11 January 2018

42nd Meeting of the Commission on Safety Standards

1–3 November 2017

IAEA Headquarters, Vienna

Report of the Meeting

Overview of main results of the meeting

A. The following draft Safety Standards were endorsed:

- DS495: Draft Safety Requirement on Regulations for the Safe Transport of Radioactive Material, 2018 Edition (revision of SSR-6, 2012 Edition)
- DS474: Draft Safety Guide on Arrangements for the Termination of a Nuclear or Radiological Emergency

B. The following DPPs were approved:

- DS499: Draft Safety Guide on Application of the Concept of Exemption (revision of part of RS-G-1.7)
- DS500: Draft Safety Guide on Application of the Concept of Clearance (revision of part of RS-G-1.7)
- DS503: Draft Safety Guide on Protection Against Internal and External Hazards in the Operation of Nuclear Power Plants (revision of NS-G-2.1)
- DS504: Draft Safety Guide on Arrangements for Preparedness and Response for a Nuclear or Radiological Emergency (revision of GS-G-2.1)
- DS505: Draft Safety Guide on Source Monitoring, Environmental Monitoring and Individual Monitoring for Protection of the Public and the Environment (revision of RS-G-1.8)
- DS506: Draft Safety Guide on Schedules of Provision of the IAEA Regulations for the Safe Transport of Radioactive Material (2018 Edition) (revision of SSG-33)
- DS507: Draft Safety Guide on Seismic Hazards in Site Evaluation for Nuclear Installations (revision of SSG-9)

C. Policy discussion:

- The Commission endorsed the CSS Working Group conclusions and recommendations on the consideration of the implications of Annex A of the 2012 UNSCEAR Report, “Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks” for the development of IAEA safety standards.
- The Commission reviewed the draft mid-term report for the sixth term of the CSS with a view to its finalization prior to the next CSS meeting.

1. Opening Session

1.1 Opening of the Meeting

Mr Juan Carlos Lentijo, Deputy Director General and Head of the Department of Nuclear Safety and Security, opened the 42nd meeting of the Commission on Safety Standards and welcomed all members. He noted that there were two new CSS participants (from Brazil and the Republic of Korea). New nominations from France, Japan and the United Kingdom were expected soon.

Mr Lentijo referred to the meeting agenda, which included the endorsement of the revised Safety Requirements on Regulations for the Safe Transport of Radioactive Material (SSR-6), and endorsement of a new Safety Guide on Arrangements for the Termination of a Nuclear or Radiological Emergency (DS474). Because of improvements to the process for producing the safety standards, this Safety Guide had been presented to the Commission in a final edited version. He also noted that the Safety Requirements on Safety of Nuclear Fuel Cycle Facilities (SSR-4) were able to be published within one month of approval by the Board of Governors.

Mr Lentijo noted that the CSS working group considering the 2012 UNSCEAR report on attributing health effects and inferring risks had produced a report to be discussed at this meeting.

Mr Lentijo was pleased to inform the members of the Commission that Dominique Delattre had received a Superior Achievement Award from the Director General in recognition of his excellent leadership and project management skills in developing the Nuclear Safety and Security Online User Interface (NSS-OUI).

Mr Lentijo announced that an INSAG/AdSeC working group had been formed and was considering producing a joint high-level document that would reference INSAG-24, The Interface between Safety and Security at Nuclear Power Plants. This would be discussed further during 2018, and Mr Lentijo promised to keep the Commission informed of any further developments in this area.

Finally, he informed the Commission about the following upcoming important events:

- International Conference on Physical Protection of Nuclear Material and Nuclear Facilities, Vienna, 13–17 November 2017;
- International Conference on Radiation Protection in Medicine, Vienna, 11–15 December 2017.

Mr Lentijo concluded by wishing all participants a very productive meeting.

1.2 Introductions, Adoption of the Agenda, Adoption of the 41st CSS meeting report

Ms D. Drábová, Chair of the Commission, welcomed all participants. A complete list of participants is provided in Annex I.

The agenda for the meeting was approved and is provided in Annex II.

Ms Drábová informed the Commission that the draft report of the 41st CSS meeting had been made available and no comments had been received. The report of the 41st CSS meeting was approved and would be posted on the CSS website [Annex III, Action 42.01].

1.3 Administrative arrangements for the meeting; status of the overall structure; status of the endorsed standards; and response to actions from the previous CSS meetings

Mr D. Delattre informed the Commission of the administrative arrangements for the meeting. He noted that all material had been made available more than two months in advance of the meeting for effective review by the Commission[1].

Mr Delattre presented the status of the roadmap for the long term structure of the General Safety

[1] This includes the pre-editing version of Draft Safety Guide DS474; the fully edited version was added to the website 2 weeks in advance of the meeting.

Requirements and the Specific Safety Requirements, as well as the status of the endorsed safety standards. He informed the Commission that four safety standards had been published since the last CSS meeting, and noted that 9 safety standards endorsed by the Commission were in the publishing process. Comprehensive, up-to-date information on the status of all standards, published and in draft, as well as on the status of all drafts of the Nuclear Security Series that are interface documents, is available at: http://www-ns.iaea.org/committees/files/CSS/205/status.pdf.

Mr Delattre reminded the Commission about the changes to the publication process and provided information on the response to the actions from the 40th and 41st CSS meetings (see Annex IV).

Mr P. Webster asked whether it was still the intention to review the structure of the Review Committees. Mr Lentijo replied that the first step was to consider the results of the self-assessment exercises. If it were then considered that changes to the structure of the Review Committees were needed, these would first be proposed to the Commission.

Mr A. González noted that the referencing of the Vienna Declaration on Nuclear Safety in the Safety Standards had been discussed at the previous meeting, and he requested that the Secretariat confirm how the principles of the Vienna Declaration will be incorporated into the safety standards. Mr Delattre responded that these principles had been used to prioritize the revision of the safety standards, and would also be taken into account in the revision process itself.

2. Reports from the Safety Standards Committees and the Nuclear Security Guidance Committee

2.1 Emergency Preparedness and Response Standards Committee (EPReSC)

Ms A. Heinrich, EPReSC Chair, reported on the fourth meeting of EPReSC. EPReSC had approved five draft standards for submission to CSS, two draft standards for submission to Member States for comment and three DPPs. EPReSC had cleared one revised draft of the Nuclear Security Series.

EPReSC had also discussed plans for the development of future EPR Series publications, and considered the end of term report. This report would include the results of the EPReSC self-assessment, a draft of which had already been posted on the website. In addition, EPReSC had received presentations on: EPR issues for Small Modular Reactors; actions in support of GSR Part 7; the implementation of EPRIMS; and reports from EC and WHO.

Ms Heinrich's presentation is available on the CSS web site.

Mr González asked about the WHO report, and suggested that some of the reports issued after the Fukushima Daiichi accident had been unhelpful. Ms Heinrich clarified that the report related to iodine thyroid blocking, and noted the concerns expressed by Mr González.

