioactive material*, if applicable.	
		(m) Additionally, for *packages* containing *fissile material*: (i) a detailed description of the authorized *radioactive contents*; (ii) the value of the *criticality safety index*; (iii) reference to the documentation that demonstrates the criticality safety of the contents; (iv) any special features, on the basis of which the absence of water from certain void spaces has been assumed in the criticality assessment; (v) any allowance (based on para. 674(b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and (vi) the ambient temperature range for which the *package design* has been approved.	(m) Additionally, for *packages* containing *fissile material*: (i) a detailed description of the authorized *radioactive contents*; (ii) the value of the *criticality safety index*; (iii) reference to the documentation that demonstrates the criticality safety of the contents; (iv) any special features, on the basis of which the absence of water from certain void spaces has been assumed in the criticality assessment; (v) any allowance (based on para. 674(b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and (vi) the ambient temperature range for which the *package design* has been approved.	
		(n) For *Type B(M) packages*, a statement specifying those prescriptions of paras 637, 653, 654 and 657–664 with which the *package* does not conform and any amplifying information which may be useful to other *competent authorities*.	(n) For *Type B(M) packages*, a statement specifying those prescriptions of paras 637, 653, 654 and 657–664 with which the *package* does not conform and any amplifying information which may be useful to other *competent authorities*.	
		(o) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the *consignment*, including any special stowage provisions for the safe dissipation of heat.	(o) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the *consignment*, including any special stowage provisions for the safe dissipation of heat.	

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
		(p) Reference to information provided by the applicant relating to the use of the *packaging* or specific actions to be taken prior to *shipment*. (q) A statement regarding the ambient conditions assumed for purposes of *design* if these are not in accordance with those specified in paras 653, 654 and 664, as applicable. (r) A specification of the applicable *quality assurance* programme as required in para. 310. (s) Any emergency arrangements deemed necessary by the *competent authority*. (t) If deemed appropriate by the *competent authority*, reference to the identity of the applicant. (u) Signature and identification of the certifying official.	(p) Reference to information provided by the applicant relating to the use of the *packaging* or specific actions to be taken prior to *shipment*. (q) A statement regarding the ambient conditions assumed for purposes of *design* if these are not in accordance with those specified in paras 653, 654 and 664, as applicable. (r) A specification of the applicable *quality assurance* programme as required in para. 310. (s) Any emergency arrangements deemed necessary by the *competent authority*. (t) If deemed appropriate by the *competent authority*, reference to the identity of the applicant. (u) Signature and identification of the certifying official.	
UK/02/64	834bis	No existing text	**834bis. Change(s) to a *design*, as defined in para 802, for which *competent authority approval(s)* exist may be approved depending upon their effects upon safety without affecting the validity of the existing *package approval*. Each change shall include a statement as to its effects upon the nuclear safety of the *radioactive contents* of the *package*.** **In the first instance the change(s) shall be submitted to the *competent authority* of the country of origin of the *design* for *approval*.** **All changes that effect the nuclear safety of the *radioactive contents* of a *package* shall require *multilateral approval*.** **The relevant *competent authority* both of the country of origin of the *design or* shipment and of each country through or into which the *consignment* is to be transported, as defined in para 204, shall be notified of all changes.**	58

Proposal	Para	Existing text in TS-R-1 (2003)	Text accepted by Review Panel (Sep. 2002)	#
Canada/02/04 (2 of 2)	Schedules		Placarding provisions outlined in Part 9 of Schedule 5, 6, 7, and 9 in the case of Uranium Hexafluoride Schedule 5, Part 9(b) bis For unpackaged LSA-1.....shown in the Fig. 7. **However, if the packages contain non-fissile or fissile-excepted uranium hexafluoride, "2978" shall be displayed. For the placards shown in Fig. 6, the numbers shall be preceded by the letters "UN".** Schedule 6, Part 9(b) bis. Where an exclusive use ....."3324" shall be displayed on the placards. **However, if the packages contain non-fissile or fissile-excepted uranium hexafluoride, "2978" shall be displayed. If the packages contain uranium hexafluoride that is fissile material, "2977" shall be displayed.** For the placards shown in Fig. 6, the numbers shall be **preceded by the letters "UN".** Schedule 7, Part 9(b) bis. Where an exclusive use ....."3325" shall be displayed on the placards. **However, if the packages contain non-fissile or fissile-excepted uranium hexafluoride, "2978" shall be displayed. If the packages contain uranium hexafluoride that is fissile material, "2977" shall be displayed.** For the placards shown in Fig. 6, the numbers shall be preceded by the letters "UN". Schedule 9, Part 9(c) bis. Where an exclusive use ....."3327" shall be displayed on the placards. **However, if the Type A packages contain non-fissile or fissile-excepted uranium hexafluoride, "2978" shall be displayed. If the Type A packages contain uranium hexafluoride that is fissile material, "2977" shall be displayed.** For the placards shown in Fig. 6, the numbers shall be preceded by the letters "UN".	59

