INTERNATIONAL ATOMIC ENERGY AGENCY

DIVISION OF RADIATION, TRANSPORT AND WASTE SAFETY

Radiation Safety Standards Committee (RASSC) – Thirty-ninth Meeting
and
Waste Safety Standards Committee – Fortieth meeting

4-5 November 2015

IAEA HEADQUARTERS, VIENNA, AUSTRIA

CHAIRMANS’ REPORT
Radiation Safety Standards Committee (RASSC) – Thirty-ninth Meeting and Waste Safety Standards Committee (WASSC) - Fortieth Meeting

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MINUTES

RW1. OPENING OF THE JOINT SESSION

RW1.1. Opening of the Meeting

The meeting was opened by Mr P. Johnston, the newly appointed Director of the Division of Radiation, Transport and Waste Safety (NSRW). Mr Johnston welcomed the new Deputy Director General for the Department of Nuclear Safety and Security, Mr J.C. Lentijo, who was also present. Mr Johnston noted that both RASSC and WASSC have a long history of working closely together and that this has been highly effective in ensuring wide discussion and, as a result, a high quality of safety standards.

Mr Johnston updated the Committees on actions taken following the Fifth Review Meeting of the Joint Convention. During the recent IAEA General Conference, the President of the Joint Convention held meetings with potential Contracting Parties and discussed the problems and impediments they foresaw in accessing the Convention. In addition, arrangements for a Topical Meeting on the disposal of spent fuel or radioactive waste in a country other than the one in which it is produced, have been initiated.

As part of ongoing efforts to promote the Joint Convention, in early October 2015 the Secretariat organized, in conjunction with South Africa and other Contracting Parties, a Regional Meeting to discuss the current status of radioactive waste management in the region, on the potential benefits for those countries in becoming Joint Convention Contracting Parties, and on their main difficulties for their accession.

Immediately prior to this joint meeting of RASSC and WASSC, the Agency organized, jointly with the Nuclear Energy Agency, a Technical Meeting to discuss three issues of topical interest:

- contaminated commodities in international trade;
- remediation of legacy sites; and
- optimization of protection and safety in activities involving occupational exposure to NORM.

The different viewpoints of regulators, industry representatives and consumer groups were presented and discussed. Mr Johnston thanked the NEA for their support in organizing the meeting.

Mr Johnston referred to three safety guides dealing with protection of the environment, underlining the importance of this issue and the increasing attention it is receiving in many Member States. He thanked the United Nations Environment Programme (UNEP) for their support in the development of the documents. Mr Johnston highlighted the benefits of joint sponsorship of IAEA safety standards and indicated that one of his priorities will be to further strengthen the effective working relationships that already exist with other International Organizations in the field of radiation safety. Mr Johnston thanked all participants for their interest in and support for the work of the Agency.

Mr Lentijo introduced himself to the Committees. Prior to taking over as DDG on 1st October 2015, he was Director of the Division of Nuclear Fuel Cycle and Waste Technology in the Department of
Nuclear Energy. Previously, he spent many years as the Director of Radiation Protection at the Consejo de Seguridad Nuclear in Madrid, Spain. Given his background, he is very familiar with the work of both RASSC and WASSC, whom he thanked for their contribution to the work of the Agency. He underlined the role of the IAEA in listening to and serving the needs of its Member States, stressing that the development and implementation of safety standards is essential in that regard.

Mr Lentijo passed to the Chairmen for the joint session, Mr G. Massera (RASSC) and Mr G. Williams (WASSC).

**RW1.2. Chairmen’s Introduction**

The Chairmen congratulated Mr Lentijo and Mr Johnston on their recent appointments and thanked them for their opening remarks. They also welcomed all new and existing members and observers of RASSC and WASSC to the joint session.

**RW1.3. Adoption of the Agenda**

The agenda was approved and adopted without amendment.

**RW1.4. Administrative Arrangements**

The Scientific Secretaries drew attention to the location of the emergency exits, introduced the administrative support staff for the meeting and summarized the administrative arrangements. The Secretariat noted that a photograph would be organized during the morning coffee break.

**RW2. GENERAL SAFETY STANDARDS ISSUES**


Mr D. Delattre provided an update on the development of the IT platform to be used in the future as part of the review and revision process for both safety standards and nuclear security series documents. The presentation updated information provided at the two previous meetings of the Committees in November/December 2014 and June 2015. Mr Delattre thanked Japan and the US for their financial support for the project.

Most of the current work in relation to safety standards focuses on the revision of existing safety standards. This means that systematic feedback on the application of safety standards, as well as the identification of gaps and/or inconsistencies, is becoming more important. In order to ensure greater consistency across the entire set of safety standards, it is also desirable to be able to update a number of different safety standards simultaneously.

The principal objectives of the new platform are:

1. To ensure that the review and revision of the publication in the SS and NSS Series is based on a systematic feedback collection and analysis process;
2. To ensure that any revision of the publications or part of the publications is justified by the above-mentioned feedback process, therefore also ensuring stability of the parts of the standards and guidelines that remain valid;
3. To maintain the technical consistency among the publications through management as a complete collection rather than by individual management of individual publications;
4. To enhance semantic consistency through systematic use of harmonized terminology;
5. To ensure the completeness of the collection through a systematic top-down development approach complemented by topical gap analyses; and
(6) To support harmonized use and application of the safety standards and nuclear security series publications by enhancing their user-friendliness and by providing tools for the users to easily navigate within the whole collection.

Mr Delattre demonstrated the functionality of the new system, including the use of metadata, the various search functions and the mechanisms for providing feedback. It is intended that the final system will be compatible with use on a desk-top, tablet and smart phone and will work with all browsers.

RASSC and WASSC welcomed the development of the IT platform, noting that the system’s strong functionality can greatly improve the review and revision process. It was also noted that this development represents a major step towards online publishing of safety standards and nuclear security series documents.

In response to questions from Australia, Sweden and the US, Mr Delattre noted that, at any one time, only the current version of any document will be available online. One set of accumulated comments will be available for viewing online and, once the revision process commences, one draft version will be provided to all Committees for comment. Use of the IT platform for Member States comment is not presently part of the design, but is being considered. Once a document is superseded, the earlier version will still remain available elsewhere on the IAEA website.

Ukraine raised the issue of terminology, in that some glossary terms will have different meanings in different contexts. As such, the Secretariat will need to take care to ensure that new concepts or definitions are changed throughout the full suite of documents. The ILO expressed its strong support for the new system and suggested the development of promotional tools and applications addressing implementation of the safety standards.

France considered that maintenance of the system will be challenging and was concerned that it may constrain the process of development of safety standards. Mr Delattre considered that this is unlikely, and that the new system may in fact speed up the process. The option will still exist to revise safety standards individually, but the possibility to revise several documents, or parts of documents, simultaneously with allow greater flexibility while also ensuring that updated safety standards are immediately available online.