Mr M. Markovits asked for clarification on the long term development of the EPR Series publications, and Ms Heinrich confirmed that EPReSC would seek to identify the needs in this area and suggest the development of new publications based on these needs.

2.2 Nuclear Safety Standards Committee (NUSSC)

Mr F. Feron, NUSSC Chair, reported on the 43rd NUSSC meeting. NUSSC had approved five draft standards for submission to the CSS. One draft standard (DS483) had not been approved, and was referred to another meeting for review. NUSSC had approved four draft standards for submission to Member States for comment, and four DPPs. One DPP (DS508) had not been approved, and NUSSC had asked for a revised DPP with a reduced scope to be resubmitted. NUSSC had also cleared one revised draft of the Nuclear Security Series.

NUSSC had also conducted an experiment whereby draft standards at Step 11 would first be considered by NUSSC for 'technical approval' prior to the Technical Editorial Review, and then be considered for confirmation of the approval following the Review. Three draft standards were part of this experiment, and NUSSC would then review whether this approach should be encouraged.

NUSSC had also held discussions on: the status of DS497 (revision of 8 safety guides related to NPP operation); the NUSSC end of term report; the NUSSC self-assessment process; the holistic review of the safety standards; and remote participation in NUSSC meetings.

Mr Feron's presentation is available on the CSS web site.

Mr Markovits commented that the experimental approach at Step 11 looked promising, and Mr Delattre confirmed that it would ensure a single Technical Editorial Review, i.e. of the technically endorsed document. If successful it would be implemented more widely.

Mr González asked why DS497 no longer included an update to NS-G-2.7: Mr Delattre responded that the relevant radiation protection recommendations were instead covered by DS453 (to be published as GSG-7).

Mr Webster commented that the development of the safety standards was often a slow process, and specifically mentioned DS498: Mr Delattre responded that the development of DS498 had been delayed pending the development of SSR-1. Mr González agreed that the timing of different publications was an issue that could significantly affect the speed of development. Mr I. Lund noted that gaining a consensus was a lengthy process and it was difficult to see how the overall speed of development could be increased without more resources.

Mr González asked how NUSSC was considering the principles of the Vienna Declaration on Nuclear Safety, and this led to a general discussion on this subject. It was noted that the CSS had already confirmed that the safety standards are consistent with the Vienna Declaration. Mr H. Wanner agreed with this assessment, and noted that the essence of the Vienna Declaration was a culture of continuous improvement. As such, it was now important to promote the implementation of the principles as well as the standards. Mr Lentijo confirmed that the mandate now on the Agency was to help Member States in the implementation of the Vienna Declaration and to facilitate the exchange of experience. As a first step, a Technical Meeting to discuss these issues had been arranged.

2.3 Radiation Safety Standards Committee (RASSC)

Mr G. Massera, RASSC Chair, provided a presentation on the 42nd RASSC meeting, which had included a joint 1.5 day session with WASSC. RASSC had approved six draft standards for submission to the CSS, two draft standards for submission to Member States for comment and five DPPs for submission to the CSS. RASSC had also cleared one draft of the Nuclear Security Series.

RASSC had also considered other issues including: the approach to the development of publications on exemption, clearance and international trade in commodities; applications involving radiotracers and the associated radiation protection issues; the Technical Meeting on non-medical human imaging; prudence and conservatism in radiation protection; and trends and challenges in occupational radiation protection including the importance of data collection by international organizations.

Mr Massera's presentation is available on the CSS web site.

Mr González commented that the Agency links with ILO were extremely important. Mr Lund agreed and also noted that UNSCEAR had experienced problems with the collection of data on occupational exposures. Mr P. Johnston indicated that discussion had taken place with UNSCEAR with regard to joint efforts on data collection. Mr M. Pinak confirmed that there was a recent agreement with UNSCEAR to support this, and also that there was a strong commitment to continuing the cooperation with ILO. Mr. H. Nieh confirmed the high level of cooperation between NEA, ILO and ICRP.

2.4 Transport Safety Standards Committee (TRANSSC)

Mr P. Hinrichsen, Chair of TRANSSC, reported on the 34th TRANSSC meeting TRANSSC had approved six draft standards for submission to the CSS, two draft standards for submission to Member States for comment and three DPPs. TRANSSC had also agreed that the transport related publications TS-G-1.4, TS-G-1.5 and (eventually) TS-G-1.3 would all need revising.

TRANSSC had also held discussions on: transportable nuclear reactors; the working groups for TRANSSC-35 (including the new working group on NORM); and the formation of Standing Committees.

Mr Hinrichsen's presentation is available on the CSS web site.

Mr S. Whittingham provide further clarification on the development of Standing Committees, which are intended to undertake a continuing programme of work on specific technical issues: they were open to TRANSSC members, but participation by junior members of the delegations would also be encouraged.

Mr Feron enquired about the source materials for the discussions on transportable reactors, and Mr Whittingham confirmed that this was mostly developed in liaison with IMO. Mr C-M. Larsson noted that the differentiation between reactors used for propulsion and other transportable reactors was an issue, and asked whether there were plans for TRANSSC to liaise with the other review committees. Mr González agreed that there was a wide interest in the subject and that a policy on transportable reactors should be developed. Mr Lentijo confirmed that the Secretariat was establishing a task group on transportable reactors, in response to a GC resolution on this subject. The task group would consider both safety and nuclear security issues. Mr M. Gregoric and Mr Feron confirmed that both NSGC and NUSSC would be interested in being involved in the discussions.

2.5 Waste Safety Standards Committee (WASSC)

Mr G. Williams, WASSC Chair, provided a report on the 43rd WASSC meeting, which had included joint sessions with RASSC. WASSC had approved seven draft standards for submission to the CSS, four draft standards for submission to Member States for comment and three DPPs. WASSC also discussed the progress that had been made with DS459 and DS477.

WASSC had also held discussions on: the approach to the development of publications on exemption, clearance and international trade in commodities; the implications of the INSAG-27 report on institutional defence in depth; progress with various waste related international projects; new IAEA initiatives for radioactive waste and spent fuel management; the development of potential new standards on waste safety; and issues relating to the use of entombment rather than immediate decommissioning and disposal.

Mr Williams' presentation is available on the CSS web site.

Mr González commented that terminology was a problem, especially with regard to clearance and commodities, and that achieving consistency in the approach to exemption and clearance would be made harder by developing two separate safety guides.

Mr Lund suggested that opinions relating to the entombment option had changed over the years, and that it would be useful to have a more detailed technical analysis of the issues. Mr Williams indicated that further discussions on this subject were planned.

2.6 Information on the meetings of the Nuclear Security Guidance Committee (NSGC)

Mr M. Gregoric, acting Chair of NSGC, reported on the 11th NSGC meeting. Three draft Nuclear Security Series publications had been approved for submission to DDG-NS for approval for publication. Four draft publications had been approved for submission to Member States for comment. In terms of interface documents, NSGC had cleared five draft standards for submission to the CSS, five draft standards for submission to Member States for comment, and two DPPs.

