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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

Thirty-fourth session
Geneva, 1-9 December 2008
Item 8 of the provisional agenda

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

Miscellaneous

Note by the secretariat¹

1. The secretariat participated in an IAEA Technical Meeting to resolve regulatory issues related to the Regulations for the Safe Transport of Radioactive Material, TS-R-1 (Meeting “TM-36515”) in Vienna from 1-5 September 2008.
2. The report of this meeting has not yet been released by the IAEA but will be made available to the Sub-Committee as an informal document if released before the 34th session. The main issues discussed were:
 - (a) Radioactive material with subsidiary risks (and in particular uranium hexafluoride);
 - (b) “Exclusive use” provisions;

¹ In accordance with the programme of work of the Sub-Committee for 2007-2008 approved by the Committee at its third session (refer to ST/SG/AC.10/C.3/60, para. 100 and ST/SG/AC.10/34, para. 14).

- (c) Transport of limited quantities of radioactive material; and
- (d) Decay product and exemption of low activity products carried in large numbers.

3. The recommendations made by the meeting will be addressed to the IAEA Transport Safety Standards Committee (TRANSSC) and therefore no action is required at this stage by the Sub-Committee since these recommendations should first be endorsed by TRANSSC.

4. Nevertheless some of these recommendations concern also the UN Model Regulations on the Transport of Dangerous Goods, and some amendments to the UN Model Regulations have been proposed (see annex).

5. In addition, during the discussions, a number of issues related to the UN Model Regulations were raised, as explained below, and the Sub-Committee may wish to take action in this respect.

Performance of packagings used for the transport of radioactive material with subsidiary risks

6. According to paragraph 4.1.9.1.5 of the UN Model Regulations, “radioactive material with a subsidiary risk shall be transported in packagings, IBCs or tanks fully complying with the requirements of the relevant chapters of Part 6 as appropriate, as well as applicable requirements of chapters 4.1 or 4.2 for that subsidiary risk.”.

7. Although it is generally possible to comply with this requirement when radioactive material are transported in industrial packages (“IP”), this is not always possible when they are carried in specific packages such as type B(U) or type B(M) packages, the size, construction and design of which do not correspond to the specifications of UN packagings, IBCs or tanks. Usually, the design of such packages is subject to competent authority approval and takes account of the subsidiary risks of the material to be transported.

8. It was also noted that, currently, paragraph 4.1.9.5 does not address transport in bulk containers, although transport of radioactive material in bulk containers may happen.

9. Therefore, at the suggestion of the IAEA Technical Meeting, the secretariat proposes to amend paragraph 4.1.9.5 to read as follows:

- 4.1.9.1.5 For radioactive material having other dangerous properties the package design shall take into account those properties. Radioactive material with a subsidiary risk, packaged in packages that do not require competent authority approval, shall be transported in packagings, IBCs, tanks or bulk containers fully complying with the requirements of the relevant chapters of Part 6 as appropriate, as well as applicable requirements of chapters 4.1, 4.2 or 4.3 for that subsidiary risk.

10. In addition the secretariat proposes to add the following at the end of special provisions 172: “For packing, see also 4.1.9.1.5”.

Uranium hexafluoride (UF₆)

11. In accordance with the current UN Model Regulations, radioactive material with a subsidiary risk are transported as dangerous goods of Class 7 under the UN number assigned to the radioactive material, unless the conditions for Class 7 “excepted packages” are met, in which case the other hazard takes precedence (see 2.0.3.2).

12. Uranium hexafluoride is listed by name in the dangerous goods list under UN Nos 2977 and 2978, and paragraph 2.7.2.4.5 makes it clear that it shall only be assigned to one of these two numbers. The packing requirements are contained in section 6.4.6.

13. In most cases, uranium hexafluoride is carried in specifically designed cylinders meeting the provisions of ISO 7195:1993 or ANSI N14.1. However, as neither special provision 172 or special provision 290 are assigned to UN Nos 2977 and 2978, the conditions of transport are unclear when UF₆ is transported in quantities of less than 0.1 kg and the conditions for excepted packages are met. It would seem that such samples are transported in practice under different UN Nos, including UN 2978 but also N.O.S entries in Class 8 such as UN 2923 or UN 3262.

14. The proposals made by the IAEA Technical Meeting consist in assigning a special UN No for these small quantities of UF₆, and are reproduced in the annex to this document.

15. During the discussions, it was mentioned that UF₆ is highly corrosive, but possesses also other hazardous properties which are not identified in the UN Model Regulations, notably a toxicity hazard that would meet the division 6.1 packing group I level.

16. The Sub-Committee is invited to take note of the proposed amendments and to comment as deemed appropriate.

17. The secretariat notes that, for Class 7, the current text of 2.0.1.3 is not correct since, according the special provision 172, radioactive material with subsidiary risks shall be allocated to packing groups I, II or III. Therefore, the Sub-Committee may wish to consider the proposal in paragraph 1 of the annex.

Annex

**Amendments to the UN Model Regulations on the Transport of Dangerous Goods
proposed by the IAEA Technical Meeting TM-36515 to TRANSSEC**

1. Amend paragraph 2.0.1.3 to read the following, changes are identified in italic.

2.0.1.3 For packing purposes, substances other than those of Classes 1, 2 and 7 (*without subsidiary risk*), divisions 5.2 and 6.2 and other than self-reactive substances of Division 4.1 are assigned to three packing groups in accordance with the degree of danger they present:

Packing group I: Substances presenting high danger;

Packing group II: Substances presenting medium danger; and

Packing group III: Substances presenting low danger.

The packing group to which a substance is assigned is indicated in the Dangerous Goods List in Chapter 3.2.
2. In table 2.7.2.1.1 add the following entry:

“UN 33XX RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, less than 0.1 kg per package, EXCEPTED PACKAGE.”.
3. In 2.7.2.4.5 add the following at the end of the current paragraph.

“or, in the case of uranium hexafluoride in quantities of less than 0.1 kg packaged in an 'excepted package', UN No 33XX RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, less than 0.1 kg per package, EXCEPTED PACKAGE. When assigned to UN number 2977 or 2978 the requirements of 2.7.2.4.5.1 shall be met.”.
4. In 2.7.2.4.5.1, after “packages”, insert “, other than excepted packages”.
5. Add:

“2.7.2.4.5.2 Packages containing uranium hexafluoride, may be assigned to UN No 33XX RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, less than 0.1 kg per package, EXCEPTED PACKAGE, provided that the package contains less than 0.1 kg uranium hexafluoride and the relevant conditions of 1.5.1.5 are met.”.

Chapter 3.3, Add the following special provision

SPXXX –When uranium hexafluoride is packaged and transported in accordance with the provisions of ISO 7195-1993 and the requirements of 6.4.6.2 and 6.4.6.3, the provisions for 4.1.9.1.5 are deemed to be complied with.
