

**A STATUS REPORT ON THE REVIEW AND REVISION OF  
THE INTERNATIONAL ATOMIC ENERGY AGENCY'S  
REGULATIONS FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL**

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**ABSTRACT**

The International Atomic Energy Agency (IAEA) last published its Regulations for the Safe Transport of Radioactive Materials (Transport Regulations) as Safety Standards Series No. ST-1 in 1996. This document was updated in English with minor editorial revisions in 2000 as TS-R-1 (ST-1, Revised). The IAEA co-operated with International Organizations which regulate the international transport of dangerous goods by the various modes of transport, to have the requirements of the 1996 edition of the IAEA Transport Regulations incorporated into the editions of their regulations which have become effective during 2001. The IAEA Transport Safety Programme is guided by the Transport Safety Standards Committee (TRANSSC), which is a standing body of senior regulatory officials with expertise in radioactive material transport safety. This Committee determined in the mid-1990s that it would be advantageous to modify the review/revision process. To align the IAEA's Transport Regulations with those of other relevant international bodies, the schedule for revising the regulations needed to change from issuing revisions approximately once every ten years, to once every two years. The goal, under this new schedule, is to publish revisions to TS-R-1 in 2003, and every two years thereafter as needed. Revising the Transport Regulations under this new schedule is well under way. Proposed changes were solicited from IAEA Member States and interested international organizations in early 2000. The first of two revision panels was convened in September 2000. The results of that panel were reviewed by TRANSSC at its meeting in February 2001. A second revision panel will be held in November 2001. The draft revised regulations will be reviewed and endorsed (possibly with changes) by TRANSSC at its March 2002 meeting. If approved by the IAEA's Board of Governors in September 2002, the revised edition of TS-R-1 will be published during 2003. This will allow the changes to be implemented in the 2005 editions of the modal transport organization's regulatory documents. This paper will briefly review the revision process and will then provide insight into the changes being considered for the 2003 Edition of TS-R-1.

**INTRODUCTION**

In accordance with its statutory functions the International Atomic Energy Agency (IAEA) has established and maintains the "Regulations for the Safe Transport of Radioactive Material" (the Transport Regulations) and provides for their application. The IAEA Transport Regulations were first issued in 1961 and have

been issued periodically since. The last edition of these regulations, was approved by the IAEA Board of Governors in 1996. The 1996 edition of the IAEA Transport Regulations is also known as “ST-1”.

The revision process for maintaining the IAEA Transport Regulations was itself reviewed and revised since the publication of ST-1. Recommendations from IAEA Member States and International Organizations for an improved and much shorter revision process (two-year cycle instead of the previous 10-year cycle) were taken into account and further developed with the assistance of experts from the Member States and International Organizations. The Transport Safety Standards Advisory Committee (TRANSSAC), a standing body of senior regulatory officials which provides advice to the Secretariat on the overall transport safety programme, approved the resulting two-year cycle revision process and procedures at its April 1999 meeting and recommended that it be initiated at the beginning of the year 2000. TRANSSAC has since been renamed and is now known as TRANSSC.

The process for implementing the IAEA Transport Regulations was also further developed since the publication of ST-1. The 11<sup>th</sup> revised edition of the United Nations (UN) Model Regulations for the Transport of Dangerous Goods, published in 1999, was the first edition which included all the provisions for the transport of radioactive material in accordance with the 1996 edition of the IAEA Transport Regulations. International organizations which regulate international transport of dangerous goods by the various modes of transport, have used the 1999 edition of the UN Model Regulations as the basis for the 2001 editions of their modal transport regulations. The modal transport organizations involved in this process are specifically, the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) for air transport, the International Maritime Organization (IMO) for transport by sea, and the United Nations Economic Commission for Europe (UN/ECE) for rail and road transport. Many States apply the international modal transport regulations to their national transport of dangerous goods. This process, involving the UN, the international modal transport organizations and Member States, has facilitated the worldwide implementation of the 1996 edition of the IAEA Transport Regulations during the year 2001.

This implementation process involving the UN, ICAO, IMO and the UN/ECE will also apply to implementing future revisions to the IAEA Transport Regulations. The IAEA two-year revision cycle will be in step with the two-year revision schedules for the regulations of these organizations. The schedule for the new revision process has been established to also facilitate the harmonized worldwide implementation of revisions to the IAEA Transport Regulations.

