Meeting of the Radiation Safety Standards Committee
21 – 24 November 2016

Draft Implementing Guidance: Revision of NSS No. 9
Security of Radioactive Material in Transport

Mr Michael Shannon, Transport Security JPO
Consultants’ Group for Document Revision

• Member States
  – Belgium
  – France
  – Germany
  – Philippines
  – Russian Federation
  – United States of America

• Organizations
  – International Source Suppliers and Producers Association (ISSPA)
  – World Nuclear Transport Institute (WNTI)
Timeline for Document Revision

- Jan 2014  Full CM
- Jun 2014  TM, one half day session to discuss main considerations
- Jul 2014  Full CM
- Jan 2015  Limited group to ensure consistency with NST048
- Jul 2015  Full CM
- Aug 2015  Internal coordination with NSRW (Transport Safety Unit) and Incident and Emergency Centre (IEC)

- Nov 2015  Approval by NSGC 8 for 120-day MS comment period
- Jan-May 2016  120-day MS comment period
- Jul 2016  Meeting to resolve 120-day MS comments
- Sep 2016  Internal Coordination Committee meeting approval (IEC and Waste Safety comments)
- Nov 2016  Approval by NSGC 10 and TRANSSC for submission to DDG-NS
Scope

• Guidance for competent authorities, shippers, and carriers
• Support implementation of recommendations from NSS No. 13 and No. 14
• Security of all radioactive material in transport (security measures only due to the radioactive properties of the material)
Content and Structure

- New guidance on NSS No. 14 recommendations
- Existing NSS No. 9 guidance retained and expanded as appropriate
- New structure based on the structure of NSS No. 14 and NSS No. 26-G
- Consistent with UN Model Regulations (i.e., number of security levels: basic and enhanced)
Comments received during 120-day MS comment period

- Finland: 17
- Germany: 1
- Hungary: 8
- Indonesia: 23
- Iraq: 5
- Japan: 46
- WNTI: 22
- Pakistan: 50
- Spain: 3
- Russian Federation: 14

189 total comments
Resolution of Comments

- 84 Accepted
- 105 Rejected/Modified

- Many comments were grammatical or editorial in nature
- Many comments were rejected on the basis that the text no longer existed or was already modified and no longer applied
- Some comments were misunderstandings of intent or meaning and in these cases clarifications were provided
- Some comments rejected in order to maintain alignment with other NSS publications
- Security Levels vs. Transport Security Levels
Resolution of Comments: Accepted

- 10D value for Ge-68 changed from 7.0 TBq to 0.7 TBq to be consistent with the correct value.

<table>
<thead>
<tr>
<th>Radionuclide</th>
<th>Transport security threshold (TBq)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Am-241</td>
<td>0.6</td>
</tr>
<tr>
<td>Au-198</td>
<td>2</td>
</tr>
<tr>
<td>Cd-109</td>
<td>200</td>
</tr>
<tr>
<td>Cf-252</td>
<td>0.2</td>
</tr>
<tr>
<td>Cm-244</td>
<td>0.5</td>
</tr>
<tr>
<td>Co-57</td>
<td>7</td>
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<tr>
<td>Co-60</td>
<td>0.3</td>
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<tr>
<td>Cs-137</td>
<td>1</td>
</tr>
<tr>
<td>Fe-55</td>
<td>8000</td>
</tr>
<tr>
<td>Ge-68</td>
<td>0.7</td>
</tr>
<tr>
<td>Gd-153</td>
<td>10</td>
</tr>
<tr>
<td>Ir-192</td>
<td>0.8</td>
</tr>
<tr>
<td>Ni-63</td>
<td>600</td>
</tr>
<tr>
<td>Pd-103</td>
<td>900</td>
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<tr>
<td>Pm-147</td>
<td>400</td>
</tr>
<tr>
<td>Po-210</td>
<td>0.6</td>
</tr>
<tr>
<td>Pu-238</td>
<td>0.6</td>
</tr>
<tr>
<td>Pu-239</td>
<td>0.6</td>
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<tr>
<td>Ra-226</td>
<td>0.4</td>
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<tr>
<td>Ru-106</td>
<td>3</td>
</tr>
<tr>
<td>Se-75</td>
<td>2</td>
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<tr>
<td>Sr-90</td>
<td>10</td>
</tr>
<tr>
<td>Ti-204</td>
<td>200</td>
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<tr>
<td>Tm-170</td>
<td>200</td>
</tr>
<tr>
<td>Yb-169</td>
<td>3</td>
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</tbody>
</table>
Resolution of Comments: Accepted but modified

- IEC comments on Appendix I: Setting the Transport Security Levels
- IEC concerned with accuracy of Appendix I and that developments since its writing made it outdated
- Following extensive consultation with the IEC, agreement was received on the language to be used, and portions of Appendix I were removed
- If determined to be necessary, this can be revisited in order to provide this information to MS at a later date
Resolution of Comments: Not Accepted

