Joint session of the 42nd Meeting of the Radiation Safety Standards Committee and 43rd Meeting of the Waste Safety Standards Committee
14 June 2017

Agenda Item: RW5.2
Title of Presentation: DPP DS505 on Source Monitoring, Environmental Monitoring, and Individual Monitoring (Revision of RS-G-1.8)

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Justification

• A Consultancy Meeting (CS) was held from 14-18 March 2016 to conduct a review of RS-G-1.8 on *Environmental and Source Monitoring for Purposes of Radiation Protection* and to determine whether it should be revised.

• In the Feedback Analysis Report, it was recommended that RS-G-1.8 should be revised for the following reasons:
  – *Consistency with current Safety Standards*
    • Usage of terminology
    • Need to capture the concept of the three exposure situations
  – *More guidance is needed on*
    • Planning and implementing monitoring
    • Use of monitoring data to assess doses to the public and flora and fauna (as required based on national requirements)
    • Development of harmonized monitoring programmes that demonstrate protection of people and the environment
    • Application of the graded approach
    • Reporting requirements
    • Data management and quality management
  – The section on responsibilities should cover jurisdictional overlap, concept of “single window of reporting”, etc.
  – To address the responsibilities of different parties to communicate and consult with interested parties
Objectives of the update of RS-G-1.8 (DS505)

Provide guidance

• On the planning and implementation of characterization and monitoring to verify compliance with regulatory requirements
• To support protection of people and the environment
• On the use of source, environmental and individual monitoring
  – for the purposes of assessment of radiological impacts to the public and the environment,
  – in accordance with relevant IAEA Safety Standards (e.g. GSR Part 3, Part 7).

Target Audience

• Regulatory bodies, operating organizations, decision-makers and others responsible for
  – developing monitoring strategy
  – planning and implementing source, environmental, and individual monitoring
  – interpreting monitoring data in relation to planned, existing or emergency exposure situations.
Scope of the update of RS-G-1.8 (DS505)

- All facilities and activities over the different stages of their lifetimes
- Characterization and monitoring for planned, emergency and existing exposure situations
  - Application of the graded approach to identify the appropriate level of characterization and monitoring
  - Source and environmental monitoring of discharges for authorized facilities and activities
  - Source, environmental and individual monitoring for unplanned and uncontrolled releases
  - Individual monitoring of members of the public in emergency and existing exposure situations
- Interpretation of results, including those for dose assessment.

Out of Scope:

- Monitoring
  - of non-radiological contaminants or physical stressors
  - of workers and the workplace
  - of emergency workers and helpers
  - for the purposes of protection of patients
  - of disposal facilities (addressed in SSG-31)
- Characterization and monitoring for nuclear security purposes

Interfaces with other Review Committees:

- WASSC (lead committee), EPRSc, NUSSC, RASSC
Interfaces with Existing and/or Planned Publications

Existing Publications:

• Governmental, Legal and Regulatory Framework for Safety (GSR Part 1, Rev. 1) [2016]
• Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (GSR Part 3) [2014]
• Safety Assessment for Facilities and Activities (GSR Part 4, Rev. 1) [2016]
• Decommissioning of Facilities (GSR Part 6) [2014]
• Preparedness and Response for a Nuclear or Radiological Emergency (GSR Part 7) [2015]
• Application of the Concepts of Exclusion, Exemption and Clearance (RS-G-1.7) [2004]
• Monitoring and Surveillance of Near Surface Waste Disposal Facilities (SSG-31) [2014]
• Radiation Safety for Consumer Products (SSG-36) [2016]
• Safety of Nuclear Power Plants: Design (SSR-2/1, Rev. 1) [2016]
• Safety of Nuclear Power Plants: Commissioning and Operation (SSR-2/2, Rev. 1) [2016]
• Review and Assessment of Nuclear Facilities by the Regulatory Body (GS-G-1.2) [2002]
• Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency (GSG-2) [2011]
• The Safety Case and Safety Assessment for the Predisposal Management of Radioactive Waste (GSG-3) [2013]
• Dispersion of Radioactive Material in Air and Water and Consideration of Population Distribution in Site Evaluation for Nuclear Power Plants (NS-G-3.2) [2002]
• Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material (TS-G-1.2 (ST-3)) [2002]
• Release of Sites from Regulatory Control on Termination of Practices (WS-G-5.1) [2006]
Interfaces with Existing and/or Planned Publications

