

Document Preparation Profile (DPP) Version 3, August-12-2015

1. IDENTIFICATION

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| 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: | New document |
| Review Committee(s) or Group: | TRANSSC |
| Technical Officer(s): | <u>N. Capadona</u>, <u>S. Whittingham</u> |

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

Recognising the importance of the PDSR Guidance Document because it will apply to all packages transported, TRANSSC requested to have this document published as a Specific Safety Guide.

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
NS-DPP-V.9- 19 October 2012

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 takes 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 a stand-alone Safety Specific 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
- SSG-26, Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)
- TS-G-1.2, Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material - Safety Guide
- TS-G-1.3, Radiation Protection Programmes for the Transport of Radioactive Material - Safety Guide
- TS-G-1.4, The Management System for the Safe Transport of Radioactive Material - Safety Guide
- TS-G-1.5, Compliance Assurance for the Safe Transport of Radioactive Material - Safety Guide
- SSG-33, Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)
- SSG-27, Criticality Safety in the Handling of Fissile Material

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

Codes and standards followed for design and analysis

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

Annex 6 Additional requirements for packages containing more than 0.1 kg uranium hexafluoride

Annex 7 Reference documents used by competent authorities for technical assessments

7. PRODUCTION SCHEDULE: Provisional schedule for preparation of the document, outlining realistic expected dates for:

| | A* | B* | C* |
|--|-----------------|------|------|
| STEP 1: Preparing a DPP | DONE | DONE | DONE |
| STEP 2: Approval of DPP by the Coordination Committee | MAR 2015 | | |
| STEP 3: Approval of DPP by the relevant review Committees | JUN 2015 | | |
| STEP 4: Approval of DPP by the CSS | NOV 2015 | | |
| STEP 5: Preparing the draft | | | |
| STEP 6: Approval of draft by the Coordination Committee | MAR 2016 | | |
| STEP 7: Approval by the relevant review Committees for submission to Member States for comments | JUN 2016 | | |
| STEP 8: Soliciting comments by Member States | AGO 2016 | | |
| STEP 9: Addressing comments by Member States | JAN 2017 | | |
| STEP 10: Approval of the revised draft by the Coordination Committee Review in NS-SSCS | FEB 2017 | | |
| STEP 11: Approval by the relevant review Committees | JUN 2017 | | |
| STEP 12: Endorsement by the CSS | NOV 2017 | | |
| STEP 13: Establishment by the Publications Committee and/or Board of Governors (for SF and SR only)) | DEC 2017 | | |
| STEP 14: Target publication date | 2018 | | |

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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)