TABLE 2

CROSS REFERENCE TABLE

Para order			Country order		
#	Para	Proposal	Proposal	para	#
1	204	UK/02/04	Canada/02/04 (1 of 2) and France/02/17	Table VIII footnote "c"	20
2	204	UK/02/05	Canada/02/04 (2 of 2)	Schedules	59
3	212	Canada/02/08	Canada/02/05	709	39
4	222	Sweden/02/02 (1 of 2) and France/02/06	Canada/02/08	212	3
5	222 (Sweden/02/02) related consequential changes in paras 226, 418, 543, 549, 559, 672, 831, 832, 833 and Table XII	Sweden/02/02 (2 of 2)	Canada/02/12 (1 of 6)	230	6
6	230	Canada/02/12 (1 of 6)	Canada/02/12 (2 of 6)	230 (Canada/02/12) related change in 538	7
7	230 (Canada/02/12) related change in 538	Canada/02/12 (2 of 6)	Canada/02/12 (3 of 6)	230 (Canada/02/12) related change in 539	8
8	230 (Canada/02/12) related change in 539	Canada/02/12 (3 of 6)	Canada/02/12 (4 of 6)	805	42
9	246	UK/02/13	Canada/02/12 (5 of 6)	819	53
10	303	USA/02/07 and UK/02/14 (1 of 2)	Canada/02/12 (6 of 6)		56
11	305	USA/02/07 and UK/02/14 (2of 2)	EU/02/01 and Germany/02/01and UK/02/73	622 and consequential changes in 624, 625, 627, 628 and 646b	24

Para order				Country order		
12	Table I footnote (a)	UK/02/18		France/02/04 and UK/02/30	622 (alternate proposal) and consequential changes in 624, 625, 627, 628 and 646b	25
13	Table I footnote (b)	Germany/02/06		France/02/22	502	18
14	402	UK/02/15		France/02/29	652 and 662	26
15	TABLE II (first column)	Japan/02/02		France/02/34	722	40
16	416	UK/02/52 (1 of 2) and Canada/02/02, UK/02/48, UK/02/49		France/02/37	672	31
17	419	UK/02/19		France/02/42	815/818	51
18	502	France/02/22		Germany/02/02	820	54
19	503	UK/02/22		Germany/02/06	Table I footnote (b)	13
20	Table VIII footnote “c”	Canada/02/04 (1 of 2) and France/02/17		Japan/02/02	TABLE II (first column)	15
21	537	UK/02/25		Sweden/02/02 (1 of 2) and France/02/06	222	4
22	537	UK/02/66		Sweden/02/02 (2 of 2)	222 (Sweden/02/02) related consequential changes in paras 226, 418, 543, 549, 559, 672, 831, 832, 833 and Table XII	5
23	566	UK/02/28		Sweden/02/03	672	32
24	622 and consequential changes in 624, 625, 627, 628 and 646b	EU/02/01 and Germany/02/01, UK/02/73		Sweden/02/07	833	57

Para order				Country order		
25	622 (alternate proposal) and consequential changes in 624, 625, 627, 628 and 646b	France/02/04 and UK/02/30		UK/02/04	204	1
26	652 and 662	France/02/29		UK/02/05	204	2
27	672	UK/02/35 (1 of 4) and France/02/44		UK/02/13	246	9
28	672 (417 bis) (UK/02/35) related consequential changes in Table numbers and location	UK/02/35 (2 of 4)		UK/02/15	402	14
29	672 (417bis) (UK/02/35) related consequential change in para 671	UK/02/35 (3 of 4)		UK/02/18	Table I footnote (a)	12
30	672 (417bis) (UK/02/35) related consequential changes in paras 226, 515, TABLE VIII, 541, 549, 802, 812	UK/02/35 (4 of 4)		UK/02/19	419	17
31	672	France/02/37		UK/02/22	503	19
32	672	Sweden/02/03		UK/02/25	537	21
33	672	UK/02/37 (1 of 4)		UK/02/28	566	23
34	672 (UK/02/37) related change in 544	UK/02/37 (2 of 4)		UK/02/35 (1 of 4) and France/02/44	672	27
35	672 (UK/02/37) related change to TABLE X header	UK/02/37 (3 of 4)		UK/02/35 (2 of 4)	672 (417 bis) (UK/02/35) related consequential changes in Table numbers and location	28

Para order				Country order		
36	672 (UK/02/37) related consequential changes in paras 541 and 549	UK/02/37 (4 of 4)		UK/02/35 (3 of 4)	672 (417bis) (UK/02/35) related consequential change in para 671	29
37	672	USA/02/02		UK/02/35 (4 of 4)	672 (417bis) (UK/02/35) related consequential changes in paras 226, 515, TABLE VIII, 541, 549, 802, 812	30
38	677	USA/02/01		UK/02/37 (1 of 4)	672	33
39	709	Canada/02/05		UK/02/37 (2 of 4)	672 (UK/02/37) related change in 544	34
40	722	France/02/34		UK/02/37 (3 of 4)	672 (UK/02/37) related change to TABLE X header	35
41	803	UK/02/71		UK/02/37 (4 of 4)	672 (UK/02/37) related consequential changes in paras 541 and 549	36
42	805	Canada/02/12 (4 of 6)		UK/02/38	814bis	47
43	805	UK/02/39 (1 of 4)		UK/02/39 (1 of 4)	805	43
44	805	UK/02/40		UK/02/39 (2 of 4)	815	48
45	806	UK/02/41 and UK/02/58		UK/02/39 (3 of 4)	817	49