In conclusion, Mr Delattre indicated that a minimum of an additional six months is required for further development of the system and it may be possible to start the roll-out during 2016.

**RW2.2 Update on the Establishment of the Emergency Preparedness and Response Standards Committee (EPReSC)**

Mr J. Lafortune summarized the process that led to the establishment of the Emergency Preparedness and Response Standards Committee (EPReSC). The standardized Terms of Reference for the Safety Standards Committees will also apply to EPReSC and its first meeting will take place from 30 November to 2 December 2015. Currently, 82 nominations of members and alternates have been received from Member States and eight International Organizations will attend as observers. The Chairperson of EPReSC will be announced in due course.

Mr Lafortune summarized the safety guides currently under development for which there is an interface with emergency preparedness and response and which will therefore need to be discussed and approved by EPReSC. The documents for which RASSC and WASSC are the lead committees are

**DS468: Remediation Process for Areas with Residual Radioactive Material (Step 5)**

**DS489: Storage of Spent Nuclear Fuel (Step 5)**
DS434: *Radiation Safety of Radioisotope Production Facilities* (Step 5)

DS470: *Radiation Safety of Radiation Sources used in Research and Education* (Step 5)

DS471: *Radiation Safety of X-ray Generators and Radiation Sources used for Inspection Purposes and for Non-Medical Imaging* (Step 7)

Mr Lafortune proposed that the lead responsibility for the following two safety guides, which currently resides with RASSC, be reassigned to EPReSC:

- DS474: *Arrangements for the Termination of a Nuclear or Radiological Emergency* (Step 5)
- DS475: *Arrangements for Public Communications in Preparedness and Response to a Nuclear or Radiological Emergency* (Step 5)

Both Chairmen congratulated Mr Lafortune on his appointment as Scientific Secretary to EPReSC and looked forward to ongoing cooperation with RASSC and WASSC.

RASSC agreed to the proposal to reassign lead responsibility for DS474 and DS475 to EPReSC, although it was noted that formal approval is required through the Interface Group.

**RW3. REVIEW OF IAEA SAFETY STANDARDS**

**RW3.1 Draft Safety Requirements: Leadership and Management for Safety (DS456)**

The WASSC Chairman reminded the meeting of the recent development and current status of DS-456, which is the last of the new General Safety Requirements series of documents to be completed and will replace the existing safety requirements from 2006 entitled *The Management System for Facilities and Activities* (GS-R-3).

Mr Williams recalled that, at the previous meetings of NUSSC, RASSC and WASSC in June/July 2015, the final draft text was not available in sufficient time to allow review by the Committees. The need to revise the text dealing with application of the graded approach across a range of facilities, and to the interface between safety and security, was identified. A Working Group meeting was subsequently held in October 2015 to address all remaining issues with the document. Mr Williams noted that the most recent draft text was posted on the Committees website on 27 October. From a procedural point-of-view, if the members of the Committees considered that substantive changes had been made to the draft document that was available in June 2015, then the Committees will need to decide if they have had sufficient time to review the text.

Ms H. Rycraft reported on the Working Group meeting which took place from 5 to 7 October 2015 and involved 20 experts nominated by the Committees. While the two requirements on leadership were merged, the requirements themselves have not been changed. All requirements have been reviewed in relation to the use of the graded approach and a number of changes made. A new section 6 “Assessment Measurement and Improvement” has been introduced. The final document is also more streamlined as some text on management considered more appropriate as guidance has been removed.

RASSC and WASSC welcomed the improvements made to the document but some concerns were expressed regarding the time available for review of the most recent draft. Finland, UK and the US commented on the graded approach, noting that the changes made have resulted in a requirements document that is more realistic to implement. However, the importance of developing guidance in relation to the graded approach was underlined. The meeting agreed that RASSC was in the best position to oversee the development of such guidance and the Secretariat was requested to initiate the process.
The WASSC Chairman underlined the importance of the document and that it seemed to be much improved from earlier drafts. However, he fully recognized the concerns about the time available for review. As this is a NUSSC-led document and the NUSSC meeting is scheduled for early December, it was agreed that any concerns of RASSC and WASSC members should be made known to their respective NUSSC members for discussion and resolution at the NUSSC meeting. This way of moving ahead without unnecessarily delaying an important high-level safety standard, but also allowing adequate opportunity to review the draft, was accepted and on that basis, RASSC and WASSC approved submission of DS456 to the CSS for endorsement.

**Action:** Subject to satisfactory resolution of comments at the NUSSC meeting, the Secretariat to submit DS456 to the CSS for endorsement.

**Action:** The Secretariat to prepare a proposal for the development of guidance on the application of the graded approach.

**RW3.2 Draft Safety Requirements: Safety of Research Reactors (DS476)**

Mr D. Sears introduced the document, which updates and replaces the existing safety requirements Safety of Research Reactors (NS-R-4). The scope of both documents remains essentially the same, but material deemed more appropriate to guidance has been removed. Sub-critical assemblies are now covered, and a section entitled “Preparation for Decommissioning” replaces the previous section on decommissioning. Relevant feedback from the Member States’ use of NS-R-4, the IAEA Incident Reporting System for Research Reactors (IRSRR) and the Fukushima Daiichi accident is incorporated in the revised document. The interface between safety and security is also addressed.

A total of 482 comments were received from 14 Member States together with a further 83 comments from the Committees. All were carefully considered and the majority were accepted. Material dealing with regulatory supervision, siting and management systems was revised. Those comments that either changed the scope of the document or were inconsistent with other safety standards were rejected.

The US considered that it was a much improved document, but felt that a number of its comments were not adequately addressed; dismissing proposed changes solely because they were not in line with the approved DPP was not an adequate response. However, the US indicated that it would defer to NUSSC on these issues. Mr Sears noted that he had already held direct discussions with the US in relation to their comments and was happy to do so again in advance of the NUSSC meeting.

There were no further questions or comments. RASSC and WASSC approved DS476 for submission to the CSS for endorsement.

**Action:** The Secretariat to submit DS476 to the CSS for endorsement.


Mr T. Boal introduced the draft safety guide, which is one of the three general safety guides supporting application of the requirements in the International Basic Safety Standards (GSR Part 3) with respect to the protection of the environment. DS432 applies to all facilities and all activities and covers all three exposure situations: planned, existing and emergency. Apart from the direct link to GSR Part 3, the safety guide also supports the implementation of requirements in Governmental, Legal and Regulatory Framework for Safety (GSR Part 1) and Preparedness and Response for a Nuclear or Radiological Emergency (GSR Part 7). Mr Boal summarized the structure and content of the document as well as the development process to date.
A total of 152 comments were received from 14 Member States. A revised text, together with the ‘resolution of comments’ table, was posted on the Committees website on 15 September 2015. Subsequently a further 20 comments were received from members of the Committees. Most of the comments were editorial in nature. One comment was received to the effect that the title is too general as not all aspects of protection of the environment are addressed; the proposal to change the title to “Protection of the Public and the Environment from Radiation Exposure” has been accepted. Mr Boal noted that a final decision on the title is normally made by the technical editors.