NSGC had also held discussions on: the self-assessment process; the management of safety–security interfaces; obtaining feedback from Member States on the use of nuclear security guidance; and the future development of NSS publications.

Mr Gregoric's presentation is available on the CSS web site.

Ms Heinrich commented that EPReSC had obtained feedback on the use of IAEA publications

through national presentations that had been given during their meetings. Mr Gregoric confirmed that NSGC had taken the same approach and had also encouraged national presentations on security training courses.

Mr Feron suggested that the management of safety–security interfaces was an issue for all the Review Committees. Mr Gregoric noted that some progress had been made, but agreed that there was more to do. Mr J. Dies Llovera commented that spent fuel pools were becoming a security issue, as well as a waste safety and a transport safety issue, and that NSGC, WASSC and TRANSSC should work together. Mr González noted that the responsibility of the CSS in relation to safety–security interfaces was unclear; he suggested that the D values used for the categorization of radioactive sources were an example of where both safety and security had been considered. Mr Gregoric agreed, but also suggested there was a need to consider the derivation of values purely from a security perspective.

Mr Delattre reminded the members of the Commission that they could provide comments and feedback on security guidance publications via NSS-OUI.

2.7 Information on the meeting of the Chairs held on 1 November before the CSS meeting

The meeting of the Chairs of the Review Committees and of the Commission addressed the following topics:

- The report from the CSS working group on the implications of 2012 UNSCEAR report (see agenda item 5.1);
- The new editing process for draft standards, for example as applied to the draft Safety Guide DS474 (see agenda item 3.2);
- The latest developments in NSS-OUI (see agenda item 5.4);
- Progress with the self-assessment of the Review Committees;
- The process for the renewal of the Review Committees for the next term;
- The possibility of combined safety–security publications in the topical areas of management systems, culture and emergency preparedness and response.

Mr Larsson suggested that the meeting of the chairs was a suitable forum for discussing the approach to transportable reactors (see agenda item 2.4), and proposed that this should be added to the agenda of the next meeting [Annex III, Action 42.04].

3. Approval of draft publications and DPPs

3.1 Draft Safety Requirement DS495: Regulations for the Safe Transport of Radioactive Material, 2018 Edition

Mr Whittingham presented the draft Safety Requirements publication, and outlined its background in terms of the history and revisions of SSR-6. Mr Whittingham described the justification for the latest revision, and summarized the scope and structure of SSR-6, including a summary of the paragraphs that had been amended, added and deleted. A total of 167 comments had been provided by Member States, and Mr Whittingham summarized the response to these comments.

Mr Whittingham's presentation is available on the CSS web site.

Mr Hinrichsen confirmed the support of TRANSSC for the draft publication: Mr Dies Llovera and Mr Lund also expressed support. Mr Delattre confirmed that, as a Safety Requirements publication, the draft would be translated into all official languages prior to submission to the Board of Governors.

The Commission endorsed the draft for submission to the Board of Governors for approval for publication.

3.2 Draft Safety Guide DS474: Arrangements for the Termination of a Nuclear or Radiological Emergency

Ms. S. Nestoroska Madjunarova presented the draft Safety Guide and provided an overview of its preparation, as well as the publication's background, objectives, scope and structure. Ms Nestoroska Madjunarova summarized the comments that had been provided by Member States and international organizations. A specific goal had been to encourage co-sponsorship of the publication, and nine international organizations had agreed to this. As a result, additional comments on the draft had been received from WHO and WMO after the edited draft had been posted on the CSS website. Ms. Nestoroska Madjunarova gave a detailed account of how each of these comments had been addressed, including discussions with the chair of EPReSC and the NSOC Standards Specialists.

Ms Nestoroska Madjunarova's presentation is available on the CSS web site.

Ms Drábová commented that co-sponsors should follow the agreed procedures for the preparation of standards, and that comments should not be submitted at such a late stage. Ms Heinrich confirmed that EPReSC was satisfied with the resolution of the comments. There was general agreement among members of the CSS that co-sponsorship of publications was very important and that late comments, although not to be encouraged, were something that the Commission would have to accept and deal with. There was also some discussion about the inclusion of the phrase "mental health and psychosocial support": Ms. Nestoroska Madjunarova confirmed that this was the phrase used and recommended by WHO in relation to emergency settings.

Mr Williams commented that the revised publication process, in which the fully edited version of the draft standard is presented to the CSS, was a significant improvement.

It was agreed that the revised draft incorporating the resolution of the co-sponsors' comments, would be posted on the CSS website to allow the members of the Commission to review the changes overnight. On the following day, Mr F. Brown commented on the high quality of the text, and the Commission endorsed the draft for publication.

3.3 Draft DPP Safety Guide DS499: Application of the Concept of Exemption

Mr. H. Pappinisseri presented the draft DPP, which was for revision of part of Safety Guide RS-G-1.7. As was noted in the presentations by RASSC and WASSC, three separate publications are being proposed to fully revise RS-G-1.7: a Safety Guide on exemption (this DPP for DS499); a Safety Guide on clearance (DS500, see agenda item 3.4); and a Safety Report on international trade in commodities. Mr Pappinisseri described the background, objectives and proposed structure of DS499.

Mr Pappinisseri's presentation is available on the CSS web site.

Mr Massera confirmed the support of RASSC for the DPP: Mr González also expressed support and suggested that the publication should be a priority. Mr González noted that the preparation of three different publications to replace RS-G-1.7 raised the risk of a lack of coordination, and he suggested that there should be a plan to eventually converge the outputs. He also commented that it would be important to focus on measurable quantities, i.e. in terms of activity levels, rather than individual doses. Mr Lund commented that the publications should also consider issues such as controllability.

The Commission approved the DPP.

3.4 Draft DPP Safety Guide DS500: Application of the Concept of Clearance

Mr. V. Ljubenov presented the draft DPP, which was for the revision of part of Safety Guide RS-G-1.7 (see agenda item 3.3). Mr Ljubenov commented that large volumes of very low activity waste were expected from the decommissioning of nuclear power plants and that there were increasing requests from Member States for guidance on implementing the concept of clearance, including "conditional clearance levels". Mr Ljubenov described the additional issues that are to be considered (including the clearance of liquids and gases, as well as the clearance of buildings and equipment

based on surface contamination levels) and outlined the objective, scope and structure of the proposed publication.

Mr. Ljubenov's presentation is available on the CSS website.

Mr Williams confirmed the support of RASSC for the DPP. Mr T. Elsner noted that the proposed guidance was very relevant to the decommissioning of nuclear power plants, and stated that problems were already being experienced in terms of the practical management of materials such as building rubble. Mr Feron expressed support for the DPP but advised caution in terms of using the predicted quantities of waste from the decommissioning of nuclear installations as a justification for the publication. Mr R. Sharafutdinov asked which type of gases might be the subject of clearance: Mr Ljubenov suggested that these could include laboratory gases.

The Commission approved the DPP.