Para order				Country order		
46	806	UK/02/52 (2 of 2) and UK/02/58		UK/02/39 (4 of 4)	818	50
47	814bis	UK/02/38		UK/02/40	805	44
48	815	UK/02/39 (2 of 4)		UK/02/41 and UK/02/58	806	45
49	817	UK/02/39 (3 of 4)		UK/02/43	819	52
50	818	UK/02/39 (4 of 4)		UK/02/45	824	55
51	815/818	France/02/42		UK/02/52 (1 of 2) and Canada/02/02, UK/02/48, and UK/02/49	416	16
52	819	UK/02/43		UK/02/52 (2 of 2) and UK/02/58	806	46
53	819	Canada/02/12 (5 of 6)		UK/02/64	834bis	58
54	820	Germany/02/02		UK/02/66	537	22
55	824	UK/02/45		UK/02/71	803	41
56	833	Canada/02/12 (6 of 6)		USA/02/01	677	38
57	833	Sweden/02/07		USA/02/02	672	37
58	834bis	UK/02/64		USA/02/07 and UK/02/14 (1 of 2)	303	10
59	Schedules	Canada/02/04 (2 of 2)		USA/02/07 and UK/02/14 (2of 2)	305	11

APPENDIX 1

CHANGE #5 (SWEDEN/02/02, 2 of 2)

**CONSEQUENTIAL CHANGES
IF CHANGE #4 (SWEDEN/02/02, 1 of 2) WERE ACCEPTED**

Sweden/02/02 – Additional consequential changes due to accepted proposal

Current texts often correspond more to the proposed definition than to the current one. Many of the texts that are changed are identical but refer to different paragraphs or schedules. Both "fissile materials" and "fissile nuclides" are important terms that should be maintained.

Regulations					
Section, Para. or location (number of occurrences)	**Current use of "fissile"**		**Proposed use of "fissile"** (bold type indicates change)		**Comment** Change without text proposal means "material" is exchanged for "nuclide(s)"
	Material	Nuclide(s)	Material	Nuclide(s)	
Section II					
222. Definition text	Yes	No	**Yes**	**Yes**	**Major change**
226(a)(iii) LSA-I def. "excluding FM in quantities not excepted…"	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
226(a)(iv) LSA-I def. "excluding FM in quantities not excepted…"	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Section IV					
418. Contents (3)	Yes	No	**Yes**	**Yes**	**Change** "(a) quantities of FNs not authorized …" "(b) any radionuclide different from …"
Section V					
543(b) Activity (2)	Yes	No	**Yes**	**Yes**	**Change** "For FM, the mass of fissile nuclides …"
549(f) (2)	Yes	No	**Yes**	**Yes**	**Change** "For FM, the mass of fissile nuclides …"
559(e) Notification (2)	Yes	No	**Yes**	**Yes**	**Change** "For FM, the mass of fissile nuclides …"
Section VI					
672(a) Formula	Yes	No	**No**	**Yes**	**Change**
672(a)(i) 15 g	Yes	No	**No**	**Yes**	**Change**
672(a)(iii) 5 g/10 l	Yes	No	**No**	**Yes**	**Change**
672(b) 1% enrichm.	Yes	No	**No**	**Yes**	**Change**
Table XII body (3)	Yes	No	**No**	**Yes**	**Change**
Section VIII					
831(j) Special arr. App. cert. Contents	Yes	No	**No**	**Yes**	**Change**
832(j) Shipm. Appr.	Yes	No	**No**	**Yes**	**Change**
833(l) Package design, Contents	Yes	No	**No**	**Yes**	**Change**

Schedules					
Section, Para. or location (number of occurrences)	**Current use of "fissile"**		**Proposed use of "fissile"** (bold type indicates change)		**Comment** Change without text proposal means "material" is exchanged for "nuclide(s)"
	Material	Nuclide(s)	Material	Nuclide(s)	
Schedule 5. 1.(b)(iii)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 5. 1.(b)(iv)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 6. 2.(f)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 6. 2.(g)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 7. 2.(f)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 7. 2.(g)	Yes	No	**No**	**Yes**	**Changed.** "exc luding FN quantities not excepted …"
Schedule 8.2.(d)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 9. 2.(e)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 9. 2.(f)	Yes	No	**No**	**Yes**	**Changed.** "excluding FN quantities not excepted …"
Schedule 13. 1. Def. (2)	Yes	No	**Yes**	**Yes**	**Major change** See 222.