This paper provides an overview of the current revision cycle process with particular attention to the approval procedures, as well as summaries of the actions completed to date, the remaining actions and of the potential changes to the regulations.

## **PROCEDURES FOR APPROVING CHANGES TO THE IAEA TRANSPORT REGULATIONS**

The revision cycle process serves to review proposed changes to the IAEA Transport Regulations, to accept, classify and amend the proposed changes as necessary and to approve publication of a new edition of the Transport Regulations. This process involves opportunities for Member States and international organizations to provide comments and to participate in the four major meetings (two Revision Panel meetings and two TRANSSC meetings) which will result in the final draft of the next edition of the regulations. This final draft needs to be endorsed by the IAEA Committee on Safety Standards (CSS), a standing body of senior government officials holding national responsibilities for establishing standards and other regulatory documents, which has a special overview role with regard to the Agency's safety standards. Approval by the IAEA Board of Governors is the final stage of the process leading to the publication of a new edition of the IAEA Transport Regulations. Further details on the revision process are provided in the following.

The first Revision Panel meeting in each revision cycle has to classify the proposed changes as minor change, change of detail, or major change. The classification of the changes is very important because of the different approval procedures. The changes are defined as follows:

- Minor changes are essentially limited to editorial corrections of typing errors, spelling mistakes, and translation corrections. Minor changes must not require a change in the numbering of the regulations. Minor changes result in corrected regulations.
- Changes of detail are limited to changes in the text but only in so far as to make a previously agreed meaning or intention of a provision more clear or more readily interpretable, or to correct minor technical errors. Changes of detail must not require a change in the numbering of the regulations. Changes of detail result in amended regulations.
- Major changes include all changes that do not qualify as either minor change or change of detail. Major changes result in revised regulations.

The approval procedures for these types of changes are as follows:

Minor changes which are accepted by the first Revision Panel meeting are approved. No further approvals are required and errata sheets may be issued. Approved minor changes will be included in the next edition of the regulations.

Changes of detail accepted by the first Revision Panel meeting are subject to a 90 day review by the IAEA Member States. All changes of detail for which no significant objections are raised, are considered approved following the 90 day review and will be included in the next edition of the regulations. Changes of detail for which comments are received during the 90 day period will be reviewed, together with the comments, by the next Revision Panel meeting which will then prepare its recommendations concerning these changes.

Major changes accepted by the first Revision Panel meeting are subject to review and endorsement by the first meeting of TRANSSC in each revision cycle. Major changes, as endorsed by TRANSSC, are then subject to a 120 day review by Member States and International Organizations. The endorsed major changes together with the comments received during the 120 day review period are then submitted to the second Revision Panel meeting for its final review. As a result of its review, the second Revision Panel will prepare the final draft of their recommendations for major changes. A list of all approved minor changes, approved changes of detail and recommended major changes, together with a draft revised edition of the regulations incorporating all these changes, will be prepared for submission to the second TRANSSC meeting in the revision cycle. The second TRANSSC meeting may approve the major changes, as presented or as amended, and will result in the recommended next edition of the IAEA Transport Regulations.

Following the second TRANSSC meeting the recommended next edition of the Transport Regulations needs to be endorsed by CSS and to be approved by the IAEA Board of Governors before it can be published.

The sequence of the major events for the current and the next revision cycle are illustrated in Table 1.

Table 1. Major steps in the two-year IAEA Transport Regulation review/revision process

Major Action in Transport Regulation Revision Cycle	1 <sup>st</sup> Revision Cycle	2 <sup>nd</sup> Revision Cycle
IAEA requests proposals for change and identified problems	Mar 2000	Jan 2002
First Revision Panel meeting of cycle	Sept 2000	Sept 2002
First TRANSSC meeting of cycle	Feb 2001	Feb 2003
Second Revision Panel meeting of cycle	Nov 2001	Nov 2003
Second TRANSSC meeting of cycle	Mar 2002	Mar 2004
IAEA CSS considers draft for endorsement	May 2002	May 2004
IAEA Board of Governors considers draft for approval	Sept 2002	Sept 2004
Print new edition	Spring 2003	Spring 2005

## **ACTIONS COMPLETED TO DATE**

### Initiation of the Two Year Revision Cycle

In accordance with the revision cycle procedures approved by TRANSSAC the current revision cycle was initiated by a communication from the IAEA dated 21 March 2000 (J1.30 Circ.) which was sent to the ministries of foreign affairs of all Member States and to the relevant International Organizations. In this communication the Secretariat requested proposals for changes to, and identification of problems with, the 1996 edition of the Transport Regulations.