3.5 Draft DPP Safety Guide DS503: Protection against Internal and External Hazards in the Operation of Nuclear Power Plants

Mr. J. Sugahara presented the draft DPP, which was for the revision of the existing Safety Guide NS-G-2.1. Mr Sugahara described the background and objectives of the revision, and described the expanded scope of the new publication. Comments had been provided by Pakistan and these had been addressed.

Mr. Sugahara's presentation is available on the CSS web site.

Mr Feron confirmed the support of NUSSC for the DPP, and Mr Z. Baig thanked Mr Sugahara for addressing the comments from Pakistan. Mr Webster requested that the publication should be consistent with WENRA safety reference levels for internal and external hazards. Mr Gregoric asked whether extreme temperatures were included in the scope, and Mr P. Tarren confirmed that these would be addressed under "meteorological hazards".

The Commission approved the DPP.

3.6 Draft DPP Safety Guide DS504: Arrangements for Preparedness and Response for a Nuclear or Radiological Emergency

Ms. Nestoroska Madjunarova presented the draft DPP, which was for a revision of Safety Guide GS-G-2.1. Ms Nestoroska Madjunarova described the background, justification and objectives of the revision, as well as the scope, target audience and expected content of the publication.

Ms Nestoroska Madjunarova's presentation is available on the CSS web site.

Ms Heinrich confirmed the support of EPReSC for the DPP. Mr S. Bhardwaj commented that the proposed publication would be very useful, and that more guidance on optimization of protection and safety early in the emergency response — including the use of a graded approach in the implementation of protective actions such as evacuation — would be welcome. Ms. Nestoroska Madjunarova replied that the Safety Guide would not prescriptively prioritize protective actions because this would depend on the actual circumstances of the emergency; however, a publication to provide further guidance on the implementation of optimization early in the response is being considered. Mr Feron expressed support for the DPP and noted that the gap analysis that had been undertaken was very useful and that this approach should be more widely used in preparing other DPPs.

The Commission approved the DPP.

3.7 Draft DPP Safety Guide DS505: Source Monitoring, Environmental Monitoring and Individual Monitoring for Protection of the Public and the Environment

Ms. T. Yankovich presented the draft DPP, which was for a revision of Safety Guide RS-G-1.8. Ms Yankovich described the background, justification and objectives of the revision, as well as the scope, target audience and expected content of the publication.

Ms. Yankovich's presentation is available on the CSS web site.

Mr William and Mr Massera confirmed that WASSC and RASSC supported the DPP. Mr González noted that expanding the scope of the publication to include individual monitoring for the public was important, and presented a new challenge. Mr Gregoric asked why waste disposal facilities were excluded from the scope, and it was explained that monitoring for such facilities was specifically addressed by SSG-31.

The Commission approved the DPP.

3.8 Draft DPP Safety Guide DS506: Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2018 Edition)

Mr Whittingham presented the draft DPP, which was for a revision of Safety Guide SSG-33 to directly reflect the revision of SSR-6 (see agenda item 3.1). Mr Whittingham described the justification and objectives of the revision, as well as the scope and structure of the publication.

Mr Whittingham's presentation is available on the CSS web site.

Mr Hinrichsen confirmed the support of TRANSSC for the DPP. Mr Feron also expressed support.

The Commission approved the DPP.

3.9 Draft DPP Safety Guide DS507: Seismic Hazards in Site Evaluation for Nuclear installations

Mr S. Morita presented the draft DPP, which was for a revision of Safety Guide SSG-9. Mr Morita described the background and objectives of the revision, including addressing implications arising from the Fukushima Daiichi accident, as well presenting an overview of the proposed publication.

Mr Morita's presentation is available on the CSS web site.

Mr Feron confirmed the support of NUSSC for the DPP, noting that a revision was necessary as there had been significant progress in knowledge in this area, especially in Japan.

The Commission approved the DPP.

4. DPPs and Draft Nuclear Security Series publications for information

4.1 Draft Implementing Guide NST011: Preventive Measures for Nuclear and Other Radioactive Material out of Regulatory Control

Ms G. Adams presented the draft Implementing Guide, an interface document, for information. Ms Adams outlined the background, objectives and scope of the draft publication, as well as the resolution of comments that had been received from Member States. Ms Adams then described the structure and content of the draft. The next step is to submit the draft to the Deputy Director General (NS) for approval for publication.

Ms Adams' presentation is available on the CSS web site.

4.2 Draft Implementing Guide NST044: Security of Radioactive Material in Transport

Mr. M. Shannon presented the draft Implementing Guide, an interface document that was a revision of NSS No. 9, for information. Mr Shannon presented the history of the revision process and

described the scope, structure and contents of the draft publication. He also described the resolution of comments from Member States, including those received from TRANSSC. The draft is currently undergoing divisional editorial review before being submitted to the Deputy Director General (NS) for approval for publication.

Mr Shannon's presentation is available on the CSS web site.

5. Policy discussions

5.1. CSS Working Group on the implications of Annex A of the 2012 UNSCEAR report "Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks" for the development of IAEA safety standards.

The Working Group had met on 30–31 October 2017. Mr Larsson, Chair of the Working Group, presented the report from the meeting, which includes two recommendations for further action. The full report is provided in Annex V.

Ms Drábová suggested that there were two further issues to be considered: achieving more clarity with regard to communicating radiation risks in different exposure situations (planned, existing and emergency); and ensuring consistency and coherence within the complete set of safety standards.

Mr González informed the Commission that the government of Argentina agreed with the recommendations of the working group. Mr González agreed that risk communication was an important issue, and suggested that a review of the Safety Fundamentals, SF-1 (recommendation 1 of the WG) was appropriate, for example to consider the implications of ICRP Publication 103. Mr González stressed, however, that a review did not automatically imply that a revision of the text was necessary. Mr G Massera noted that the WG report was consistent with the position previously stated by RASSC to keep an open mind on the issues.

There was general agreement by the members of the CSS that a review — but not necessarily a revision — of SF-1 was appropriate. Mr Feron suggested that a wider scope for the review might have been considered, but that this would not be achievable in proposed timescales. On this issue, Mr Feron (as NUSSC chair) suggested that recommendation 2 of the WG report (on the Safety Standards Committees) might need to be deferred slightly. Mr Larsson agreed that the changes in the memberships of these committees was another reason to defer recommendation 2, although he also noted that an extensive exercise was not envisaged. Mr Lund suggested that any proposed changes to SF-1 should focus on providing additional text, rather than reformulating the existing text. Mr Bhardwaj suggested that risk communication with respect to the early phase of an emergency was a priority. Ms Heinrich commented that communicating with the public was an important issue, and that recent EPR publications had already taken some account of the UNSCEAR report.

Ms Drábová thanked the Working Group for its report and concluded that the Commission fully endorsed both recommendations [Annex III, Actions 42.02 and 42.03], which would be reported at the 2018 CSS meetings. Mr Lentijo also supported the proposed actions, but requested that some flexibility be allowed in terms of the timescales for implementation. It was agreed to insert "preferably" into recommendation 1, as shown in Annex V.