The WASSC Chair noted that DS432 was only one of three safety guides addressing different aspects of the environment and that it was important that the three were internally consistent. As such, the later discussions on the draft safety guides Regulatory Control of Radioactive Discharges to the Environment from Facilities and Activities (DS442) and A General Framework for Prospective Radiological Environmental Impact Assessment and Protection of the Public (DS427) may necessitate additional changes to DS432.

Ukraine noted that the concepts of exemption and clearance have been developed for use in planned exposure situations and questioned if, and how, these can be applied in existing exposure situations. Mr Boal suggested that this issue be discussed under agenda item RW7.1: Proposal to Review the Safety Guide: Application of the Concepts of Exclusion, Exemption and Clearance (RS-G-1.7). Australia and the US spoke in support of progression of the document.

RASSC and WASSC accepted the argument for amending the title of the document and approved the draft safety guide for submission to the CSS for endorsement.

**Action:** The Secretariat to submit DS432 to the CSS for endorsement.


Mr D. Telleria noted that the draft safety guide, which is one of the set of safety guides being developed considering protection of public and the environment (i.e. DS432, DS427 and DS 442), applies only to planned exposure situations, and summarized the work undertaken to date as part of its development. Extensive discussion took place with the Committees and many issues were resolved before the document was sent to Member States for comment.

Mr Telleria discussed the feedback provided by Member States and the Committees, noting that 115 out of 140 technical comments from 15 Member States and one international organization have been accepted. After the comments were incorporated and the Committees provided additional feedback, 10 out of 13 comments were accepted. He noted that the guide has improved significantly thanks to the comments received. Mr Telleria referred to the impact of the Vienna Declaration on the text: section 5 has been amended to reflect the assessment and constraint of potential exposures that may result from accidents.

Some late comments were received and, while these have been considered and accepted as appropriate and the tables of resolution was uploaded to the web, they have not yet been incorporated into the current version of the document. Some of the comments will need to be discussed with NUSSC. All agreed changes will be included in the final version of the text, which will be reviewed by the technical editors before being submitted to the CSS. At this stage in the development of the safety guide, Mr Telleria noted that there is general consensus in the use of the graded approach to assess prospectively the radiological impact of a wide range of installations. Consistency with other safety standards, and with DS432 and DS442 in particular, has been ensured.

Mr Telleria summarized the outstanding technical issues and the Committees agreed the following:
(1) the title of the document should be changed to Prospective Radiological Environmental Impact Assessment for Facilities and Activities;

(2) characterization of environmental atmospheric and aquatic dispersion processes should be based on data covering a period of ‘at least three to five years’, rather than ‘at least one year’ (as is currently in NS-G-3.2); and

(3) the examples of national regulations in Annex 3 should be deleted but used as the basis for developing a TecDoc.

Australia considered that Annex 1 on assessment of doses to flora and fauna was particularly useful and indicated that it would be providing additional comment on inconsistencies in the suite of three documents (DS427, DS432 and DS442) dealing with the environment.

Ukraine noted the recent discussion on effective dose within the ICRP and the proposal to abandon equivalent dose as a protection quantity. It was agreed that it is still appropriate to use organ doses as a basis of protection and that the use of effective/equivalent doses will need consideration in relation to future safety standards.

RASSC and WASSC approved DS427 for submission to the CSS for endorsement.

Action: The Secretariat to update the text in line with decisions made at the meeting and submit DS427 to the CSS for endorsement.

RW3.5 Draft Safety Guide: Regulatory Control of Radioactive Discharges to the Environment from Facilities and Activities (DS442)

Mr D. Telleria presented the document, which will replace the existing safety guide Regulatory Control of Radioactive Discharges to the Environment (WS-G-2.3) published in 2000. Since then, there have been important international developments in the management of environmental discharges that need to be reflected in guidance.

The new safety guide, which is aimed at governments, regulatory bodies and operators, provides a structured and graded approach to control exposures resulting from discharges. It discusses the use of Best Available Technology (BAT), as currently used by many Member States, in applying the principle of optimization. NORM discharges in the nuclear fuel industry and in non-nuclear industries are also discussed. The optimization of protection of the public is considered as a part of the full process of optimization of protection and safety. The document also discusses the process of establishing dose constraints for different types of facilities, underlining their use as part of the optimization process and not as subsidiary dose limits.

Mr Telleria discussed the comments received from Member States and from the Committees. A total of 380 comments were received from 18 Member States and one international organization on the document. Of these 326 were accepted. A further 37 comments were received from the Safety Standards Committees, of which 35 were accepted. Some late comments were also received from Pakistan and a proposal to amend para. 5.17 has been accepted.

The Committees agreed with comments from Finland and the US that the use of delay tanks to control releases of Tc-99 from medical facilities to the environment was not necessarily justified. As such, Tc-99 should be deleted from the list of radionuclides ‘needing special consideration’ (para. 5.43).

In relation to para. 4.21, it was agreed to move the text to the section dealing with optimization and, in addition, to accept the proposal from Japan to delete the sentence ‘however, it is recognized that if further reductions can be made easily with little or no cost then they should be made’. It was also
agreed to accept Japan’s proposal to amend Figure 2 dealing with different stages in the development of discharge limits for complex facilities. Japan proposed to add the option to revise discharge limits during the process of decommissioning if necessary.

There was extensive discussion on the section of the text dealing with the establishment and use of dose constraint. Ukraine noted that (1) exemption of the discharge does not imply exemption of the facility or activity and this point needs to be underlined; and (2) one might wish to authorize the discharge even if individual doses are expected to be below the exemption criteria. The text will be modified to clarify the use of dose constraints when authorizing discharges from facilities. France considered that exemption should not block the process of optimization: to do so would be contrary to the System of Radiological Protection and be inconsistent with current practice. It was therefore agreed to delete reference to ‘exemption criteria’ in para. 5.41, and to provide some clarification of the text with regard to exemption in the regulatory system.