ADVISORY MATERIAL					
Section, Para. or location	**Current use of "fissile"**		**Proposed use of "fissile"** (bold type indicates change)		**Comment** Change without text proposal means "material" is exchanged for "nuclide(s)"
	Material	Nuclide(s)	Material	Nuclide(s)	
222.1	Yes	No	Yes	No	Delete two last sentences: "In the Regulations the term 'fissile material' is occasionally used to refer both to fissile radionuclides and to material containing those radionuclides. Users of the Regulations should remain alert to the context in which the term 'fissile material' is used.
222.3	Yes	No	Yes	No	Modify to: "As indicated in the above paragraph, the basis used to select **the fissile nuclides in the definition of fissile material** for the purposes of the Regulations relies on ..."
Advisory text appears to be written with fissile material as a general term that can be used with either definition (specific nuclides or material including such nuclides). Further changes are not necessary					

APPENDIX 2

CONSOLIDATED VERSION OF PROPOSED CHANGES
#27 UK/02/35 (1 of 4),
#31 France/02/37,
#32 Sweden/02/03 and
#33 UK/02/37 (1 of 4)
CONCERNING PARAGRAPH 672

CURRENT TEXT IN TS-R-1 PARA 672				
672. *Fissile material* meeting one of the provisions (a)–(d) of this paragraph is excepted from the requirement to be transported in *packages* that comply with paras 673–682 as well as the other requirements of these Regulations that apply to *fissile material*. Only one type of exception is allowed per *consignment*. (a) A mass limit per *consignment* such that: $\frac{\text{mass of uranium-235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$ where X and Y are the mass limits defined in Table XII, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table XII. (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.				

PROPOSED TEXT TO REPLACE 672, COMBINING PROPOSED CHANGES #27, #31, #32 AND #33				
417bis. ***Packages*** **containing** ***fissile material,*** **other than** ***packages*** **approved for the carriage of** ***fissile material,*** **and provided that the smallest external dimension of each** ***package*** **is not less than 10 cm, shall meet one of the exceptions (a)–(d).** Only one type of exception is allowed per *consignment.* (a) A mass limit per *consignment* such that: **CSI = <u>mass of uranium-235 (g)</u> / X + <u>mass of other fissile material (g)</u> / Y * 50** where X and Y are the mass limits defined in **Table IV**, provided that either: (i) each individual *package* contains not more than 15 g of *fissile material*; for unpackaged material, this quantity limitation shall apply to the *consignment* being carried in or on the *conveyance*, or (ii) the *fissile material* is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass, or (iii) there is not more than 5 g of *fissile material* in any 10 litre volume of material. Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in **Table IV , except for deuterium in natural concentration in hydrogen.** (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of uranium-235, provided that the *fissile material* is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement. (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.				

APPENDIX 3

CHANGE #51

TRANSITIONAL ARRANGEMENTS
(PARAGRAPHS 815/818)

FRANCE/02/42 TRANSITIONAL ARRANGEMENTS (Paras 815/818)

CURRENT TEXT IN TS-R-1

TRANSITIONAL ARRANGEMENTS

Packages not requiring competent authority approval of design under the 1985 and 1985 (As Amended 1990) Editions of these Regulations

815. *Excepted packages*, *Type IP-1*, *Type IP-2* and *Type IP-3* and *Type A packages* that did not require *approval* of *design* by the *competent authority* and which meet the requirements of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used subject to the mandatory programme of *quality assurance* in accordance with the requirements of para. 310 and the activity limits and material restrictions of Section IV. Any *packaging* modified, unless to improve safety, or manufactured after 31 December 2003, shall meet this Edition of the Regulations in full. *Packages* prepared for transport not later than 31 December 2003 under the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue in transport. *Packages* prepared for transport after this date shall meet this Edition of the Regulations in full.

Packages approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations

816. *Packagings* manufactured to a *package design* approved by the *competent authority* under the provisions of the 1973 or 1973 (As Amended) Editions of these Regulations may continue to be used, subject to: *multilateral approval* of *package design*, the mandatory programme of *quality assurance* in accordance with the applicable requirements of para. 310; the activity limits and material restrictions of Section IV; and, for a *package* containing *fissile material* and transported by air, the requirement of para. 680. No new manufacture of such *packaging* shall be permitted to commence. Changes in the *design* of the *packaging* or in the nature or quantity of the authorized *radioactive contents* which, as determined by the *competent authority*, would significantly affect safety shall require that this Edition of the Regulations be met in full. A serial number according to the provision of para. 538 shall be assigned to and marked on the outside of each *packaging*.

817. *Packagings* manufactured to a *package design* approved by the *competent authority* under the provisions of the 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used until 31 December 2003, subject to: the mandatory programme of *quality assurance* in accordance with the requirements of para. 310; the activity limits and material restrictions of Section IV; and, for a *package* containing *fissile material* and transported by air, the requirement of para. 680. After this date use may continue subject, additionally, to *multilateral approval* of *package design*. Changes in the *design* of the *packaging* or in the nature or quantity of the authorized *radioactive contents* which, as determined by the *competent authority*, would significantly affect safety shall require that this Edition of the Regulations be met in full. All *packagings* for which manufacture begins after 31 December 2006 shall meet this Edition of the Regulations in full.

Special form radioactive material approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) Editions of these Regulations

818. *Special form radioactive material* manufactured to a *design* which had received *unilateral approval* by the *competent authority* under the 1973, 1973 (As Amended), 1985 or 1985 (As Amended 1990) Editions of these Regulations may continue to be used when in compliance with the mandatory programme of *quality assurance* in accordance with the applicable requirements of para. 310. All *special form radioactive material* manufactured after 31 December 2003 shall meet this Edition of the Regulations in full.

PROPOSED TEXT IN FRANCE/02/42

Paragraphs affected and proposed text change to regulatory text in TS-R-1 (ST-1, Rev.)