5.2 Second report on how the IAEA safety standards and IAEA safety review services reflect the concept of institutional strength in depth set out in the INSAG-27 report.

Mr Tarren presented the results of the Secretariat's second detailed assessment of the implications of the issues raised in the INSAG-27 report. He reminded the Commission of the conclusions presented at the previous CSS meeting — that the IAEA safety standards, review services, missions and training do collectively address INSAG-27 — but also indicated that the second review had identified some areas for potential improvements. Mr Tarren then explained the potential enhancements that had been identified in respect of: the development of new guidance; the conduct of peer reviews, missions, training and other events and meetings; and in the development of the website.

Ms. M-L. Jarvinen indicated that Finland was undertaking a research programme on the incorporation of the findings of INSAG-27 into Finnish regulations. Further research was planned, and Ms Jarvinen promised to share the results of this with the Commission. Mr Larsson commented on the significant amount of work being planned by the Secretariat: Mr Tarren agreed that there were a lot of proposed actions but the INSAG-27 report had provided a fresh perspective and the priority would be on filling gaps. Mr Lund agreed with this conclusion and commented that it was important to address issues relating to culture. Mr Feron was pleased that the scope of the planned actions was wider than just the safety standards.

Mr Lentijo concluded the discussions by agreeing with the comments made by the Commission, and confirming that the proposed actions would focus on promoting discussions on institutional defence in depth via the existing services and activities.

5.3 Review of, and finalization process for, the CSS mid-term report

Mr Delattre presented the draft mid-term report for the sixth term of the CSS, and outlined the process for finalization of the report, which included a review of the CSS interests for the 6th term and the recommendations for the second half of this term.

Regarding the CSS interests, there was general agreement that there had been no significant progress in terms of the measures to promote the harmonization of safety standards and security guidance (interest 1). In contrast, there had been progress (to a greater or lesser extent) with all the other listed CSS interests, with some actions (e.g. finalization of guidance on the transition from an emergency exposure situation) having been already completed.

Regarding the recommendations for the second half of the term, it was agreed that the suggestions in the draft report should be removed and replaced with new actions. Suggestions from the members of the Commission and the Secretariat included:

- Consider expanding the promotion of joint sessions for the Review Committees to include joint working groups, as appropriate.
- Continue to encourage the development of guidance relating to the protection of people and the environment in existing exposure situations.
- Finalize draft Safety Guide DS468, and actively seek cosponsoring organizations.
- Encourage the preparation of guidance on the timeframe for effective and timely regulatory decision making, and guidance on industrial digital devices of limited functionality, including smart devices [Annex III, Action 42.07].

The updated draft mid-term report will be posted on the CSS website [Annex III, Action 42.06]. Ms Drábová encouraged all members of the Commission to provide comments on the draft. The Secretariat will then produce the final version for approval by the CSS.

5.4. Status of the NSS-OUI platform

Mr Delattre demonstrated the updates to the platform since the last CSS meeting. A self-learning tool is now available, as well as an additional search capability that enables the user to expand all categories as well as to focus on specific terms in an advanced topical search. There is now also an additional topical area filter in the relationship search between publications that will help to ensure consistency when standards are revised.

An electronic version of the 2016 Safety Glossary with a search capability is now included in the system. A semi-automatic tagging mechanism has also been developed. Future plans include the insertion of the Security Glossary and the merging of both glossaries within the system.

Ms Drábová expressed appreciation for all the work involved. In response to queries from Mr González and Mr Larsson, Mr Delattre clarified that the 2016 Glossary had not yet been published in book form, however it is available online and is used when drafting new standards. It is currently available only in English. Mr Gregoric appreciated the inclusion of the security publications and queried if the platform can be used for other publications as well. Mr Delattre confirmed that this could be done in future if the taxonomy of the publications is the same. Ms M-L Jarvinen suggested that it would be beneficial to harmonize the safety related definitions of the International Organization for Standardization (ISO) with the IAEA Safety Glossary. The Commission agreed that discussions should be initiated [Annex III, Action 42.05].

Mr Lentijo closed the discussion by noting that Mr Delattre's Superior Achievement Award for his leadership and project management on the development and implementation of the system was well deserved.

6. Use of IAEA Safety Standards in Member States

6.1 Australia

Mr Larsson provided a presentation (available on the CSS web site) on the use of the IAEA safety standards in Australia. Mr Larsson focussed on the process for reviewing and implementing the standards in the Australian regulatory structure. He described the process through which ARPANSA, the Australian regulatory body, works with regulators from all nine jurisdictions in the Australian commonwealth federation to develop policies and publications for the promotion of uniform national standards. ARPANSA takes into account international best practice in radiation protection and nuclear safety including the IAEA safety standards. Mr Larsson noted that all nine jurisdictions will take part in Australia's second IRRS mission in November 2018.

In the discussion that followed, Mr Larsson provided clarification on the use of GSR Part 4 (Rev. 1) and IAEA review missions, and provided further details on the management of the interface between safety and security and the transition of responsibility for legacy sites.

6.2 Russian Federation

Mr Sharafutdinov provided a presentation (available on the CSS web site) on the use of the IAEA safety standards in the Russian Federation. Mr. Sharafutdinov described the structure of the relevant authorities in the Russian Federation, the organization and main safety functions of the regulatory body for nuclear safety and radiation protection, and the variety of nuclear installations overseen, including nuclear vessels. He also described the regulatory framework, and how the IAEA safety standards are taken into consideration. He also noted that both safety and security are considered in drafting the regulations, and that representatives from the security field take part in the drafting of safety regulations.

In the discussion that followed, Mr Sharafutdinov provided clarification on: the regulations for floating nuclear installations; the development of new regulations and the review and revision cycle; the responsibilities for environmental monitoring; and the availability of Russian regulations in English.

6.3 United Kingdom (UK)

Mr R. Moscrop provided a presentation (available on the CSS web site) on the use of the IAEA safety standards in the UK. He described: the nuclear facilities in the United Kingdom; the responsibilities of the Office for Nuclear Regulation (ONR) and the regulatory approach to nuclear safety; the role of 'Relevant Good Practice' (RGP) and how this is linked with the IAEA safety standards, which are used as reference documents for legal requirements in the UK. ONR's Safety Assessment Principles are benchmarked against the safety standards to ensure complete coverage. Appropriate IAEA safety guides have to be included in Technical Assessment Guides, and such guides are also used in regulatory inspections. Mr Moscrop also described the safety and security interface in ONR, noting

that security and safety regulators work together and that safety and security are connected at the highest level of ONR.

In the discussion that followed, Mr Moscrop described the evolution of the regulatory approach in relation to the decommissioning and remediation of the Sellafield site, and provided examples of how ONR ensures the use of safety standards by staff in their day to day work.