On the same issue, while there were some contrary arguments, it was agreed that it would be useful to retain a minimum value of dose constraint to be used in the process of optimization. It was considered that if upper and lower values are provided, there is still sufficient flexibility for Member States to establish appropriate national values of dose constraints for individual facilities. To support this, it was agreed to maintain the value “of the order of 10 µSv in a year” as the lower bound for optimization but remove the link between 10 µSv and ‘exemption level’ and ‘exemption criteria’ in para. 5.22. The new text will now read:

“5.22 The dose constraint, set for a single source, should be expressed in terms of annual effective dose; it should be below the limit set for the effective dose to public in planned exposure situations from all regulated sources (e.g. 1 mSv per year as required in GSR Part 3), and higher than a dose of the order of 10 µSv in a year. Therefore, in practical terms, dose constraints are likely to fall within the range of 0.01 to <1 mSv per year.”

Additionally, the US highlighted the need to reflect the possibility that a national regulator establish additional restrictions to the discharges for particular activities and facilities. This issue was resolved by incorporating the following footnote at the end of para. 5.22:

“Footnote: The regulatory body may determine what additional restrictions, if considered necessary, are required to ensure that the dose limits specified in GRS Part 3 for the public in planned exposure situations are not exceeded owing to possible combination of doses from exposures due to different authorized practices”.

The new wording of paragraph 5.22 and the additional footnote was accepted by the Committees.

It was also agreed to include text stating that agreement could be reached to allow revision of discharge limits during decommissioning, if necessary.

Subject to these changes, RASSC and WASSC approved submission of DS442 to the CSS for endorsement.

**Action:** The Secretariat to update the text in line with decisions made at the meeting and submit DS442 to the CSS for endorsement.


Mr K. Moeller introduced the draft safety guide, which is a revision of Management of Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education (WS-G-2.7), first published in 2005. DS454 is one of the three safety guides supporting the safety...
requirements *Predisposal Management of Radioactive Waste* (GSR Part 5). Mr Moeller summarized the development of the document, the DPP for which was approved in 2011.

The draft text received 108 comments from Member States with the majority identifying editorial issues or seeking further clarification. Mr Moeller discussed the major changes made in light of the comments which included removing general text in the section on environmental protection and ensuring consistency with DS442 and DS427. Within Section 4 of DS454, the subsection on Discharge or Release of Radioactive Materials to the Environment was brought in line with DS442, and the subsection on Generation of Radioactive Waste from Accidents or Incidents added references to the safety guides GS-G-2.1 and GSG-2 on emergency preparedness. Section 7 on management systems was brought in line with other IAEA documents on predisposal waste management and checked for consistency.

The US welcomed the document, noting that it was of a very high quality, and underlined the importance of using a graded approach in developing a safety case for small facilities. The US proposed the possibility of a safety evaluation report instead of a safety case for very small facilities. It was agreed that this could be covered by using a graded approach.

There were no further comments. RASSC and WASSC approved submission of DS454 to the CSS for endorsement.

*Action: The Secretariat to submit DS454 to the CSS for endorsement.*

**RW3.7 Draft Safety Guide: Establishing a National Radiation Safety Infrastructure (DS455)**

Mr T. Hailu introduced the draft safety guide, which provides guidance on the application of IAEA safety standards for establishing or strengthening the national radiation safety infrastructure. It is focussed specifically on providing Member States in the early phases of establishing radiation safety infrastructure with a roadmap towards building a sound infrastructure in radiation safety. Because of its broad nature, the document has interfaces with many safety requirements and safety guides as initially described in the DPP.

The document was developed through four Consultants’ Meetings between 2011 and 2013, taking into account experience gained from the implementation of Model Project on upgrading radiation safety infrastructure. Account was taken of the experience of countries that have recently gone through the process of establishing safety infrastructure, countries that have been providing assistance to other countries in establishing a radiation safety infrastructure and national experiences in the regulation of radiation sources containing a wide range of different radionuclides and activity concentrations.

A total of 111 comments were received from ten Member States, of which 59 were editorial in nature and 52 were technical. Of these, 74 were accepted either in full or in modified form. The revised text and resolution of comments table were posted on the Committees’ website in advance of the meeting.

There were no questions or comments from the Committees and DS455 was approved for submission to the CSS for endorsement.

*Action: The Secretariat to submit DS455 to the CSS for endorsement.*

**RW 3.8 Draft Safety Guide: Establishing the Safety Infrastructure for a Nuclear Power Programme (DS486)**

Mr T. Kobetz introduced the draft safety guide, which is a revision of the current SSG-16 published in 2011. The current safety guide covers activities of the government, regulatory body and operator
and is used widely by embarking countries in the development of nuclear power programmes using a systematic and phased approach to implement the relevant requirements in the safety standards. The updated safety guide reflects lessons learnt from the Fukushima Daiichi accident as well as feedback from the use of SSG-16 in IRRS missions, workshops and other activities. There is no intention to change the structure, the approach or the scope currently contained in SSG-16.

A total of 179 comments were received from the Committees, of which 156 were accepted. The majority of comments that could not be accepted were either outside the scope of the document or were inconsistent with other safety standards.

In response to a question from the Russian Federation, Mr. Kobetz confirmed that the text dealing with environmental protection addresses only those aspects related to radiological impacts.

RASSC and WASSC approved DS486 for submission to Member States for comment.

**Action:** The Secretariat to submit DS486 to Member States for comment.

**RW3.9 Draft Safety Guide: Operating Experience Feedback for Nuclear Installations (DS479)**

Mr. G. Prohaska (NSNI) introduced the draft safety guide, which revises and extends the current safety guide *A System for the Feedback of Experience from Events in Nuclear Installations* (NS-G-2.11). NS-G-2.11 was published in 2006 and, as such, predates the safety fundamentals SF-1 and many of the relevant safety requirements (GSR Part 1, SSR-2/2) and safety guides (GS-G-3.1, GS-G-3.5). Since 2006, many improvements have been made to operating experience (OE) processes as a result of lessons learned, use of and improvements in computer based tools, together with enhanced agreements in sharing operating experience information, both nationally and internationally.

The updated safety guide provides guidance for the establishment or enhancement of an OE feedback system from design to decommissioning of a nuclear installation at the operator, operating organization, regulatory, national and international levels. Observations and lessons learnt from the Fukushima Daiichi accident are also addressed. It brings together common elements that typically constitute an effective OE system, including consideration of low level events, near misses and best practice. Information from other relevant industries is also included.

Prior to the meeting, the Committees and observers provided in total 258 comments on the draft text, 30 of which came from a WASSC member and 27 of these were accepted. No significant issues were raised.

There were no questions or comments from the Committees and DS479 was approved for submission to the CSS for endorsement.

**Action:** The Secretariat to submit DS479 to Member States for comment.


Mr. I. Gusev presented both draft safety guides in parallel. He described the development process to date, noting that at the time of approval of the DPPs, the description of the interface between safety and security was identified as a key component of each document. Consequently, all of the text dealing with the safety-security interface is included in one section.