Planned and currently being developed publications

• Prospective Radiological Environmental Impact Assessment for Facilities and Activities (DS427)
• Radiation Protection of the Public and the Environment (DS432)
• Regulatory Control of Radioactive Discharges to the Environment (DS442)
• Management of Radioactive Residues from Uranium Production and Other NORM Activities (DS459)
• Communication and Consultation with Interested Parties by the Regulatory Body (DS460)
• Remediation Process for Areas Affected by Past Accidents and Activities (DS468)
• Arrangements for the Termination of a Nuclear or Radiological Emergency (DS474)
• Site Evaluation for Nuclear Installations (DS484)
• Update to Arrangements for Preparedness for a Nuclear or Radiological Emergency (GS-G-2.1) [2007] (DS504)

(and others due to the cross-cutting nature of source monitoring and environmental monitoring)
1. INTRODUCTION
   1.1 Background
   1.2 Objective
   1.3 Scope
   1.4 Structure

2. REQUIREMENTS FOR MONITORING
   2.1 Legal and regulatory framework
   2.2 Monitoring needs for different exposure situations

3. RESPONSIBILITIES FOR MONITORING
   3.1 Responsibilities of the government
   3.2 Responsibilities of the operating organization
   3.3 Responsibilities of the regulatory body
   3.4 Responsibilities of other agencies

4. BASIC CONCEPTS RELEVANT TO MONITORING
   4.1 General types of monitoring (source monitoring, environmental monitoring, and individual monitoring)
   4.2 Fit-for-purpose monitoring and surveillance (e.g., routine monitoring, follow up monitoring, monitoring for root cause analysis)
   4.3 Human receptors and exposure pathways
   4.3 Ecological receptors and exposure pathways
5. PLANNING A MONITORING PROGRAMME

5.1 Setting objectives
5.2 Background information to support development of a monitoring programme
5.3 Development of a monitoring programme
5.4 Sample collection and field measurements
5.5 Laboratory sample analysis
5.6 Data storage and management
5.7 Quality and uncertainty management
5.8 Data analysis, assessment, and interpretation, and reporting
5.9 Review of monitoring strategy and programme and consultation with interested parties
5.10 Evaluation and redesign
5.11 Training of personnel
Proposed Structure

6. PLANNED EXPOSURE SITUATIONS
   6.1 Goals and objectives for monitoring
   6.2 Considerations for monitoring
   6.3 Considerations for dose assessment
   6.4 Interpretation, reporting, and communication of monitoring results
   6.5 Uncertainties in monitoring and dose assessment

7. EMERGENCY EXPOSURE SITUATIONS
   7.1 Goals and objectives for monitoring
   7.2 Considerations for monitoring
   7.3 Considerations for dose assessment
   7.4 Interpretation, reporting, and communication of monitoring results
   7.5 Uncertainties in monitoring and dose assessment

8. EXISTING EXPOSURE SITUATIONS
   8.1 Goals and objectives for monitoring
   8.2 Considerations for monitoring
   8.3 Considerations for dose assessment
   8.4 Interpretation, reporting, and communication of monitoring results
   8.5 Uncertainties in monitoring and dose assessment
Proposed Structure

REFERENCES

DEFINITIONS [as required]

POSSIBLE ANNEXES AND APPENDICES:

- How to design a monitoring strategy, including a template
- How to design a monitoring program
- Relationship between characterization and monitoring
- Relationship between monitoring and modelling
- Example to select the representative person in the three types of exposure situations
- Regulatory instruments associated with characterization and monitoring
- List of relevant references to complement DS505
### 8. PRODUCTION SCHEDULE:

Provisional schedule for preparation of the document, outlining realistic expected dates for each step:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Date</th>
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<tbody>
<tr>
<td>1.</td>
<td>Preparing a DPP</td>
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<tr>
<td>2.</td>
<td>Approval of DPP by the Coordination Committee</td>
<td>Q1 2017</td>
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<td>3.</td>
<td>Approval of DPP by the relevant review Committees</td>
<td>Q2 2017</td>
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<td>4.</td>
<td>Approval of DPP by the CSS</td>
<td>Q4 2017</td>
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<td>5.</td>
<td>Preparing the draft, Indicate as to whether a TM is expected to be organized for the preparation of the draft</td>
<td>Q4 2017 – Q2 2019 (TM Q1 2019)</td>
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<td>6.</td>
<td>Approval of draft by the Coordination Committee</td>
<td>Q2 2019</td>
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<td>7.</td>
<td>Approval by the relevant review Committees for submission to Member States for comments</td>
<td>Q2 2019</td>
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<td>8.</td>
<td>Soliciting comments by Member States</td>
<td>Q2/Q3 2019</td>
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<td>9.</td>
<td>Addressing comments by Member States</td>
<td>Q4 2019</td>
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<td>10.</td>
<td>Approval of the revised draft by the Coordination Committee, Review in NS-SSCS</td>
<td>Q1 2020</td>
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<td>11.</td>
<td>Approval by the relevant review Committees</td>
<td>Q2 2020</td>
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<td>12.</td>
<td>Endorsement by the CSS</td>
<td>Q4 2020</td>
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<td>13.</td>
<td>Establishment by the Publications Committee and/or Board of Governors (for SF and SR only)</td>
<td>Q1 2021</td>
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<td>14.</td>
<td>Target publication date</td>
<td>Q4 2021</td>
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Comments and Resolutions

• 71 comments were received from 14 Member States and 1 International Organisation
  – Australia, Canada, France, Iran, Israel, Japan, Lithuania, Pakistan, Romania, Russian Federation, South Africa, United Arab Emirates, United Kingdom and United States of America.
  – International Commission on Radiation Units and Measurements (ICRU).

• 70 comments (99%) were accepted/accepted with modification.
  – Text has been updated in the draft DPP and “blackline” version has been posted.

• 1 comment (1%), related to which committee (RASSC or WASSC) should serve as lead for DS505
  – Flagged for discussion at the joint RASSC/WASSC session.

• No comments (0%) were rejected.
Comments and Resolutions

- Comments suggested restructuring of DS505, for example, to avoid repetition and to ensure all relevant topics are covered.
  - DS505 has been restructured, taking account of comments and adding new sections, as appropriate.

- Comments suggested rewording for clarification or were editorial in nature.
  - DS505 was reworded, taking account of comments.

- It was suggested that additional references be made to include relevant documents and reports.
  - An appendix will be included in DS505, listing relevant references to complement DS505.

- There were suggestions to reword the title of DS505.
  - It is accepted that it may be necessary to change the title and adjustments will be made, as necessary, during the development of DS505. For now, a title that is similar to that of RS-G-1.8, but that includes individual monitoring, has been maintained.

- All comments have been systematically reviewed and addressed, as indicated in the “blackline” version of the DPP, which has been posted.
Questions Raised:

- EPReSC, recognizing the cross-cutting nature of DS505, is interested in the process of development of DS505 to ensure consideration of all relevant perspectives.
- EPReSC requested confirmation that protection of patients is out-of-scope.

Outcome:

- EPReSC approved the DPP for DS505 on *Source Monitoring, Environmental Monitoring, and Individual Monitoring (Revision of RS-G-1.8)*, so that revision of RS-G-1.8 can be initiated.
A decision is needed regarding the Lead Committee for the development of DS505 (WASSC or RASSC).

It is kindly requested that RASSC and WASSC approve the DPP for DS505 on Source Monitoring, Environmental Monitoring, and Individual Monitoring (Revision of RS-G-1.8), so that revision of RS-G-1.8 can be initiated.
Acknowledgement

Thank you to Mr Gerhard Proehl, Mr Vladimir Kutkov and Mr Phillip Vilar-Welter for their inputs in support of addressing Member State comments on the DPP for DS505.
Thank you!