TRANSITIONAL ARRANGEMENTS

Packages not requiring competent authority approval of design under the 1985, 1985 (As Amended 1990) and 1996 (Revised and Amended 2005) Editions of these Regulations

815. Excepted packages, Industrial packages Types IP-1, IP-2 and IP-3 and Type A packages which did not require approval of design by the competent authority and which meet the requirements of an Edition of the Regulations specified in column 1 of Table XIV may continue to be prepared, or such packagings may continue to be manufactured, until the corresponding date specified in column 3 of Table XIV. Packages prepared for transport not later than the date specified in column 3 of Table XIV for the corresponding Edition of the Regulations specified in column 1, may continue in transport until the corresponding date specified in column 4 of Table XIV. Except as allowed in this paragraph, manufacture of packagings and use of packages shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para 310; and the activity limits and material restrictions of Section IV , the requirements and controls for transport of section V; for a package containing fissile material, the requirements of para. 672 and for a package containing fissile material transported by air, the requirements of para. 680.

815bis.Excepted packages, Industrial packages Types IP-1, IP-2 and IP-3 and Type A packages which did not require approval of design by the competent authority may be modified or continued to be designed until the date specified in column 2 of Table XIV in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XIV. Except as allowed in this paragraph, modification of packaging and design of packages shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310; and the activity limits and material restrictions of Section IV , the requirements and controls for transport of section V; for a package containing fissile material, the requirements of para. 672 and for a package containing fissile material transported by air, the requirements of para. 680.

Table XIV : PACKAGES NOT REQUIRING COMPETENT AUTHORITY APPROVAL OF DESIGN

Edition of the regulation*	Design or modification until	Manufacture and prepare until	End of transport
1985	Dec. 31, 2003[+]	Dec. 31, 2003[+]	2028
1996	Dec. 31, 2006	Dec. 31, 2010	2034

* Includes Revised Editions and Amended Editions
[+]*dates which are already mandatory according to edition that have been in force (para 815 of the 1996 edition)*

Packages approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) and 1996 (Revised and Amended 2005) Editions of these Regulations

816. Packagings manufactured to a package design approved by the competent authority as meeting the Edition of the Regulations specified in column 1 of Table XV may continue to be used until the date specified in column 4 of Table XV corresponding with the Edition of the Regulations specified in column 1 of Table XV. After this date use may continue, until the corresponding date specified in column 6 of Table XV, subject, additionally, to multilateral approval of package design. A serial number according to the provision of para. 538 shall be assigned to and marked on the outside of each packaging. Except as allowed in this paragraph, use of packagings shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310; and the activity limits and material restrictions of Section IV , the requirements and controls for transport of section V; for a package containing fissile material, the requirements of para. 672 and for a package containing fissile material transported by air, the requirements of para. 680.

816bis. Packagings, for which the package design was approved by a competent authority, may be manufactured until the date specified in column 5 of Table XV corresponding to the Edition of the Regulations in column 1 of Table XV to which the package design was approved. After this date no new manufacture shall commence. Except as allowed in this paragraph, manufacture of packagings shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310; and the activity limits and material restrictions of Section IV , the requirements and controls for transport of section V; for a package containing fissile material, the requirements of para. 672 and for a package containing fissile material transported by air, the requirements of para. 680.

816bis+1. Packages which require competent authority approval of design may continue to be designed until the date specified in column 3 of Table XV, in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV. The commencing of any new design or modification in design which, as determined by the competent authority, would significantly affect safety, shall require the package design to meet this edition of the Regulations in full. Changes in the design or in the nature or quantity of the authorized radioactive contents which, as determined by the competent authority, would not significantly affect safety, may be made after the date specified in column 3 of Table XV manufactured to a design which had received unilateral approval by the competent authority under an Edition of the Regulations specified in column 1 of Table XV may continue to be used until the corresponding date specified in column 6 of Table XV. Except as allowed in this paragraph, design and modification of packages shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310; and the activity limits and material restrictions of Section IV , the requirements and controls for transport of section V; for a package containing fissile material, the requirements of para. 672 and for a package containing fissile material transported by air, the requirements of para. 680.

Special form radioactive material , in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV **approved under the 1973, 1973 (As Amended), 1985 and 1985 (As Amended 1990) and 1996 (Revised and As amended 2005) Editions of these Regulations and low dispersible material**

818. Special form radioactive material . Except as allowed in this paragraph, use of special form material shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310.
818bis. Special form radioactive material may continue to be designed or modified until the date specified in column 3 of Table XV in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV. Changes in the design which, as determined by the competent authority, would not significantly affect safety, may be made after the date specified in column 3 of Table XV, in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV. Except as allowed in this paragraph, design and modification of special form material shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310.

818bis+1. Special form radioactive material may be manufactured until the date specified in column 5 of Table XV corresponding to the Edition of the Regulations in column 1 of Table XV to which the design is approved. After this date no new manufacture shall commence. Except as allowed in this paragraph, manufacture of special form material shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310.

Low dispersible radioactive material approved under a previous Edition of these Regulations

818bis+2. Low dispersible radioactive material manufactured to a design which had received multilateral approval by the competent authority under the Edition of the Regulations specified in column 1 of Table XV may continue to be used until the corresponding date specified in column 6 of Table XV. Except as allowed in this paragraph, use of low dispersible radioactive material shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310.