Mr. Gusev reminded the Committees of previous discussions and decisions in relation to the merging of both documents into one safety guide; it was decided that, as the target audience for each
document is different, the production of two separate safety guides was desirable. In making this decision, it was recognized that there was likely to be considerable duplication of the text.

Following resolution of comments received from Member States, the Committees provided a further 69 comments on DS419, of which 67 were accepted. Most of these were considered editorial in nature. In the case of DS420, a further 38 comments were received from members of the Committees, of which 34 were accepted. Mr Gusev noted that a request from Israel to change the title of both documents had been discussed with the technical editors but, for consistency with other similar safety guides, this could not be accepted.

The US noted that its request to incorporate more topic-specific technical detail in relation to the regulation of the different practices described in the two documents had not been accepted. It considered that the use of generic text was not helpful to the end-users. This view was supported by the WASSC Chair, who noted that both safety guides are important for countries where both the regulatory body and particularly the operator may have limited resources. It is therefore important to include as much practice-specific information as possible. Australia also indicated its support for the US position and that it would like to provide additional text for inclusion in both documents.

The Committees noted that the revised text and resolution of comments had not been posted on the RASSC website in advance of the meeting. These were subsequently posted later the same day to allow them to be reviewed by the Committees. When the discussion resumed the following day, the Secretariat indicated that it was proposing to withdraw both draft safety guides so that they could be improved in line with the comments received from the Committees. Both Australia and the US welcomed this decision and committed to working with the Secretariat to make the texts more practice-specific.

**Action:** The Secretariat to further revise DS419 to include text that is specific to well logging.

**Action:** The Secretariat to further revise DS420 to include text that is specific to nuclear gauges.

**RW4** DOCUMENT PREPARATION PROFILE FOR APPROVAL

**RW4.1 Revision of Safety Requirement SSR-6 on Regulations for the Safe Transport of Radioactive Material (DS495)**

Ms N. Capadona (TSU/NSRW) presented the DPP for the revision of Safety Requirement SSR-6 on Regulations for the Safe Transport of Radioactive Material (DS495). It was noted that DS495 will be a revision of SSR-6 with a scope applying to the transport of radioactive material by all modes on land, water or air. Transport comprises all operations and conditions associated with and involved in, the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, and loading, carriage including in-transit storage, unloading and receipt at the final destination of loads of radioactive material and packages. DS495 is reviewed on a two year cycle and involves proposals for change from Member States.

It was noted that approximately 11 other safety standards have direct interface with SSR-6. These include, inter alia, the safety guides SSG-26 Advisory Material for the Regulations for the Safe Transport of Radioactive Material and TS-G-1.3 Radiation Protection Programmes for the Transport of Radioactive Material. In addition to the Safety Standards, several Security Series publications have direct interface with SSR-6. These include: IAEA Nuclear Security Series 9 Security of Radioactive Material in Transport (under revision by NST044), Series 13 Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities, Series 14 Nuclear Security Recommendations on Radioactive Material and Associated Facilities, and Series 26-G Security of Nuclear Material in Transport.
Ms Capadona clarified that TRANSSC is currently discussing the necessary changes to the requirements, noting that no changes were made during the last review cycle. Iran considered that the transport regulations are being revised too frequently and as a consequence there is a lack of stability that is causing implementation problems for Member States. Iran added that in 2005 the IAEA Board of Governors underlined the importance of only revising safety standards when there are issues of safety significance; Ms Capadona considered that the determination of what changes are significant for safety is for TRANSSC to decide. The importance of the stability of safety standards was endorsed by the US and Mr Pinak undertook to raise this issue in in-house discussions. RASSC and WASSC asked that this concern be raised directly with TRANSSC in relation to the Transport Regulations.

Pending a decision by TRANSSC on the need to revise SSR-6, RASSC and WASSC approved the DPP for DS495 for submission to the CSS for endorsement.

**Action:** The Secretariat to submit the DPP for DS495 to the CSS for endorsement

**RW5. NUCLEAR SECURITY SERIES DOCUMENTS FOR CLEARANCE**

**RW5.1 Draft Implementing Guide: Security of Radioactive Material in Use and Storage and of Associated Facilities (NST048)**

Ms C. George presented the document, which is a revision of the Implementing Guide Security of Radioactive Sources published in 2009 as Nuclear Security Series No. 11. The document structure follows the structure of NSS No. 14, with content of existing NSS No. 11 where appropriate. In line with the decision of the NSGC in May 2013, NST048 should apply to all radioactive material, at all lifecycle stages, including use, storage and disposal. Ms George noted that the majority of comments received on the document were accepted and put forward several issues for discussion and clarification. These included the proposal to introduce language such as “…in accordance with national conventions and objectives” noting that this caveat is covered in the scope and therefore not introduced throughout. Also raised for discussion was the application of NST048 to nuclear material.

Ms George noted that the next steps are to receive NUSSC clearance, then seek and address comments from Member States, and then to receive approval of the draft by the NSGC and clearance from RASSC, WASSC and NUSSC. The target publication date is late 2016.

RASSC and WASSC cleared NST048 for submission to Member States for comment.

**Action:** The Secretariat to submit NST048 to Member States for comment.

**RW5.2 Draft Implementing Guide: Sustaining a Nuclear Security Regime (NST020)**

Ms R. Evans presented the Draft Implementing Guide: Sustaining a Nuclear Security Regime (NST020) for approval by the committees. The Implementing Guide provides guidance to States, competent authorities, authorized persons and other organisations with nuclear security responsibilities on the objectives and actions to sustain a nuclear safety regime. It was noted that if the nuclear security regime is to remain effective it needs to be sustained over time at both the national and operational levels and those different levels of the nuclear security regime need to work together in a consistent and complimentary manner.

It was also noted that this document was developed following DPP approval through a number of consultancy meetings and a technical meeting in the period 2013-2014. The document is broader than a sustainability programme (NSS No. 13) and provides guidance for sustainability of an entire
national nuclear security regime as contemplated in Essential Element 12 of the Nuclear Security Fundamentals (NSS No. 20).

RASSC and WASSC cleared NST020 for publication.

**Action:** The Secretariat to submit NST020 for publication.

**RW6**  
**NUCLEAR SECURITY SERIES DPPs FOR CLEARANCE**


Mr D. Dudenhoeffer presented on the Nuclear Security Recommendations: Computer Security: Appendices to NSS No. 13, No. 14, No. 15, NST057 requesting updates to the appendices of the document. The request for updates to the appendices stems from an effort to address the growing needs for cyber security considerations in nuclear security regimes in May 2013 by the NSNS to review the Nuclear Security Series Recommendations documents (NS 13, 14, and 15). These documents were individually evaluated as to potential considerations for additional computer security guidance.