6.4 United States of America (USA)

Mr Brown provided a presentation (available on the CSS web site) on the use of the standards in the USA. He described the basis for the authority of the Nuclear Regulatory Commission (NRC) whereby the burden of proof is on the government when proposing regulations and a broad consensus is needed before writing or changing the regulations. He highlighted the strong support and significant involvement of the USA in the development and review of IAEA safety standards and described how the standards are used across NRC programmes. He noted that the careful alignment with the standards led to good results in the 2010 IRRS mission and the 2014 follow-up mission. Mr Brown also described some challenges to the use of the standards. For example, most NRC regulations pre-date the IAEA standards and most NRC regulatory guidance is written at a more detailed level than IAEA safety guides. He noted the growing interest in world-wide harmonization of nuclear practices and that IAEA safety standards and nuclear security series documents would continue to be considered when revising NRC regulations and guides.

In the discussion that followed, Mr Brown clarified the role of the Environmental Protection Agency in the system, and described proactive actions the NRC has taken in light of the feedback of experience.

7. Information on the activities of the OECD Nuclear Energy Agency

Mr H. Nieh presented a summary (available on the CSS web site) of recent NEA activities in the areas of safety and regulation, highlighting several items of interest, as follows:

The NEA has two new member countries, Argentina and Romania, who have completed the accession process.

The Committee on Nuclear Regulatory Activities approved a Working Group on Safety Culture and a Working Group on Digital Instrumentation and Controls. The Working Group on Inspection Practices will hold a workshop on the inspectors' role in the assessment of licensee human and organizational aspects, inspection of a licensee's corrective action programme and inspection of the current design basis.

The Committee on the Safety of Nuclear Installations approved a Senior Expert Group in Safety Research and an International Severe Accident Management Conference in 2018. The NEA has been working with Japan and interested member countries to initiate a new joint research project on the analysis of fuel debris.

The Multinational Design Evaluation Programme (MDEP) conference in September 2017 agreed on the need for further work on greater harmonization of codes and standards for NPPs and further dialogue on safety in supply chain culture. The MDEP Policy Group approved the formation of a design-specific working group for the HPR-1000 (Hualong-1) reactor design from China.

The Radioactive Waste Management Committee Expert Group on Waste Inventorying and Reporting Methodology recently published its extended methodology for presenting national spent fuel and radioactive waste inventory using a common format. The Working Party on Decommissioning and Dismantling is planning to organize a joint workshop with the Regulators' Forum to look into opportunities for enhancing current decommissioning regulations.

The Working Party on Nuclear Emergency Matters organized the International Workshop on the INEX 5 exercises in 2017, with a special focus on international coordination and participation from 23 countries.

The NEA will initiate the International Radiological Protection School with a pilot to take place in August 2018 in Stockholm.

In the discussion that followed, Mr Gregoric queried whether security issues have been considered by the NEA. Mr Nieh noted that CNRA and CSNI recently revised their mandates to include consideration of the interfaces between safety and security. It is not an explicit focus but recognized as an area for international collaboration. Mr Sharafutdinov queried if there were plans to issue new green booklets. Mr Nieh clarified that there were no current plans, however CSNI and CNRA will meet and may have proposals for a green book in the area of external events.

8. Miscellaneous. Report of the meeting, Date of the next meeting

Mr Bhardwaj and Mr C Phillips volunteered to provide presentations at the 43rd CSS meeting on the use of the IAEA safety standards in India and South Africa, respectively.

Mr Moscrop proposed that the Secretariat consider providing guidance on ‘smart devices’, i.e. electronic devices with connectivity capability, which are now being routinely incorporated into components such as pumps [Annex III, Action 42.07]. This proposal was supported by Mr Lund. Mr González requested that the Secretariat consider producing guidance on the ‘inadvertent’ exposure of patients, i.e. in relation to the exposure of organs and tissues not undergoing treatment or diagnosis.

Mr González also recommended the preparation of guidance on monitoring of patient, particularly in radiotherapy and intervention radiology.

Mr Delattre indicated that a draft list of actions resulting from the 42nd CSS meeting would be provided for comment to the CSS members [Annex III, Action 42.08] and that the draft report of the 42nd CSS meeting would be posted for comment to the CSS web site [Annex III, Action 42.09]. Mr Delattre informed the Commission that all presentations made at the 42nd CSS meeting would be posted on the CSS web site [Annex III, Action 42.10].

Mr Delattre informed the Commission of the proposed dates for the next meeting, namely in the week from 9 to 13 April 2018.

ANNEX I

PARTICIPATION AT THE 42nd CSS MEETING

The Commission

A.J. González, Argentina

C.-M. Larsson, Australia

A. Gromann De Araujo Goes, Brazil

R. Jammal, Canada (sent apologies – unable to attend; represented by Mr Webster)

Y. Zhao, China (sent apologies – unable to attend)

D. Drábová (Chair), Czech Republic

M.R.M. Ezz El-Din, Egypt

P. Tiippana, Finland (sent apologies – unable to attend; represented by Ms Jarvinen)

J.-L. Lachaume, France (sent apologies –unable to attend; represented by Mr Feron)

T. Elsner, Germany

S. A. Bhardwaj, India

M. Markovits, Israel

T. Fuketa, Japan (sent apologies – unable to attend; represented by Mr Hirano)

M Baek, Republic of Korea

H. Mohd Ali, Malaysia (sent apologies – unable to attend)

M. Z.A. Baig, Pakistan

A. Ferapontov, Russian Federation (sent apologies – unable to attend; represented by Mr Sharafutdinov)

Ms M. Žiaková, Slovakia C.O. Phillips, South Africa

J. Dies Llovera, Spain

I. Lund, Sweden

H. Wanner, Switzerland

D. Senior, United Kingdom (sent apologies – unable to attend; represented by Mr Moscrop)

F. Brown, United States of America

Observers

R. Awad, AdSec (sent apologies – unable to attend)

M. Garribba, EC (sent apologies – unable to attend)

C. Cousins, ICRP (sent apologies – unable to attend)

R. Meserve, INSAG (sent apologies – unable to attend)

H. Nieh, OECD NEA

Chairpersons of the Review Committees

A. Heinrich, EPReSC

M. Gregoric (Acting), NSGC

F. Feron, NUSSC

G. Massera, RASSC

P. J. Hinrichsen, TRANSSC

G. Williams, WASSC

Representatives and associated experts

Mr Ahn, Ms Bloomer, Mr Chae, Mr Feron, Ms Forest, Mr Hirano, Mr Iwata, Ms Jarvinen, Mr Kobaru, Mr Moscrop, Mr Nilsson, Mr Sharafutdinov, Mr Turner, Mr Webster, Mr Weidenbrück, Mr Yasuda, Mr Zegri

IAEA Staff Members

J.-C. Lentijo, Deputy Director General, Department of Nuclear Safety and Security

E. Buglova, Head, Incident and Emergency Centre (IEC)

G. Caruso, Director, Nuclear Safety Office of Coordination (NSOC)

P. Johnston, Director, Division of Radiation, Transport and Waste Safety (NSRW)

R.A.A. Raja Adnan, Director, Division of Nuclear Security (NSNS)