818bis+3. Low dispersible radioactive material may be designed or modified until the date specified in column 3 of Table XV in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV. Changes in the design which, as determined by the competent authority, would not significantly affect safety, may be made after the date specified in column 3 of Table XV, in accordance with the requirements of the corresponding Edition of the Regulations specified in column 1 of Table XV. Except as allowed in this paragraph, design and modification of low dispersible radioactive material shall be subject to the mandatory programme of quality assurance in accordance with the requirements of para. 310.

819 reference to 816-817 becomes reference to 816

Amend para 828(d) as follows:
REPLACE ALL OCCURRENCES OF “96" BY “05".

Amend para 829 as follows:
REPLACE ALL OCCURRENCES OF “96" BY “05".

Table XV: COMPETENT AUTHORITY APPROVED PACKAGES AND MATERIALS

Edition of the regulations *	Type	Design or Modification until	Multilateral approval after	Commence manufacture until	End of use
1967	All Packages				Dec. 31, 2001
	Special Form				Dec. 31, 2001
1973	All Packages	Dec. 31,1995[+]	Dec. 31,1992[+]	Dec. 31, 1995[+]	Dec. 31, 2019
	Special Form	Dec. 31,1995[+]	N/A	Dec. 31, 2003[++]	Dec. 31, 2019
1985	All Packages	Dec. 31,2001**	Dec. 31,2003**	Dec. 31, 2006**	Dec. 31, 2028
	Special Form	Dec. 31,2001**	N/A	Dec. 31,2003[++]	Dec. 31, 2028
1996	All Packages	Dec. 31,2012	Dec. 31,2016	Dec. 31, 2018	Dec. 31, 2034
	Special Form	Dec. 31,2008	N/A	Dec. 31,2012	Dec. 31, 2034
	Low Dispersible	Dec. 31,2008	N/A	Dec. 31,2012	Dec. 31, 2034

* Includes Revised Editions and Amended Editions

Nota: dates which are already mandatory according to edition that have been in force:
[+]para 714 of the 1985 edition
**para 817 of the 1996 edition
[++]para 818 of the 1996 edition

RELATED PROPOSED TEXT FOR TS-G-1.1

Paragraphs affected and proposed text change to advisory material in TS-G-1.1

538.3bis In the case where package designs are updated to meet newer standards it may be appropriate to apply the date suffix to the competent authority identification mark as a legible and durable label. This is particularly justified when some of the packagings of the same initial design have not yet been or cannot be modified to the updated design.

TRANSITIONAL ARRANGEMENTS

Packages not requiring competent authority approval of design under previous editions of these Regulations

815.1. Following from the adoption of the 1985 Editions of the Regulations, packages not requiring approval of design by competent authority based on the 1973 Edition of the Regulations and the 1973 (As Amended) Edition of the Regulations could no longer be used. Continued operational use of such packages required either that the design be reviewed according to the requirements of the 1985 Editions of the Regulations, or that shipments reviewed and approved by the competent authority as special arrangements, although this was not explicitly stated in the Regulations.

815.2. Paragraph 815 was introduced into the 1996 Edition of the Regulations to allow such existing packagings to continue in use for a limited and defined period of time, following publication, during which the designs might be reviewed, and if necessary modified, to ensure they meet the requirements of the current Edition of the Regulations in full. Where such review and/or modification proves impractical, the transition period is intended to allow time for package designs to be phased out and new designs meeting the requirements of the latest Edition of the Regulations to be phased in.

815.3 Such transitional arrangements for packages not requiring competent authority approval were continued in the 2005 Edition of the Regulations, using time intervals based on a broad consensus view on the intervals necassary. The dates were introduced into a table format (Table XIV) to facilitate updating the transitional arrangements for these packages during future revisions of the regulations.

815.4 Packages prepared in accordance with previous Editions of the Regulations are sometimes stored for many years prior to further shipment. This may be particularly applicable in the case of Industrial or Type A packages containing radioactive waste and awaiting shipment to intermediate or final storage repositories. Paragraph 815 allows such packages, prepared during a defined period of time and when properly maintained, to be transported in the future on the basis of compliance with the earlier Editions of the Regulations.

815.5. Paragraph 815 emphasizes the requirement to apply quality assurance measures, according to the latest Edition of the Regulations, to ensure that only such packages remain in use, where they continue to meet the original design intent or regulatory requirements. This can best be achieved by ensuring that the latest quality assurance measures are applied to post-manufacturing activities such as servicing, maintenance, modification and use of such packages.

815.6. The reference to Section IV of the current Regulations is included to ensure that only the most recent radiological data (as reflected in A1 and A2 values) are used to determine package content and other related limits. It should be noted that the scope of the transitional arrangements of the regulations only extends to the requirements for certain packagings and packages. In all other aspects e.g., concerning general provisions; the requirements and controls for transport including consignment and conveyance limits; and approval and administrative requirements, the provisions of the Edition of the Regulations in force apply.