He noted that this issue has been raised in several international conferences and technical meetings with varying proposals on the way forward. A separate recommendations document was previously rejected. Instead it was requested that a DPP be submitted to develop updates to the Appendices until such time that NSS 13, NSS 14 and NSS15 can be individually updated.

RASSC and WASSC cleared NST057 for further development.

**Action:** The Secretariat to proceed with development of NST057.

**RW7.**  
**SAFETY STANDARDS UNDER DEVELOPMENT**


Mr V. Ljubenov briefed the Committees on the outcome of an internal review of the Safety Guide RS-G-1.7 “Application of the Concepts of Exclusion, Exemption and Clearance”, published in 2004, noting that both the key related Safety Requirements documents Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (GSR Part 3) and Decommissioning of Facilities (GSR Part 6) have been revised in the meantime.

Mr Ljubenov noted that requirements on the application of the concepts of exemption and clearance are now included in GSR Part 3. The values of activity concentrations for radionuclides of artificial origin in bulk, derived using the concept of exemption, and also used as values for unconditional clearance (Tables 1 and 2 of RS-G-1.7), are also included in GSR Part 3. These activity concentrations are also incorporated in the EU Basic Safety Standards, which EU Member States are legally obliged to incorporate into national legislation. Thus much of the current content of the RS-G-1.7 is now incorporated in higher level documents.

Compared with the situation in 2004, there is now considerably more experience and international consensus on the clearance process and there is a need to provide additional guidance on issues such as the establishment of national regulations, planning of the clearance process, its organization and implementation, technical and safety implications; and necessary resources. The issue of conditional (specific) clearance also needs to be addressed. Furthermore, the existing safety standards do not address adequately clearance of liquid materials and clearance of building structures on the basis of surface contamination measurements.
One additional issue relates to trade in contaminated non-food commodities. Para. 5.8 of RS-G-1.7 states that “national and international trade in commodities containing radionuclides with activity concentrations below the values of activity concentration provided in Tables 1 and 2 should not be subject to regulatory control for the purposes of radiation protection”. The values in Tables 1 and 2 are established on the basis of the 10 µSv annual effective dose criterion. On the other hand, para. 5.22 of GSR Part 3 requires Member States to “establish specific reference levels for exposure due to radionuclides in commodities......which shall typically be expressed as, or based on, an annual effective dose to the representative person generally that does not exceed a value of about 1 mSv”.

The difference in dose criteria is explained by the fact that exemption has been developed for practices (now called planned exposure situations) while the criterion of 1 mSv/a in the BSS applies to existing exposure situations.

Taking into account the analyses presented above, the Secretariat presented three options for revision of RS-G-1.7:

(1) Separation of the waste (clearance) and radiation protection (exemption, commodities) aspects, through the development of two new documents;

(2) Revision, development of a single document to cover both aspects with the values in the tables to remain unchanged;

(3) Complete revision, development of a single document to cover both aspects, with exemption/clearance values subject to revision and values for clearance of contaminated surfaces and liquids to be developed.

Based on in-house discussions, the Secretariat considered that option 1 would be the most appropriate i.e. to supersede RS-G-1.7 with two new documents without opening the tables of activity concentrations for revision. These would entail development of a new safety guide on clearance of material and waste (to be managed by WASSC) and a safety report on radiation protection aspects covering both exemption and management of contaminated non-food commodities (to be managed RASSC). However, all options should be considered.

There was general agreement that the tables of exemption and clearance values should not be opened for revision at this time. This opinion was based on the fact that there was considerable difficulty in reaching consensus in the past and the values are now firmly established in the national legislation of many States and would be difficult to change. The EC strongly endorsed this position. IRPA noted that the exposure scenarios used to derive the activity concentrations tend to be highly conservative with the result that actual doses received are often only a small fraction of 10 µSv in a year. A summary of the statement from IRPA is attached as Annex 1.

RASSC and WASSC agreed that RS-G-1.7 should be reviewed and endorsed the development of additional guidance on the clearance process, including the development of activity concentrations for contaminated liquids and for surface contamination. The linking of exemption and trade in contaminated non-food commodities was seen as potentially problematic due to the different dose criteria that apply. It was noted that the application of an individual dose criterion of 10 µSv to commodities might be unaffordable, even though this might be the approach most acceptable to the public. It was noted that the issue of contaminated commodities had been highly sensitive in the past and was likely to be so again if opened for further discussion; the Secretariat was therefore advised to proceed with extreme caution.

France underlined the importance of developing the guidance on exemption, clearance and contaminated commodities in parallel so that inconsistencies could be avoided. Australia noted that natural radionuclides needed to be addressed in any future guidance and underlined that inappropriate values could result in some NORM industries becoming economically unviable.
Australia was also concerned that the derived values for exemption and clearance are applied as de facto limits and this is not appropriate. The UK noted the importance of clearance for re-use and Ukraine underlined the need to address concentration effects (e.g. when timber is burned, the radionuclides are likely to concentrate in the ash).

The Chair of WASSC summarized the discussion, noting the previous difficulties in approving RS-G-1.7. While the safety guide is far from perfect, it is now widely used by Member States. There is now significantly more consensus on issues related to clearance, but not in relation to contaminated commodities. The Committees agreed there was a need to develop additional guidance on the three issues of exemption, clearance and non-food commodities. The Secretariat was asked to consider all the points raised during the discussion and to prepare a detailed proposal for the next meetings of RASSC and WASSC, including drafts of possible DPPs to address the three issues in a consistent manner.

**Action:** The Secretariat to prepare a detailed proposal and draft DPPs for the revision of RS-G-1.7.

**RW7.2 Development of the Safety Guide: Arrangements for the Termination of a Nuclear or Radiological Emergency (DS474)**

Ms S. Nestoroska Madjunarova presented a status update on the development of the Safety Guide: *Arrangements for the Termination of a Nuclear of Radiological Emergency* (DS474).

The Safety Guide DS474 is intended to provide guidance and recommendations in relation to the respective Safety Requirements contained in GSR Part 7 (Requirement 18) and GSR Part 3 (Requirement 46) and to address the goal of emergency response in para 3.2 (i) of GSR Part 7 (“to prepare, to the extent practicable, for the resumption of normal social and economic activity”). The DPP was prepared in early 2013 and has been in the drafting stages throughout 2014-15. The objective of the Safety Guide is to provide guidance and recommendations to Member States on developing arrangements at the preparedness state to respond to a nuclear or radiological emergency in relation to the transition to either an existing exposure situation, or to a planned exposure situation, as appropriate, and the termination of the emergency.