212 proposals were received by the deadline of 22 May 2000. At the beginning of July 2000 all these proposals were placed on the IAEA website for Transport Safety together with standard electronic forms to provide comments on these proposals.

All Member States and International Organizations which had submitted proposals or comments on the proposals were invited to participate in the 4-8 September 2000 Revision Panel meeting. The Revision Panel meeting was attended by 79 individuals representing 21 Member States and 9 International Organizations. This meeting reviewed all proposals and all comments received by 28 August 2000.

#### Actions from the First Revision Panel Meeting in this Cycle (4-8 September 2000)

The Revision Panel approved two minor changes and accepted twenty-three changes of detail.

The Revision Panel accepted six major changes, identified as **00/MAJ/01 through 00/MAJ/06**. One major change, **00/MAJ/07**, was accepted in principle subject to further action by the Secretariat.

In addition, the Revision Panel reviewed and made recommendations concerning proposals about 52 guidance issues for the advisory material to the regulations. The Revision Panel also prioritized and classified proposals concerning 33 identified problems and recommended that the 2 highest priority identified problems be given immediate attention for possible resolution in the current revision cycle. Identified problems are those proposals for which the change was not sufficiently justified and/or no revised regulatory text was provided with the proposal.

#### Actions Following the First Revision Panel Meeting

All accepted changes of detail were posted on the IAEA Transport Safety website at the beginning of December 2000. All Revision Panel participants and TRANSSC members were informed about this and in addition a note verbale was sent to all Member States informing them of the opportunity to provide comments until 15 March 2001.

A summary of all the changes approved or accepted by the Revision Panel was submitted to the first TRANSSC meeting in this revision cycle (5-9 February 2001).

The Secretariat followed up on the major change which had been approved in principle by the Revision Panel and submitted this change as proposed major change **00/MAJ/07** to the first TRANSSC meeting.

The Secretariat had also arranged a Consultant Services Meeting and a Technical Committee Meeting which addressed one of the two highest priority identified problems. These meetings resulted in sufficient additional information and recommended text for a major change which was submitted to the first TRANSSC meeting as **00/MAJ/08**.

#### Actions from the First TRANSSC Meeting in this Cycle (5-9 February 2001)

TRANSSC reviewed the summary of all the changes accepted by the Revision Panel and in accordance with the procedures took the following actions:

TRANSSC acknowledged the 2 minor changes approved by the Revision Panel.

TRANSSC reviewed the 23 changes of detail accepted by the Revision Panel and reclassified 3 of these as major changes **00/MAJ/09 through 00/MAJ/11**

TRANSSC endorsed these eleven major changes and in addition it endorsed conditionally a twelfth major change, **00/MAJ/12** which had originally been accepted by the Revision Panel as the other of the two highest priority identified problems. TRANSSC's condition was that the necessary supportive information for this change would be made available to the Secretariat by 30 April 2001, in time for inclusion in the list of major changes subject to the 120 day review by Member States and International Organizations. The necessary additional information was made available by 30 April 2001.

#### Actions Following the First TRANSSC Meeting

The 90 day review period for the 23 changes of detail accepted by the Revision Panel expired on 15 March 2001. The status with regard to the changes of detail is now as follows:

- 8 changes of detail did not receive any further comment from TRANSSC or the Member States during the 90 day review. These 8 changes of detail, are therefore now approved for publication and inclusion in the next edition of the IAEA Transport Regulations.
- 3 changes of detail were reclassified by TRANSSC as major changes **00/MAJ/09 through 00/MAJ/11** to be further processed as major changes.
- 12 changes of detail received comments during the 90 day review. The next Revision Panel meeting (12-16 November 2001) will consider these comments and prepare a recommendation to next TRANSSC meeting concerning each of these changes of detail.

#### **REMAINING ACTIONS**

Comments on the major changes endorsed by TRANSSC, which are received by 15 September 2001, will be submitted by the Secretariat to the second Revision Panel meeting together with the endorsed major changes for their final review. In addition, the secretariat will submit the comments received on changes of detail during the 90 day review period together with the related changes of detail also for their final review.

The Secretariat will also submit to the Revision Panel, for their information, the minor changes and changes of detail which have already been approved during this revision cycle.