815.7. With the introduction of a new Edition of the Regulations that could be published in 2007, packages that do not require competent authority approval of the design that meet the 2005 Edition of the regulations would similarly be grandparented. The proposed grandparenting periods could be consistent with those intervals established in the 1996 Edition of the Regulations. The end-of-design or-modification date would be December 31, 2008, the end-of- manufacture date would be December 2012 and the end-of- use date would be December 31 2036, assuming publication of the next Edition in 2007 with an implementation date after December 31, 2008. These dates may be modified considering the extent of the changes in the package design standards in the new Regulations.

815bis.1. Any revision to the original package design, or increase in contained activity, or addition of other types of radioactive materials, which would significantly and detrimentally affect safety, as determined by the package owner in consultation with the package designer, will require the design to be reassessed according to the latest Edition of the Regulations. This could include such things as an increase in the mass of the contents, changes to the closure, changes to any impact limiters, changes to the thermal protection and shielding and changes in the form of the contents. Paragraph 815 bis defines the time period during which design and modifications may be made to a package design following the publication of revised Regulations. This paragraph refers to Table XIV which lists the date applicable to designs that meet the specified Editions of the Regulations. By default, modifications to improve safety are allowed until the date in column 3 of Table XIV (end of manufacture and use date).

815bis.2. The most recent radiological data, as reflected in the A1 and A2 values are used to determine package content and other related limits - this concerns the limitations given in paras. 226, 408, 410 to 414, 525, 601. The most recent data relative to fissile exceptions also need to be used.

Packages approved under previous Editions of these Regulations

816.1. Previous Editions of the Regulations have included provisions that allow packages requiring approval of design by competent authority (Type B, Type B(U), Type B(M), Type C packages, packages for uranium hexafluoride and package designs for fissile material) based on earlier Editions of the Regulations to be continued in use, subject to certain limitations on new manufacture, additional requirements to mark such packages with serial numbers and multilateral approval of all such designs. This provision, known colloquially as 'grandparenting', was newly introduced into the 1985 Editions of the Regulations to ease the transition to those Regulations. This allowed packages, provided they were properly maintained and continued to meet their original design intent, to continue in use to the end of their useful design lives. It also provided for a period of time, following publication, during which the designs could be reviewed, and, if necessary, modified, to ensure packages met the requirements of the 1985 Edition of the Regulations in full. Where such review and/or modification proved impractical, the transition period allowed time for packages to be phased out and new designs meeting the requirements of the 1985 Edition of the Regulations to be phased in.

816.2. Such transitional arrangements for packages were continued in the 2005 Edition of the Regulations, using time intervals consistent with those in the 1996 Edition. The dates specified in the grandparenting provisions have been included in the Regulations in a tabular format (Table XV).

816.3 When applying para 816, the original competent authority identification mark and design codes, assigned by the competent authority of design, should be retained both on the packages and on the competent authority certificates of design approval, notwithstanding that these packages may become subject to multilateral approval of design. This means that packages originally designated Type B(U)-85 or Type B(U)F-85 under the 1985 Editions of the Regulations should not be redesignated Type B(M)-85 or Type B(M)F-85, nor should they be redesignated Type B(M)-05 or Type B(M)F-05, when used under the provisions of para. 816. This is to ensure that such packages can be clearly identified as packages "grandfathered" under the provisions of paragraph 816, having been originally approved under the 1985 Editions of the Regulations.

816.4. The most recent radiological data, as reflected in the A1 and A2 values are used to determine package content and other related limits - this concerns the limitations given in paras. 416, 558, 657, 730, 820. It is also noted that when the A1 or A2 value is listed as a limit in the package approval (for example, contents may be limited to a certain number of A2's instead of specific radionuclides), the new A1 and A2 values in the new regulations should be used, without a transitional period. It is not expected that the calculations that may have been used to demonstrate compliance with the release criteria in paras. 656 and 669 of these Regulations will be immediately updated to include the most recent A2 values. If the package is evaluated to a more recent edition of the Regulations, the analysis, including the A2 values, should be updated. 816.5. The reference to Section IV and para. 680 of the Edition of the Regulations in force is included to ensure that only the most recent radiological data (as reflected in the A1 and A2 values), and requirements for fissile material by air, may be used to determine package content and other related limits. It should be noted that the scope of the transitional arrangements of the regulations only extends to the requirements for certain packagings and packages. In all other aspects e.g., concerning general provisions, the requirements and controls for transport including consignment and conveyance limits, and approval and administrative requirements, the provisions of the Edition of the Regulations in force apply.

816.6. In the process of developing the 1996 Edition of the Regulations it was determined that there was no need for an immediate change of package designs following the adoption of the Regulations, but that changes aiming at a long term improvement of safety in transport were justified. Therefore it was also decided to accept continued operational use of certain packages designed and approved under the 1973 Editions of the Regulations. The continued use of existing packagings with a 1967 Edition based package design approval was considered to be no longer necessary or justified and was not authorized in the 1985 Edition and subsequent Editions of the Regulations.

816.7. The continued use of packages approved under previous Editions of the Regulations is subject to multilateral approval from the date in column 4 of Table XV, in order to permit the competent authorities to establish a framework within which continued use may be approved.

