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LATEST CHANGES IN THE UN "RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS" AND MODAL REGULATIONS REGARDING RADIOACTIVE MATERIAL AND FUTURE ASPECTS OF HARMONIZATION

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ABSTRACT

After a new edition of the IAEA Transport Regulations is published the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods and the relevant international modal organizations implement resulting changes into their provisions. There is an established procedure for this process between all relevant international bodies since a long time.

So, the 2009 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material No. TS-R-1 was incorporated into the seventeenth revised edition of the UN Model Regulations and afterwards into the regulations for all modes of transport (worldwide in the IMDG-Code for the sea mode and ICAO-Technical Instructions for the air mode, European-wide into the ADR, RID and ADN for the land mode). Thus it is guaranteed, that the implemented IAEA provisions are the same in all relevant regulations.

On the other hand, the modes themselves have establish provisions, valid e.g. only for the land mode or only for the sea or air mode.

The paper will describe in particular latest changes of provisions for the transport of radioactive material within the regulations of the UN and the Modal Organizations independent from changes in the IAEA transport regulations.
One example is the proposed change to the IMDG-Code for harmonization with other modes of transport with respect to the exclusion of class 7 material from Marine Pollutants / Environmentally Hazardous Substances requirements.
Another example are latest changes to the special provisions within the UN and modal regulations, e.g. for packages containing radioactive material possessing other hazards, which are not part of the IAEA Transport Regulations, but which will effect them.

Based on this the paper will analyse more globally which aspects need further consideration in

the future for even more harmonization of the regulations of the IAEA, the UN and the modal organizations for the safe transport of radioactive material. Some conclusions in this regard will be provided.

INTRODUCTION

Since 2001 the IAEA "Regulations for the Safe Transport of Radioactive Material" are directly implemented into the UN "Recommendations on the Transport of Dangerous Goods", Model Regulations (the so called "Orange Book") as class 7 – radioactive material.

The harmonization and assimilation with the UN Model Regulations concerning the transport of all nine classes of dangerous goods brings the class 7 "Radioactive material" in line with the other classes for a worldwide implementation into the national and international modal regulations (see Fig.1).

The 2009 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material No. TS-R-1 [1] was incorporated into the seventeenth revised edition of the UN Model Regulations [2] and afterwards into the regulations for all modes of transport (worldwide in the IMDG-Code for the sea mode and ICAO-Technical Instructions for the air mode, European-wide into the ADR, RID and ADN for the land mode). These Regulations have been valid from 1st January 2013 on (sea mode one year later).

The dangerous goods regulatory bodies are

- the UN Committee of Experts on the Transport of Dangerous Goods, Geneva
- the International Civil Aviation Organization (ICAO), Montreal
- the International Maritime Organization (IMO), London
- the United Nations Economic Commission for Europe (UN-ECE) - Inland Transport Committee, Geneva and
- the Intergovernmental Organization for International Carriage by Rail (OTIF), Bern.

The next edition of the "Orange Book", the 18th, will incorporate the 2012 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material No. SSR-6 [3]. Thus it is guaranteed, that the implemented IAEA provisions are the same in all relevant regulations.

It is very important to keep all the above mentioned procedures and to look continuously what changes are necessary and how the process can work with all the available resources.
To harmonize the regulations of the IAEA, UN and the modal organizations for the safe transport of radioactive material is a key issue for a common understanding between the bodies involved and even for the user who has to fulfill the regulations. This should be a permanent process.
The paper shows the work that has been done in the last years on this matter and presents the issues still requiring solutions.