A series of consultancy meetings, working groups and technical meetings have been held throughout 2014 and 2015 to develop and discuss drafts of the guide. The current draft of the Safety Guide includes the following sections: Introduction, Phases of a Nuclear or Radiological Emergency, Primary Objective and Prerequisites, Arrangements for the Transition Phase and an appendix on considerations for adjusting protective actions. A series of case studies and a list of factors to be considered in justification and optimization of protection strategies will be added in annexes.

Consultations on the draft will continue until the end of 2015 and beginning of 2016 with a draft to be prepared for submission to SSCs for first review in 2016.

**RW7.3 Development of the Safety Guide: Arrangements for Public Communications in Preparedness and Response for a Nuclear or Radiological Emergency (DS475)**

Mr J. Lafortune updated the Committees on the development of the Safety Guide: *Arrangements for Public Communications in Preparedness and Response for a Nuclear or Radiological Emergency* (DS475) on behalf of the technical officer Mr Meschenmoser. He noted that previous radiation emergencies have shown the need for provision of transparent, timely, clear and factually correct information. They have also demonstrated a need to effectively implement proactive actions and mitigate consequences of fear and psychological effects of radiation emergencies. So far no safety standards exist to help with this.
He noted that the Safety Guide DS475 will support GSR Part 7 and cover emergency public communications which are currently not extensively addressed in existing safety standards. DS475 will harmonize public communications arrangements in radiation incidents and emergencies whilst interlinking with IAEA operational documents under the two Emergency Conventions (the ‘Early Notification Convention’ and the ‘Assistance Convention’): IEComm (Operations Manual for Incident and Emergency Communication, 2012) and JPLAN (Joint Radiation Emergency Management Plan of the International Organisations, 2013). The document will provide guidance to Member States on how to develop arrangements for communicating with the public and the media as well as coordinating with all sources of official information in the response to a nuclear or radiological emergency. It will be applicable to a range of emergencies.

Moving forward, there will be consultancy meetings and a Technical Meeting in 2016 with the first draft for SSCs submission to be ready by 2017.

**RW7.4 Development of the Safety Guide: Management of Radioactive Residues from Uranium Production and Other NORM Activities (DS459)**

Mr Z. Fan (DRU/NSRW) presented an update on the development of the Safety Guide: *Management of Radioactive Residues from Uranium Production and Other NORM Activities (DS459)*. In June 2011, WASSC 31 concluded that the safety guide WS-G-1.2 (published in 2002) was to be revised in light of new requirements and developments and in 2011-12 WASSC 32 and CSS endorsed the DPP. He noted that there are many issues to address in the Safety Guide, including the inclusion of ‘in situ leaching’ as this has become a major process for resource recovery of uranium; the application of a risk-based approach and a graded approach to managing different residues, based on the wide range of activity levels in NORM residues; the regulation and management of mixed residues (i.e. containing radiological and non-radiological contaminants); the fact that there are differences among some Member States in their regulation of NORM, which may or may not include uranium and thorium mining and milling residues; and the fact that NORM residues can contain other contaminated objects.

The scope was discussed and Mr Fan noted that due to its scope and nature this is a complex safety guide and to address in-situ leaching (ISL) adequately, a specific safety document is being developed. It is expected that DS459 will be submitted to RASSC/WASSC at the next meeting.

**RW8. CLOSING OF THE MEETING**

**RW8.1 Conclusions of the Joint Session**

Mr G. Williams, Chair of WASSC thanked both Committees for their active participation in the meeting and for their valuable contribution to the discussions. Mr G. Williams and Mr P. Johnston, NSRW Director, also thanked and bid farewell to the outgoing WASSC Scientific Secretary Gabriela Siraky for her work and dedication to WASSC over the years. Mr G. Massera, Chair of RASSC echoed Mr Williams, welcoming Ms Siraky back to her former office in the Autoridad Regulatoria Nuclear in Argentina.

**RW8.2 Closing of the Meeting**

The joint RASSC/WASSC session was closed by the Chairs, Mr Massera and Mr Williams.
Annex I

Summary of the Statement by the International Radiation Protection Association (IRPA)

IRPA noted that they represent a different perspective compared to the Member States and regulatory bodies present in the Committees – that of the worldwide practitioners who have to implement the decisions made in this meeting. IRPA strongly supported the proposal to review RS-G-1.7, and whilst noting the desire of some parties not to review the numbers in the guide, offered an alternative viewpoint. It is important that the review covers the full scope of the topic, from the philosophy to the practical outcome, and that this should include consideration of numerical values for clearance, at least in terms of recognising the challenges and setting a medium term ambition.

It was noted that the original philosophical aspiration for clearance and exemption was set at ‘some 10s of µSv/y’, but IRPA believed that it can be clearly shown that the practical outcome of the process results in actual doses not larger than a few tenths of a µSv/y – i.e. around two orders of magnitude less than the stated objective, which was itself set on very prudent grounds. This outcome results from multiple prudency and conservatisms in the system, ranging from the way in which the assessment criterion was then defined, the modelling from dose rate to activity concentrations, the fact that these values then become legally-defined limits which necessitate operator caution, and finally the activity distribution within cleared material. Looking from another perspective, given that 2.5 mSv/y is a typical dose from natural background for any member of the public, the original ambition for clearance and exemption was for a small number of reference persons to receive a dose totalling around 2.51 mSv/y, whereas in practice the outcome dose is around 2.5001 mSv/y. IRPA could not regard this as a reasonable and successful outcome for the system of protection, especially given the significant effort and resource required to implement clearance at these low levels, which must ultimately be paid for through taxes and electricity charges.

Whilst IRPA strongly supported the need for a universally-applied clearance system, it is essential to address both the philosophy and the numerical values in order to ensure a sound outcome. The proposed review should cover all these aspects, and at least recognise the concerns over the numerical aspects and set a future direction of travel for their consideration.
Annex II
List of Actions

Action 1: Subject to satisfactory resolution of comments at the NUSSC meeting, the Secretariat to submit DS456 to the CSS for endorsement (agenda item RW3.1).

Action 2: The Secretariat to prepare a proposal for the development of guidance on the application of the graded approach (agenda item RW3.1).

Action 3: The Secretariat to submit DS476 to the CSS for endorsement (agenda item RW3.2).

Action 4: The Secretariat to submit DS432 to the CSS for endorsement (agenda item RW3.3).

Action 5: The Secretariat to update the text in line with decisions made at the meeting and submit DS427 to the CSS for endorsement (agenda item RW3.4).

Action 6: The Secretariat to update the text in line with decisions made at the meeting and submit DS442 to the CSS for endorsement (agenda item RW3.5).

Action 7: The Secretariat to submit DS454 to the CSS for endorsement (agenda item RW3.6).

