1. IDENTIFICATION

Document Category: Safety Guides
Working ID: DS493
Proposed Title: The Structure and Information to be Included in a Package Design Safety Report (PDSR) for the Transport of Radioactive Material
Proposed Action: Addendum to TS-G-1.5
Review Committee(s) or Group: TRANSSC
Technical Officer(s): N. Capadona, S. Whittingham

2. BACKGROUND

For each design of a package for the transport of radioactive material it is necessary to demonstrate compliance with national and international regulations as applicable. For package designs which require approval by a competent authority the documentary evidence of compliance with the regulations is commonly known as a Package Design Safety Report (PDSR). For packages not requiring competent authority approval the consignor shall be able to provide documentary evidence of the compliance of the package design with all applicable requirements. This Safety Guide proposes that the same discipline of approach is adopted for all package designs, with the scope and technical content set at the appropriate levels to demonstrate compliance with the regulatory requirements.

There are several advantages of promoting a harmonized format of the package design safety reports, namely:

(i) It provides a common structure for the competent authority assessment process which can be shared between competent authorities to facilitate the approval and validation processes for international shipments;

(ii) By providing a consistent approach to justify the compliance of a package design with the regulatory requirements.

3. JUSTIFICATION FOR THE PRODUCTION OF THE DOCUMENT

This guide could be part of SSG-26 “Advisory material for the IAEA regulations for the safe transport of radioactive material (2012 Edition)”. However the current SSG-26 publication is 450 pages and is set to increase by some 70 pages in its next revision by adding a new Annex on “concepts of Dual Purpose Cask” to reflect the work of the Agency to meet the increasing adoption of this concept by Member States. This will create a SSG-26 of more than 500 pages in length and takes the document towards its limit of size as a user friendly document.

This guide could also be part of Safety Guide TS-G-1.5 ‘Compliance Assurance for the Safe Transport of Radioactive Material’ and replace Annex II with some modification / addition to paras 4.41, 4.42 and 4.42 bis.

Recognising the importance of the PDSR Guidance Document because it will apply to all packages transported, as indicated by the request of TRANSSC to have this document published as soon as possible and as a Specific
Safety Guide, it is proposed that this document is published as an Amendment and Addendum to TS-G-1.5 and therefore remain unaffected by the possibility of a revision of SSR-6 and the completion of a revision of TS-G-1.5.

4. OBJECTIVE AND SCOPE

This guide is intended to assist in the preparation of the Package Design Safety Report (PDSR) to demonstrate compliance of a design of a package for the transport of radioactive material with the regulatory requirements. It covers package designs requiring competent authority approval (Type B(U), Type B(M), Type C, packages containing fissile material not excepted from the requirements of the regulations that apply to fissile material and packages designed to contain 0.1 kg or more of uranium hexafluoride). This guide also covers package designs not requiring competent authority approval (Excepted package, Industrial package (Type IP-1, Type IP-2, Type IP-3), Type A package) which constitute the vast majority of the estimated 20 million shipments that take place each year.

5. PLACE IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS

The document will be an Addendum to TS-G-1.5 Safety Guide Publication for Transport of Radioactive Material. This document will interface with the following IAEA publications (the list is not intended to be final or exhaustive):

- SSR-6, Regulations for the Safe Transport of Radioactive Material - 2012 Edition - Specific Safety Requirements

This guide is based on the SSR-6 upon which the United Nations Recommendations on the Transport of Dangerous Goods and, after transposal, international, regional and national regulations are based, for all modes of transport.

This guide does not replace the regulations or limit their application but proposes for each package type a structure and a typical content for a PDSR to enable the applicant, in case of a package design subject to competent authority approval, or the package designer and/or user, in case of a package design not requiring competent authority approval, in demonstrating compliance with the provisions of SSR-6 applicable to the respective package type.

In the event of any perceived discrepancies between this guide and the regulations, the requirements in the regulations apply. The guide does not relieve the package designer from any additional analysis associated with the concerned specific package design that may be requested by a competent authority.
The guide is not proposed as an “interface document” although such a decision will be made by the Coordination Committee and the Interface Group.

6. OVERVIEW

CONTENTS

INTRODUCTION AND GENERALITIES
Introduction
Objective and Scope
Definitions
Structure of this document
Unit system
Document control
References
Emergency arrangements

PACKAGE DESIGN SAFETY REPORT: PART 1
Contents list of the PDSR
Administrative information
Specification of contents
Specification of packaging
Package performance characteristics
Compliance with regulatory requirements
Operation
Maintenance
Management systems
Package illustration

PACKAGE DESIGN SAFETY REPORT: PART 2
Common provisions for all technical analyses in Part 2 of the PDSR
  Reference to package design
  Acceptance criteria and design assumptions
  Description and justification of analysis methods
  Analysis of package design
  Comparison between acceptance criteria and results of analysis
Technical analyses
  Structural analysis
  Thermal analysis
  Containment design analysis
  External dose rates analysis
  Criticality safety analysis

Annex 1  Excepted package
Annex 2  Industrial package (Type IP-1, Type IP-2, Type IP-3)
Annex 3  Type A package
Annex 4  Type B(U), Type B(M) and Type C package
Annex 5  Additional requirements for packages containing fissile material
7. PRODUCTION SCHEDULE: Provisional schedule for preparation of the document, outlining realistic expected dates for:

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<thead>
<tr>
<th>STEP</th>
<th>Description</th>
<th>Column A</th>
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<td>JUN 2015</td>
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* Column A for Safety Fundamentals, Safety Requirements and Safety Guides.
* Column B for Nuclear Security Series publications noting that for Technical Guides a fast track may be proposed and justified for approval by the NSGC at step 3. If approved, the draft will not be subject to the steps 4 to 10 and, be provided at step 11 to the NSGC to take note of it before its publication.
* Column C for TECDOCs, safety reports and other publications.

8. RESOURCES
Estimated resources involved by the Secretariat: (person-weeks) and the Member States (number and type of meetings)

Secretariat P staff (3 Man weeks) + 1 CSM (5 Man-weeks of non-staff)