The Revision Panel will prepare the final draft of all the revisions, as recommended by the Revision Panel or as already approved in the current cycle, for submission to the second and final TRANSSC meeting in this cycle (4-8 March 2002). At that meeting TRANSSC may approve the recommended changes, as submitted by the Revision Panel or as amended by TRANSSC, and the final draft of the next edition of the Transport Regulations which must include the changes as approved by TRANSSC at the March 2002 meeting. Following TRANSSC approval there is still the need for CSS endorsement and approval by the IAEA Board of Governors before a revised edition can be published (in 2003).

### **SUMMARY OF THE POTENTIAL CHANGES**

Minor changes (errata) and changes of detail (clarifications) do not represent changes in requirements and are therefore not summarized in this paper. Any changes in requirements will be included in the major changes. As outlined above twelve major changes were endorsed by TRANSSC and are subject to comments from Member States and involved international organizations. These twelve major changes could therefore still be amended or be considered not ready for incorporation in the next edition of the IAEA Transport Regulations. At this point in time they must therefore be considered as potential changes. The following provides a descriptive summary of these potential changes which are identified with the specific numbers indicated above.

**00/MAJ/01** involves new requirements (actions and communications) in the event non-compliance is identified by the carrier, consignor or consignee, with regard to any limit applicable to radiation level or contamination as specified in some specific paragraphs of the regulations. The new requirements would be expressed in new paragraphs under Section III, General Provisions.

**00/MAJ/02** involves more specific training requirements for persons engaged in the transport of radioactive material. These more specific requirements are in addition to the general training requirement already expressed in para 303. These more specific requirements are consistent with the more specific training requirements already in the UN Model Regulations for the transport of dangerous goods. The more specific requirements would be expressed in new paragraphs under Section III, General Provisions.

**00/MAJ/03** involves a relaxation in the requirements of marking instruments or articles which otherwise qualify for transport in excepted packages (para 517(b)). The particular change would expand the list of items which do not require the marking "RADIOACTIVE" by including those consumer products which have received regulatory approval to be exempt from the requirements of the Transport Regulations following their sale to the end user and provided that the activity limit for an exempt consignment is not exceeded.

**00/MAJ/04** involves an increase in the  $A_1$  value for Cf-252 (Table I).

**00/MAJ/05** involves more specific wording on solar insolation conditions (Table XI) to be considered in the design of Type B(U) packages.

**00/MAJ/06** involves eliminating the shielding integrity requirement of para 646(b) following the 9 m drop test for a Type A package designed to contain liquids. The shielding integrity requirement of para 646(b) is maintained for any Type A package following the tests for demonstrating ability to withstand normal conditions of transport.

**00/MAJ/07** involves a change in specifying a test condition for packages to be transported by air, (para 619), from “reduction in ambient pressure to 5 kPa” to “internal pressure which produces a pressure differential of not less than maximum normal operating pressure +95 kPa”.

**00/MAJ/08** involves the so-called grandfathering conditions which are needed to address the continued operational use of packagings designed and or manufactured according to earlier editions of the regulations.

**00/MAJ/09** involves a change to para 514 concerning the exception from non-fixed contamination limits of para 508 for an overpack, freight container, tank or intermediate bulk container and from the contamination limits and maximum radiation levels as specified for a conveyance in para 513. The exceptions in para 514 now apply to the internal surfaces of these items provided they are dedicated to the transport of any “radioactive material”, packaged or unpackaged, under exclusive use. As proposed the exceptions will no longer apply to any radioactive material, it will apply only if the material to be transported is “unpackaged low specific activity material (LSA-I) or surface contaminated objects (SCO-I)” under exclusive use.

**00/MAJ/10** involves more precise requirements in para 549(k) concerning the information to be included in transport documents when transporting more than one package in a conveyance.

**00/MAJ/11** involves addressing proposals concerning fissile definitions, and criticality hazards of materials not classified as fissile, by changing the last sentence of para 672(a) to include a specific reference to the consignment mass limits in Table XII.

**00/MAJ/12** involves a change to para 107(e) concerning materials which are not under the scope of (i.e. exempt from) the requirements of the Transport Regulations. The revised paragraph would include natural material and ores containing naturally occurring radionuclides “which are processed” and not intended to be further processed for use of the radionuclides, subject to the same activity concentration limits applicable to the unprocessed natural materials and ores.