G. Rzentkowski, Director, Division of Nuclear Installation Safety (NSNI)

T. Andrews, L. Guo, M. Khaliq, D. Liu, S. Mallick, H. Mansoux, S. Morita, J.-R. Jubin, A. Orrell, M. Pinak, S. Purvis, A. Shokr, C. Spitzer, P. Tarren

G. Adams, V. Ljubenov, S. Nestoroska Madjunarova, H. Pappinisseri Puthanveedu, M. Shannon, J. Sugahara, T. Yankovich

Coordinators of review Committees and of the Commission on Safety Standards

R. de la Vega, Incident and Emergency Centre (IEC), EPReSC

M. Svab, Regulatory Activities Section (NSNI), NUSSC

T. Colgan, Radiation Safety and Monitoring Section (NSRW), RASSC

S. Whittingham, Regulatory Infrastructure and Transport Safety Section (NSRW), TRANSSC

S. Geupel, Waste and Environmental Safety Section (NSRW), WASSC

I. Barraclough, Safety Standards and Security Guidance Development Section (NSOC), NSGC

D. Delattre, Scientific Secretary of the CSS, (NSOC) Safety Standards and Security Guidance Development Section

ANNEX II

AGENDA

Forty-Second Meeting of the
COMMISSION ON SAFETY STANDARDS
1–3 November 2017

1. Opening Session

1.1 Opening of the Meeting

1.2 Introductions, Adoption of the Agenda, Adoption of the 41st CSS meeting report

1.3 Administrative arrangements for the meeting, Status on the main topics for the 5th CSS Term and interests for the 6th term, Status of the endorsed Standards and Response to Actions from the 41st Meeting and to remaining actions from previous meetings

2. Reports from the Safety Standards Committees and the Nuclear Security Guidance Committee

2.1 Emergency Preparedness and Response Standards Committee

2.2 Nuclear Safety Standards Committee

2.3 Radiation Safety Standards Committee

2.4 Transport Safety Standards Committee

2.5 Waste Safety Standards Committee

2.6 Information on the meeting of the Nuclear Security Guidance Committee

2.7 Information on the meeting of the Chairs held on the morning of 1 November before the CSS meeting

3. Approval of draft publications and DPPs

3.1 Draft Safety Requirement DS495 Regulations for the Safe Transport of Radioactive Material, 2018 Edition – SSR-6

3.2 Draft Safety Guide DS474 Arrangements for the Termination of a Nuclear or Radiological Emergency

3.3 Draft DPP Safety Guide DS499 Application of the Concept of Exemption, revision of RS-G-1.7

3.4 Draft DPP Safety Guide DS500 Application of the Concept of Clearance, revision of RS-G-1.7

3.5 Draft DPP Safety Guide DS503 Protection against Internal and External Hazards in the Operation of Nuclear Power Plants, revision of NS-G-2.1

3.6 Draft DPP Safety Guide DS504 Arrangements for Preparedness and Response for a Nuclear or Radiological Emergency, revision of GS-G-2.1

3.7 Draft DPP Safety Guide DS505 Source Monitoring, Environmental Monitoring and Individual Monitoring for Protection of the Public and the Environment, revision of RS-G-1.8

3.8 Draft DPP Safety Guide DS506 Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive material (2018 Edition), revision of SSG-33

3.9 Draft DPP Safety Guide DS507 Seismic Hazards in Site Evaluation for Nuclear Installations, revision of SSG-9

4. DPPs and draft Nuclear Security Series publications for information

4.1 Draft Implementing Guide NST011 Preventive Measures for Nuclear and Other Radioactive Material out of Regulatory Control

4.2 Draft Implementing Guide NST044 Security of Radioactive Material in Transport, revision of NSS No. 9

5. Policy discussion

5.1 CSS Working Group meeting results on the consideration of the implications of the UNSCEAR report "Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks" for the development of IAEA safety standards. WG meeting held on 30th and 31st October 2017

5.2 Second report on how the standards and services reflect the concept of institutional strength-in-depth as set out in the INSAG-27 Report

5.3 Review of, and finalization process for, the CSS mid-term report

5.4 Status of the NSS-OUI IT platform

6. Use of IAEA Safety Standards in Member States

6.1 Australia

6.2 Russian Federation

6.3 United Kingdom

6.4 United States of America

7. Information on activities of the OECD/NEA

8. Miscellaneous. Report of the meeting, Date of the next meeting

ANNEX III

ACTIONS ARISING FROM THE 42nd MEETING OF THE COMMISSION

42.01 The final report of the 41st CSS meeting to be uploaded on the CSS web page. **[Action: Secretariat, CSS Scientific Secretary]. Done**

42.02 The CSS endorses the first recommendation of the CSS Working Group on the results of the UNSCEAR report as follows: That a Consultancy be called to initiate an analysis of the Safety Fundamentals and to identify whether there is a need to refine certain parts of the text with respect to:

- Retrospective attribution of radiation health effects to past radiation exposures
- Prospective inference of health risks from radiation exposures
- Prediction of notional health effects for comparative purposes (e.g. use of collective dose)

The results of this Consultancy's analysis should be provided preferably to the 43rd CSS in April 2018 for deliberation and decision on a path forward. The results should be captured in a manner that would provide the background information for any proposed modifications to the Safety Fundamentals and /or any other safety-related publications, to support the Secretariat in, for example, the development of a draft Document Preparation Profile (DPP). **[Action: Secretariat, CSS Scientific Secretary]**

42.03 The CSS endorses the second recommendation of the CSS Working Group on the results of the UNSCEAR report as follows: That the CSS request the Safety Standard Committees (SSC) to determine which safety standards currently under development and already published could be strengthened in this respect and for the SSC Chairs to report on progress to the CSS meetings in 2018. This is not intended to be an extensive exercise. **[Action: Secretariat, Safety Standards Committees]**

42.04 An item to discuss issues relating to small modular reactors and transportable reactors to be added to the Agenda of the next Meeting of the Chairs. **[Action: Secretariat, CSS Scientific Secretary]**

42.05 Discussions to be initiated between the IAEA and the International Organization for Standardization (ISO) TC85 for harmonization of the ISO safety related definitions with the IAEA Safety Glossary. **[Action: Secretariat, CSS Scientific Secretary]**

42.06 An updated draft of the CSS mid-term report to be provided to the CSS members for comments, in particular, on recommendations for the second half of the 6th CSS term **[Action: Secretariat, CSS Scientific Secretary, CSS members]**

42.07 The Secretariat and the Review Committees to consider proposals made during the CSS meeting for the development of additional guidance on:

- the timeframe for effective and timely regulatory decision making;
- industrial digital devices of limited functionality, including smart devices.