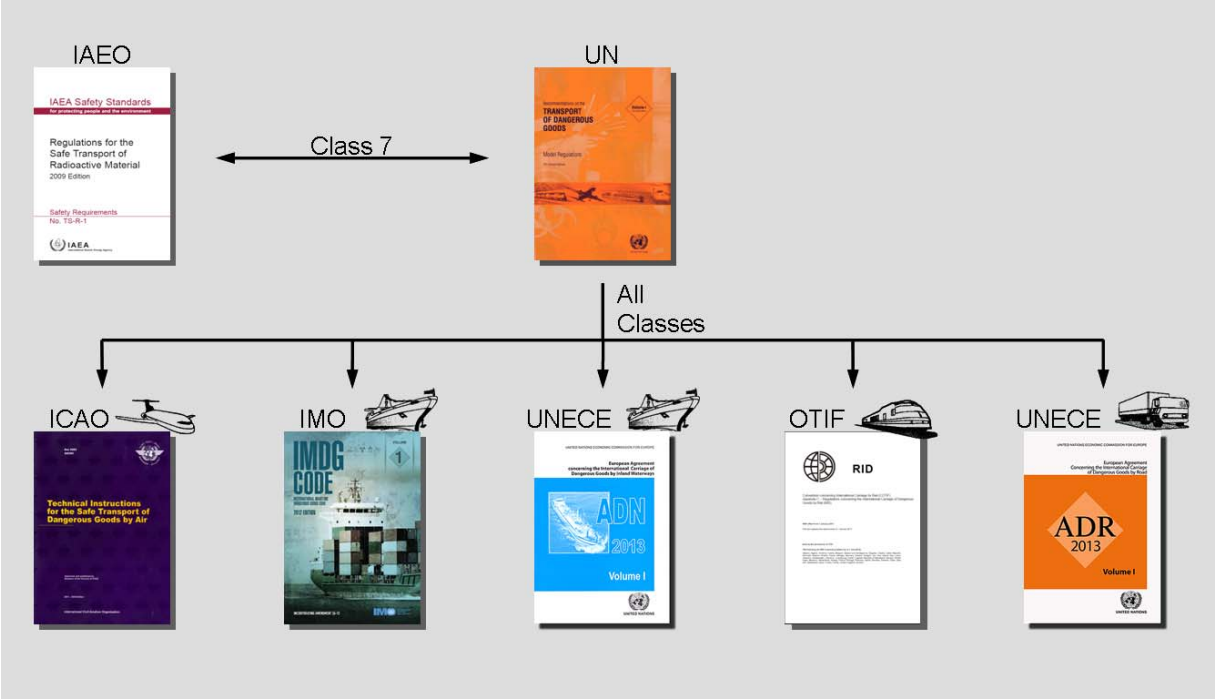

Figure 1: Implementation of the IAEA Regulations for the Safe Transport of Radioactive Material into the UN Recommendations on the Transport of Dangerous Goods and the Modal Agreements

LATEST CHANGES IN THE UN AND MODAL ORGANIZATIONS

Independent from changes in the IAEA Transport Regulations the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods and the modal organizations themselves establish provisions that are coming e.g. from discussions or new developments within the other eight classes of dangerous goods.

For example, within the IMDG-Code dangerous goods which fulfill special criteria have to be classified as Marine Pollutants/Environmentally Hazardous Substances (EHS) and have to be marked with the "Fish and Tree Symbol" (see Fig. 2)

Figure 2: Marine Pollutant Mark.

For harmonization reasons the land mode organizations in Europe (RID/ADR/ADN) decided to implement these criteria in their regulations for all classes of dangerous goods.
In the meanwhile class 7 substances were excluded from these provisions to classify as EHS, taking into account that marking with the environmentally hazardous substance mark (in addition to the class 7 labelling) would not provide any additional safety benefit, e.g. for the first emergency responder.

Other examples are the Special Provisions (SP) of the UN and modal regulations which are out of the scope of the IAEA Regulations. This mainly concerns packages containing radioactive material possessing other hazards (e.g. SP 172 and SP 290). The SP 172 applies to radioactive material with a subsidiary risk for non-excepted packages, the SP 290 applies to excepted packages. There are already proposals for the next UN meeting to improve both SP.

Furthermore, in the last years there was a lot of discussion on the problem of the primary and subsidiary risks for:

> URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 kg per package, non-fissile or fissile-excepted,

which has now the new UN Number 3507.
It was decided that for these materials in excepted packages the class 8 is the primary class with class 7 as subsidiary risk. This also caused chapter 2.0.3 (Precedence of hazard characteristics) of the "Orange Book" to be amended for the 18th edition. Further discussions within the UN and future experience with the use of these packages will show whether this decision needs further review.

HARMONIZATION ACTIVITIES IN THE LAST THREE YEARS

In 2010 the IAEA prepared for the thirty-eighth session of the Sub-Committee of Experts on the Transport of Dangerous Goods (SCETDG, Geneva, 29 November – 7 December 2010) a document [4] containing four categories of requirements concerning the relation between IAEA and UN "Orange Book" (UNOB):

Category A: Requirement for class 7 based on IAEA text without modification; these requirements are elaborated by IAEA and incorporated in the related part of UNOB without change (except numbering);

Category B: Requirement for classes other than class 7; these requirements are elaborated by SCETDG and IAEA is not involved;

Category C: Requirement for class 7 based on IAEA text modified or created to fit the UNOB format; e.g.: Special provisions (SP290), Instruction T5 for UN2913 in Table of Chapter 3.2. These requirements are elaborated by SCETDG. There is no formal process for confirming the accuracy of the modification with IAEA. IAEA has an interest in the modification.