816.8. The grandparenting provisions collectively allow transport of packages and materials for which the designs were approved to a previous Edition of the Regulations. Transport of grandparented designs will comply with other applicable requirements of the Edition of Regulations in force at the time of transport. The various grandparenting provisions specifically call out provisions in the Edition of the Regulations in force at the time of transport, such as quality assurance requirements of para. 310, the activity limits and materials restrictions of Section IV, and the requirements of para. 680 for packages containing fissile material and transported by air. Other provisions of the Edition of the Regulations in force at the time of transport must also be applied, such as the applicable general provisions in Section III, requirements and controls for transport in Section V, and approval and administrative requirements of Section VIII

816.9. With the excepted publication in 2007 of a new Edition of the Regulations and its implementation after December 31, 2008, competent authority approved packages that meet the 2005 Edition of the Regulations would similarly be grandparented. The proposed grandparenting periods of Table XV could be consistent with those intervals established in the 1985 and 1996 Editions of the Regulations. For packages, the end-of-design or-modification date would be December 31, 2014, the commence-manufacture until date would be December 31, 2020, the use-under-multilateral approval would be until December 31, 2036. These dates may be modified considering the extent of the changes in the package design standards in the future edition of the Regulations.

816bis.1. See para. 538.2.

816bis.2 Specified time intervals are also given for continued fabrication of designs that were approved to previous Editions of the Regulations. After such a period, fabrication is not permitted to commence.

816bis+1.1 To accommodate possible frequent revision of the package design standards in the Regulations, a new transitional period for design and modification is defined. This period allows the design and certification of the package to be performed under a single Revision of the Regulations. It is appropriate to consider the date of application to the competent authority as the relevant date. During this period of changes in the design of the packages or in the nature or quantity of the radioactive contents which would significantly and detrimentally affect safety, as determined by the competent authority, would be assessed under the design standards in effect at the time of the design approval. This could include an increase in the mass of the contents, changes to the closure, changes to any impact limiters, changes to the thermal protection or shielding and changes in the form of the contents. For a two-year revision cycle, it is judged that the period of time needed for package design, testing, approval by the competent authority, and fabrication may last over several revisions of the regulations. Modifications to the package design are commonly needed to allow the transport of new contents, or to include design improvements, particularly those based on operational experience. The specified design interval has been established to allow these activities to be performed under a single set of regulatory requirements.

816bis+1.2 The most recent radiological data, as reflected in the A1 and A2 values are used to determine package content and other related limits - this concerns the limitations given in paras. 416, 558, 657, 730, 820. It is also noted that when the A1 or A2 value is listed as a limit in the package approval (for example, contents may be limited to a certain number of A2's instead of specific radionuclides), the new A1 and A2 values in the new regulations should be used, without a transitional period. It is not expected that the calculations that may have been used to demonstrate compliance with the release criteria in paras. 656 and 669 of these Regulations will be immediately updated to include the most recent A2 values. If the package is evaluated to a more recent edition of the Regulations, the analysis, including the A2 values, should be updated. Special form radioactive material approved under previous Editions of these Regulations

818.1. Paragraph 818 introduces transitional arrangements for special form radioactive material, the design of which is also subject to competent authority approval. It specifies the need to apply quality assurance measures according to the Edition of the Regulations in force to ensure that such special form radioactive material remains in use, only where it continues to meet the original design intent or regulatory requirements. This can best be achieved by ensuring that the latest quality assurance measures are applied to post-manufacturing activities such as servicing, maintenance, modification and use of such special form material. It should be noted that the scope of the transitional arrangements of the regulations only extends to the requirements for certain special form radioactive materials. In all other aspects e.g., concerning general provisions; the requirements and controls for transport including consignment and conveyance limits; and approval and administrative requirements, the provisions of the Edition of the Regulations in force apply.

818.2. In the process of developing the 1996 Edition of the Regulations it was determined that there was no need for an immediate change in the design of special form radioactive material following the adoption of the Regulations, but that changes aiming at a long term improvement of safety in transport were justified. Therefore it was also decided to accept continued operational use of special form radioactive material designed and approved under the 1973 or 1985 Editions of the Regulations. However, no new manufacture of such special form radioactive material is permitted to commence beyond 31 December 2003 as specified in the 1996 edition. The continued use of existing special form radioactive material with a 1967 Edition based design approval was considered to be no longer necessary or justified.

818.3. With the excepted publication in 2007 of a new Edition of the Regulations and its implementation after December 31, 2008, competent authority approved designs for special form radioactive material and low dispersible material that meet the 2005 Edition of the Regulations would similarly be grandparented. The proposed grandparenting periods could be consistent with those intervals established in the 1996 Editions of the Regulations. For these materials the end-of-design-or modification date would be December 31, 2010, and the commence-manufacture-until date would be December 31, 2014. The use would be until December 31, 2036. These dates may be modified considering the extent of the changes in the design standards in the new Regulations.

828.2. It is essential that easy means are available for determining under which edition of the Regulations the original package design approval was issued, preferably in the identification mark. This will be achieved by adding the symbol '-05' to the type code. Using this two-digit year designation should be continued through subsequent revisions of the regulations.

Example:

Edition of Regulations	Package design identification mark
1967 Edition	A/132/B
1973 Edition	A/132B(U), or A/132/B(M)
1985 Edition	A/132/B(U)-85, or A/132/B(M)-85
1996 Edition	A/132/B(U)-96, or A/132/B(M)-96
2005 Edition	A/132/B(U)-05, or A/132/B(M)-05