Action 8: The Secretariat to submit DS455 to the CSS for endorsement (agenda item RW3.7).

Action 9: The Secretariat to submit DS486 to Member States for comment (agenda item RW3.8).

Action 10: The Secretariat to submit DS479 to Member States for comment (agenda item RW3.9).

Action 11: The Secretariat to further revise DS419 to include text that is specific to well logging (agenda item RW3.10).

Action 12: The Secretariat to further revise DS420 to include text that is specific to nuclear density gauges (agenda item RW3.11).

Action 13: The Secretariat to submit the DPP for DS495 to the CSS for endorsement (agenda item RW4.1).

Action 14: The Secretariat to submit NST048 to Member States for comment (agenda item RW5.1).

Action 15: The Secretariat to submit NST020 for publication (agenda item RW5.2).

Action 16: The Secretariat to proceed with development of NST057 (agenda item RW6.1).

Action 17: The Secretariat to prepare a detailed proposal and draft DPPs for the revision of RS-G-1.7 (agenda item RW7.1).
# Agenda

**39th Meeting of the Radiation Safety Standards Committee (RASSC)**

**40th Meeting of the Waste Safety Standards Committee (WASSC)**

4 – 5 November 2015, Vienna

Meeting Room M3, Building M

**Wednesday 4 November 2015 at 09:00 to Thursday 5 November 2015 at 17:00**

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# Annex IV

## List of Participants

### Radiation Safety Standards Committee (RASSC)

#### Members

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<th>Country</th>
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<th>Title</th>
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<tr>
<td>Argentina</td>
<td>Mr Gustavo Massera</td>
<td>CHAIRMAN</td>
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<tr>
<td>Australia</td>
<td>Mr Alex Kalaiiovski</td>
<td>(Alternate)</td>
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<tr>
<td>Belgium</td>
<td>Mr Lodewijk Van Bladel</td>
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<td>Bulgaria</td>
<td>Mr Nikolay Todorov</td>
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<td>Croatia</td>
<td>Ms Ivana Kralik</td>
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<td>Czech Republic</td>
<td>Ms Karla Petrova</td>
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<td>Denmark</td>
<td>Ms Metter Ohlenschlaeger</td>
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<td>Finland</td>
<td>Ms Ritva Bly</td>
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<td>France</td>
<td>Mr Jean-Luc Godet</td>
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<td>Germany</td>
<td>Mr Manfred Helming</td>
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<td>Hungary</td>
<td>Mr Arpad Vincze</td>
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<td>India</td>
<td>Mr M.R. Sankaran</td>
<td>(Alternate)</td>
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<td>Iran</td>
<td>Mr Mohammad Reza Kardan</td>
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<td>Ireland</td>
<td>Ms Barbara Rafferty</td>
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<td>Israel</td>
<td>Mr Jean Koch</td>
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<td>Italy</td>
<td>Ms Assunta Principe</td>
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<td>Japan</td>
<td>Mr Hindenori Yonehara</td>
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<td>Korea, Republic of</td>
<td>Mr Seung Haeng Lee</td>
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<td>Lithuania</td>
<td>Mr Albinas Mastauskas</td>
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<td>Netherlands</td>
<td>Ms Miriam Tijsmans</td>
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<td>Norway</td>
<td>Mr Gunnar Saxebol</td>
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<td>Pakistan</td>
<td>Ms Ameena Bano</td>
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<td>Romania</td>
<td>Ms Zoe Ghitulescu</td>
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<td>Russian Federation</td>
<td>Mr Sergey Mikheenko</td>
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<td>Mr Vladimir Jurina</td>
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<td>Slovenia</td>
<td>Ms Nina Jug</td>
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<td>Spain</td>
<td>Ms Carmen Álvarez García</td>
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<td>Sweden</td>
<td>Ms Charlotta Fred</td>
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<td>Switzerland</td>
<td>Mr Andreas Leupin</td>
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<td>Syrian Arab Republic</td>
<td>Mr Ibrahim Othman</td>
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<tr>
<td>United Kingdom</td>
<td>Ms Susan McCready-Shea</td>
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<tr>
<td>United States of America</td>
<td>Ms Josephine Piccone</td>
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#### Advisors

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<tr>
<th>Country</th>
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<td>France</td>
<td>Mr Philippe Berard</td>
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<td>Germany</td>
<td>Ms Annemarie Schmitt-Hannig</td>
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<td>Japan</td>
<td>Mr Isao Kawaguchi</td>
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<td>Mr Nobuyuki Sugiura</td>
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<td>Mr Hirokazu Tachikawa</td>
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<td>United States of America</td>
<td>Ms Cindy Flannery</td>
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**United Nations Organizations**

- **FAO**  Mr James Sasanya
- **ILO**  Mr Shengli Niu
  Mr Michael Gaunt
- **PAHO**  Mr Pablo Jimenez
- **UNSCEAR**  Mr Malcolm Crick
  Mr Ferid Shannoun
- **WHO**  Ms Maria del Rosario Perez
  (RASSC/WASSC sessions)

**International Organizations**

- **EC**  Mr Stefan Mundigl
- **NEA/OECD**  Mr Edward Lazo
- **ISO**  Mr Yann Billarand

**Other Organizations**

- **ENISS**  Mr Bernd Lorenz
- **ICRP**  Mr Nobuyuki Hamada
- **IEC**  Mr Miroslav Voytchev
- **IRPA**  Mr Roger Coates
- **ISSPA**  Mr Wolfgang Fasten
- **WNA**  Ms Binika Shah

**Waste Safety Standards Committee (WASSC)**

**Members**

- **Australia**  Mr Geoff Williams  (Chair)
- **Belgium**  Mr Walter Blommaert
- **Bulgaria**  Mr Nikolay Grozev  (Alternate)
- **Canada**  Ms Pamela Doughty
- **Czech Republic**  Mr Peter Lietava
- **Denmark**  Mr David Ulfbeck
- **Egypt**  Mr Yasser T.M. Selim
- **Finland**  Ms Kaisa-Leena Hutri
- **France**  Mr Christophe Serres  (Alternate)
- **Germany**  Mr Christian Goetz
- **India**  Mr J.S. Yadav  (Alternate)
- **Israel**  Mr Roni Hakmon
- **Italy**  Mr Mario Dionisi
- **Japan**  Mr Hirokazu Tachikawa  (Alternate)
- **Korea, Republic of**  Mr Won-Jae Park
- **New Zealand**  Mr Cris Ardouin
- **Norway**  Ms Mette Nilsen  (Alternate)
- **Poland**  Mr Marcin Zagrajek
- **Russian Federation**  Mr Andrei Sobolev
- **South Africa**  Ms Vanessa Maree
- **Spain**  Ms Julia Lopez de la Higuera
Sweden
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