Category D: Requirement applicable to all classes (including class 7); e.g.: definitions (tank, package …), provisions on labelling or marking, use of salvage packagings (4.1.1.17). These requirements are elaborated by SCETDG. They may directly affect the carriage of radioactive material, but are not verified by IAEA, nor are they incorporated in TS-R-1/SSR-6.
These items were discussed at the thirty-eighth session of the Sub-Committee of Experts on the Transport of Dangerous Goods, and the Report of the Sub-Committee (ST/SG/AC.10/C.3/76)

from 25 January 2011 [5] contains the following:

97. For provisions of the Model Regulations qualified as Category D by IAEA, i.e. general transport provisions applicable to all dangerous goods, it was recalled that the IAEA, as all other international organizations, had the possibility to express it views on all proposals submitted to the Sub-Committee, as well as on all decisions taken by the Sub-Committee before they were finally adopted at the end of a biennium. It was suggested that IAEA should develop a mechanism to provide feedback to the Sub-Committee on such general provisions.
98. For provisions qualified as Category A, it was recalled that all requirements which affect only radioactive material were systematically transposed into the Model Regulations without discussion on the basis of IAEA and United Nations Economic Commission for Europe secretariat proposals.
99. For provisions qualified as Category B and C, it was noted that these provisions could be relevant to both IAEA and the Sub-Committee, in the sense that they could apply to radioactive material possessing other hazards. Should these provisions need further clarification, or should they be deemed unsuitable for transport of radioactive material, there would be merit to establish a joint group of experts.
100. The representative of IAEA suggested that such a group could be convened by IAEA at the occasion of the "International Conference on the Safe and Secure Transport of Radioactive Material" that will take place on 17 October 2011.

FUTURE ASPECTS IN HARMONIZATION

The results of the "International Conference on the Safe and Secure Transport of Radioactive Material" in October 2011 were used for the "Technical Meeting to Produce Consolidated Drafts of the IAEA's New Transport Safety Standards Taking into Account the Results of the 2011 International Conference on the Safe and Secure Transport of Radioactive Material" in April 2013 and the following items were recommended to be harmonized between the IAEA Transport Regulations, the UN and the modal regulations, see [6]:

1. Differences in the requirements for UN Packing groups and IAEA types of packages (e.g. Industrial Packages)
2. Certification requirements for non-approved package designs
3. Primary and subsidiary risk (technical basis for criteria)
4. Limited quantity, excepted quantity vs. excepted package
5. Transport of samples (UNOB 2.0.4)
6. Salvage packaging (UNOB 4.1.1.18, 6.1.5.1.11)
7. Extension of the emergency provisions with general mode-independent requirements (304, 305 and 554 (c) of SSR-6)
8. Assessment of special provisions of UNOB, applicable for radioactive material
9. Segregation requirements and guidance for persons (public and workers), para. 562 of SSR-6

The 26th meeting of the Transport Safety Standards Committee – TRANSSC 26 - (Vienna, 17 -19 June 2013) discussed harmonization issues and as an outcome of TRANSSC 26 the IAEA prepared for the forty-third session (Geneva, 24 – 28 June 2013) the document [7] which states the following:

"TRANSSC 26 convened a working group (WG) with the specific task of examining harmonization issues related to the transport of radioactive material. The WG considered issues

including subsidiary risks, excepted packages, UN Packing Requirements, and Uranium Hexafluoride (UF6).
The WG recommended that a guidance document considering the information contained in Special Provisions 172 and 290 of the UN model regulations be prepared for consideration by the Agency."

SUMMARY AND CONCLUSIONS

The harmonization process between the IAEA and the UN Regulations for the safe transport of radioactive material has been developed and progress has been made in the past. Nevertheless, to harmonize both for formal reasons is insufficient. The specialties of the class 7 have to be kept. This is in particular of importance if harmonization proposals stemming from other classes of dangerous goods or from general definitions within the UN recommendations should be applied also for class 7 without carefully checking all the resulting consequences within the IAEA Transport Regulations.

Nevertheless it can be stated that many items were solved in the last three years. All the stakeholders are interested in harmonizing the regulations to avoid misunderstandings, denials of shipments and others. It should be the goal that all items 1-9 as mentioned above should be solved within the near future.

The process of harmonization with the UN is considered to be important to keep the leading role of the IAEA in the further development of all aspects of the safe transport of radioactive material based on the competence of the IAEA in radiation protection.

REFERENCES

[1] Regulations for the Safe Transport of Radioactive Material, 2009 Edition, Safety Requirements No. TS-R-1, IAEA, Vienna, 2009

[2] Recommendations on the Transport of Dangerous Goods, Model Regulations, Seventeenth revised edition, UNITED NATIONS, New York and Geneva, 2011

[3] Regulations for the Safe Transport of Radioactive Material, 2012 Edition, Specific Safety Requirements No. SSR-6, IAEA, Vienna, 2012

[4] UN/SCETDG/38/INF.11, 22 November 2010

[5] ST/SG/AC.10/C.3/76, 25 January 2011

[6] Final report of the "TM 44897 Technical Meeting to Produce Consolidated Drafts of the IAEA's New Transport Safety Standards Taking into Account the Results of the 2011 International Conference on the Safe and Secure Transport of Radioactive Material", Vienna, 8-12 April 2013

[7] UN/SCETDG/43/INF.58/Rev.1, 26 June 2013