International Applicant Guide

Package Design Safety Reports for the Transport of Radioactive Material Technical Guide

TRANSSC 30 - June, 2015
Summary

- Scope and Objectives
- Guide content
- Discussions and concerns raised by participants
The overall objective of the intended work is to provide written guidance to designers to help them in the preparation of the Package Design Safety Reports (PDSR) to the satisfaction of the concerned competent authorities.

First objective: Enable stakeholders (applicants and CA) to identify precisely the regulatory requirements applicable to the design

- Presentation of the requirements associated with each type of package (excepted package, ... type C package).
- Requirements associated with LDM and special form materials
- A matrix of IAEA regulatory requirements for package types.
- This material is accompanied by explanatory text to make the rules more understandable.
PDSR goals and scope

Second objective: Clarify the competent authority expectations in terms of safety demonstration concerning:

- quality assurance;
- safety demonstration perimeter;
- physical phenomena that it is necessary to take into consideration (brittle fracture at -40°C, radiolysis of hydrogenated materials, ...);
- the nature of the demonstration (testing or calculation);
- calculation codes qualification;
- Maintenance

This material is also accompanied by explanatory text to make the rules more understandable
PDSR goals and scope

Scope

- Applicable for package designs requiring competent authority approval:
  - Type B(U), Type B(M), Type C packages
  - Packages containing fissile material or UF6
- Applicable for package designs not requiring competent authority approval:
  - Excepted packages, Industrial packages and Type A packages

The product is a tentative draft for an IAEA Technical guide or Safety guide

Requires a consensus between Competent Authorities, to be discussed during TRANSSC
Main steps

TRANSSC 26 (June 2013) : Kicking off WG meeting
  ▪ Validation of the objectives and scope of the PDSR guide
  ▪ Validation of the guidance structure based on:
    ▪ European PDSR v.2 (2012)
    ▪ Canada/US guide RD 364
    ▪ Australian Guide RPS-2.2
  ▪ Agreement to add 2 annexes concerning:
    ▪ 1) technical references used by competent authorities
    ▪ 2) guidance on emergency response preparation

PATRAM 2013 : Progress meeting

TRANSSC 27 (November 2013) - TRANSSC 28 (June 2014) - TRANSSC 29 (November 2014) : Progress meetings
Main footsteps

1st semester of 2014: Final draft editing
- Draft prepared by Australia and France
- Sent for review to Member States participating in review process (Canada, Japan, United States)

September 2014: Draft publication
- Integration of comments from reviewer (or comments put aside for discussions)
- Published on TRANSSC website by Secretary, and put on the TRANSSC 29 agenda for information and discussion
- Comments received from WNTI

November 2014: Draft publication
- Discussion by TRANSSC about integrating the PDSR guide as an addendum to the compliance assurance guide
- Proposal to prepare a Document Preparation Profile (DPP) to be approved by TRANSSC in June 2015
- Proposal to remove Annex 8 to take into account TRANSSC members comments
Part I: Guidance on description of the package design - PDSR should include:

- Contents list of the PDSR
- Administrative information
- Specification of contents
- Specification of *packaging*
- *Package* performance characteristics and compliance with regulatory requirements
- Operation
- Maintenance
- Management systems
- *Package* illustration
Part II: Guidance on justification of design conformity to the applicable regulatory provisions:

- Structural analysis
- Thermal analysis
- Containment design analysis
- External dose rates analysis
- Criticality safety analysis

For each technical analysis, it should be precised:

- Acceptance criteria and design assumptions
- Description and justification of analysis methods
- Comparison between acceptance criteria and results of analysis

Technical guidance for each package type available in Annexes 1-6
Annexes 1-6: Packages specificities

- Annex 1: Excepted package designs
- Annex 2: Industrial package designs
- Annex 3: Type A package designs
- Annex 4: Type B(U), B(M), and C package designs
- Annex 5: Packages designed for fissile material
- Annex 6: Packages designed for UF6
## Annex 7: Technical references

Reference documents used by competent authorities for technical assessments

<table>
<thead>
<tr>
<th>Country</th>
<th>References</th>
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| Canada  | * SSG-26 – Advisory material for the IAEA Regulations for the Safe Transport of Radioactive Material  
* ISO 2919 “Sealed radioactive sources - General requirements and classification”  
* ISO 9978 “Sealed Radioactive Sources - Leak Test Methods”  
* ISO 7195 “Packaging of uranium hexafluoride for transport”  
* ANSI N14.1 “Uranium Hexafluoride – Packaging for Transport”  
* ISO 12807 “Safe transport of radioactive materials - Leakage testing on packages”  
* ANSI N14.7. Guidance for Packaging Type A - Quantities of Radioactive Materials  
* RD-364 : Joint Canada - United States Guide for Approval of Type B(U) and Fissile Material Transportation Packages and ISO 9001 |
| France  | * ASN Guide N°7 – Transport – Transport of packages or radioactive materials for civil use on public domain – Rev. 1 (February 2013) |

- **technical references**  
  - guidances,  
  - standards,  
  - reports...

... commonly used for assessment by competent authority
Annex 8 : Emergency provisions

- Initial draft of Annex 8 had been prepared to match emergency provisions from para. 838(u) of SSR-6.

- Application of these provisions depend on policy of each national competent authority and is not harmonized. This comment was formulated during TRANSSC 29 meeting.

- It is proposed to remove Annex 8 in order to take into account this comment.
Tentative schedule

- Approval of Document Preparation Profile for integration of the applicant guide in the compliance assurance guide  
  June 2015

- Integration of the applicant guide in the compliance assurance guide  
  June 2016

- Comments about the new draft guide  
  January 2017

- Approval of the new guide by review committees  
  June 2017

- Target publication date  
  2018

(see DPP DS-493)
Thank you