- Multiple comments for or against the additional examples added in the revision under Prudent Management Practices
  - Member States have asked for additional guidance on this topic
  - Examples provided are reasonable and not beyond the means of normal commercial practices
- Resolution to include additional text
Waste Safety Comments

• All comments accepted
• Introducing abbreviations before using them
• References
• Consecutive numbering for readability [i.e., (i), (ii), (iii), …]
• Harmonization of terminology (i.e., storage in transit → in-transit storage)
• Modifications to Appendix I (ultimately captured through addressing IEC comments)
• Editorial / grammatical
Comments received follow 120-day MS Comment Period

• NSGC 44
• TRANSSC 6

• Many editorial or for consistency with other NSS publications
• Alignment of Proper Shipping Name with the list in SSR-6 (as described previously)
• Addition of paragraph numbers (must align with NSS requirements)
• Clarification between “security level” and “transport security level”

• Keep in mind:
  – The concept of a “graded approach” applies throughout document, such as in personnel training
  – Security requirements should be determined taking into account the result of the threat assessment
Consideration should also be taken where there is a possible conflict of safety and security measures during transport, such as placarding and labelling, route and mode selection; and information management. For example, if a State were to determine, based on an analysis of the threat and on an exceptional basis, to remove external hazard communication, compensatory measures should be applied such as escorting personnel who can provide information on the nature and hazards of the material to emergency response. For example, when escorting personnel can provide emergency response and are aware of the nature and hazards of the material, external hazard communication may not be necessary on an exceptional basis. Solutions to potential conflicts such as these should be assessed and approved by the regulatory bodies responsible for transport safety and security.

It is important for safety that the packaging and transport be clearly labelled as hazardous, so as to reduce the likelihood of an error due to a lack of information about the contents. However, this labelling would also provide a potential adversary with information that could assist the adversary in performing a malicious act.
The State may consider identifying materials and objects that it deems to be sufficiently unsuitable for use in a malicious act that they can be assigned to the basic transport security level when transported within the State. Further, understanding the wide range of radioactive materials which may be included in the basic security level, the State may wish to consider, for domestic transport, defining subcategories within the basic security level with regard to material activity and attractiveness to potential adversaries (discussed in Section 3.x) and assigning appropriate security measures to these subcategories based on a graded approach.
Committee Reviews

• Coordination Committee  Sep 2016
• NSGC (approved)  14-18 Nov 2016
• TRANSSC (approved)  14-18 Nov 2016
• RASSC  21-23 Nov 2016
• EPReSC  28 Nov 2016
For NSGC Decision:

• Following incorporation of Member State and committee comments, the Secretariat is seeking your approval:
  – for submission of NST044 to DDG-NS for publication
## Timeline

<table>
<thead>
<tr>
<th>STEP</th>
<th>Description</th>
<th>Date</th>
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<tbody>
<tr>
<td>7</td>
<td>Approval of draft by the Coordination Committee</td>
<td>Q3 2015</td>
</tr>
<tr>
<td>8</td>
<td>Approval by the relevant review Committees for submission to Member States</td>
<td>Q4 2015</td>
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<tr>
<td>9</td>
<td>Soliciting comments by Member States</td>
<td>Q1, Q2 2016</td>
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<td>10</td>
<td>Addressing comments by Member States</td>
<td>Q2 2016</td>
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<td>11</td>
<td>Approval of the revised draft by the Coordination Committee</td>
<td>Q3 2016</td>
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<tr>
<td>12</td>
<td>Approval by the relevant review Committees</td>
<td>Q4 2016</td>
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<tr>
<td>13</td>
<td>Endorsement by the CSS</td>
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<tr>
<td>14</td>
<td>Establishment by the Publications Committee and/or Board of Governors</td>
<td></td>
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<tr>
<td>15</td>
<td>Target publication date</td>
<td>Q4 2017</td>
</tr>
</tbody>
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Thank you!
Major Issue: Consider security-based categorization

• CM discussed existing categorization of radioactive material
  – Experts shared experiences in analyzing the existing list of radionuclides and threshold values in the Code of Conduct, in devising new security based categorization
  – No examples of MS applying a purely security based categorization were identified
  – Recognition that existing categorization consider security scenarios
Major Issue: Consider security-based categorization (cont’d)

• Current categorization is a suitable starting point for establishing security levels and objectives
• Recognition that depending on a State’s national threat assessment, different/additional scenarios may be considered
• CM agreed that primary users of NSS 9 are States in the process of establishing regulations for the security of radioactive material in transport
• Current NSS 9 in use since 2008 and many States have established or are establishing regulations based on existing framework
• Recommendation not to change the existing categorization