[Action: Secretariat, Review Committees]

42.08 A draft list of actions resulting from the 42nd CSS meeting to be provided to the CSS members for comments. **[Action: Secretariat, CSS Scientific Secretary]. Done, this list**

42.09 The draft report of the 42nd CSS meeting to be posted for comments. **[Action: Secretariat, CSS Scientific Secretary].**

42.10 The presentations made at the 42nd CSS meeting to be uploaded on the CSS web page. **[Action: Secretariat, CSS Scientific Secretary]. Done.**

ANNEX IV

STATUS OF ACTIONS FROM THE 40th AND 41st MEETINGS OF THE COMMISSION

40.05 An agenda item to be included at the 41st CSS meeting on a holistic review of the collection of Safety Guides, aimed at developing an approach to ensuring their consistency, completeness and proper interdependence, with background material to be provided accordingly, including as a first input the situation that is to be expected in three years' time, when ongoing projects are completed **[Action: Secretariat, CSS Scientific Secretary]. Done**

40.07 CSS members to request, on a voluntary basis, rights for accessing the feedback collection interface of the NSS-OUI Platform **[Action: Secretariat, CSS Scientific Secretary; CSS members]. Done**

41.01 The final report of the 41st CSS meeting to be uploaded on the CSS web page. **[Action: Secretariat, CSS Scientific Secretary]. Done**

41.02 The Secretariat to prepare guidance for a harmonized implementation of a self performance assessment by all Review Committees to be reported as part of their end of term report. **[Action: CSS and Review Committee Scientific Secretaries]. Done**

41.03 The Secretariat to prepare introductory material for the revision of SSR-6 in order to explain, at the next TRANSSC meeting, the new numbering system adopted with the Publishing Section for revision by amendment and to prevent possible miss-interpretation by the users of this new numbering system. **[Action: Secretariat with the NSOC Standards Specialists]. Done**

41.04 A CSS Working Group to consider the implications of the UNSCEAR report "Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks" for the development of IAEA safety standards, using as a basis the proposal submitted by Argentina and Australia. The Working Group will include the CSS members from Argentina, Australia, Finland and USA, as well as the Chairs of EPReSC, RASSC and WASSC and staff of the Secretariat. The WG should also invite UNSCEAR and ICRP Secretariat to contribute. Prepare report for consideration at 42nd CSS on both the potential implications on the content of the safety standards and on the potential implications on the implementation of, and communication on the standards. **[Action: Secretariat; CSS Scientific Secretary; CSS members from Argentina, Australia, Finland and USA; Chairs of EPReSC, RASSC and WASSC; ICRP and UNSCEAR Secretariat]. Done: see agenda item 5.1**

41.05 The Secretariat to undertake a 2nd more in-depth assessment of the implications of INSAG-27 report on the Standards and IAEA Safety Review Services. Also to be considered in 2018 review of OSART. **[Action: Secretariat]. Done: see agenda item 5.2**

41.06 A draft list of actions resulting from the 41st CSS meeting to be provided to the CSS members for comment. **[Action: Secretariat, CSS Scientific Secretary]. Done**

41.07 The draft report of the 41st CSS meeting to be posted for comment. **[Action: Secretariat, CSS Scientific Secretary]. Done (and approved and the 42nd meeting)**

41.08 The presentations made at the 41st CSS meeting to be uploaded on the CSS web page. **[Action: Secretariat, CSS Scientific Secretary]. Done**

Annex V

Recommendations from the CSS Working Group on Scientific Annex A of the UNSCEAR 2012 Report: Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks
30-31 October 2017

Endorsed with one slight amendment by the CSS on 1st November 2017

Background

The purpose of this WG was to consider the implications of the UNSCEAR report on Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks for the development of IAEA safety standards and to prepare a progress report for the 42nd meeting of the Commission on Safety Standards (CSS). The WG discussed the views on the implications of the report that were submitted in advance of the meeting and also discussed the Secretariat's independent assessment. There was broad agreement among all constituents that there was a need for the safety standards to adequately reflect the concepts of attributability, inference of risk and use of collective dose, to reflect the lessons learned from the latest international scientific evaluations, and to ensure that these concepts are adequately addressed. The WG noted that the Strategies and Processes for the Establishment of Safety Standards (SPESS A) addresses interactions with other international organizations and states that "The findings of United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the recommendations of international expert bodies, notably the International Commission on Radiological Protection (ICRP) are taken into account in developing the IAEA safety standards." The WG also noted that the IAEA Safety Fundamentals had been issued in 2006, before the most recent recommendations of the ICRP.

Discussion

The WG agreed that the concepts of attributing health effects to ionizing radiation exposure and inferring risks are complex. While necessary to communicate, they may be difficult to translate into clear and unambiguous language. The WG noted challenges in communication of benefits and risks, in particular with communications of risks associated with events and emergencies (e.g., Goiania, Chernobyl, Fukushima). The WG also discussed the issues of communicating radiation risks in, for example, medicine, disposal of waste including spent fuel and remediation. While the core concepts are the same, the audiences are different. A prerequisite for good communication is that the experts and scientific community have a firm and shared understanding of core concepts of attributability of effects and inferring risks.

It is important that the IAEA be the leader in translating these concepts into the safety standards for the benefit of Member States, decision makers, the public and the media. While noting that radiation risk is not the only deciding factor in decision-making, and that economic and societal factors also need to be taken into account, it is important that IAEA make an authoritative statement on the applicability and use of these scientific concepts.

The intent of the WG's recommendations is to strengthen the safety standards and to ensure that they are coherent, useful and current. The WG noted that the concepts set out in the UNSCEAR report do not represent a paradigm shift, but have been clarified and put into context, including analysis of uncertainties associated with assumptions and data, and the information value and hence usefulness of inferences for proper communication and decision making. The concepts dealt with in the UNSCEAR 2012 Report have already been captured in some existing Safety Guides (e.g., GSG-2 (2011) for operational intervention levels), and are reflected in others currently being finalized (e.g., DS474 and

DS475). In other areas, these concepts have yet to be addressed (e.g., long term safety of waste disposal).

The WG agreed that concepts such as attributability, inference of risk and use of collective dose need to be consistently captured in the IAEA Safety Standards and other safety related publications. These concepts could impact topical areas, including but not limited to:

- Justification
- Optimization
- Graded approach
- Low doses and associated uncertainties
- The LNT assumption and its use in the safety standards
- The dose limitation system, the associated terminology and its use in the safety standards.

The WG noted that incorporating this recently highlighted information could be considered part of continuous improvement as required by GSR Part 2.

The WG discussed and agreed that there is a need for vigilance to ensure that all the Safety Standards are coherent and consistent with respect to core scientific concepts for decision-making and communication, e.g., attributability and related concepts. This would further inform the following areas in the communication activities of the Agency and its Member States:

- Inferable radiation risks and putting risks into perspective, for different situations
- Risks vs. benefits
- Attributability of radiation health effects
- "What is safe?" and "Am I safe?" (as recommended in the reports of several IAEA International Experts' Meetings).

Recommendations

1. The WG recommends that a Consultancy be called to initiate an analysis of the Safety Fundamentals and to identify whether there is a need to refine certain parts of the text with respect to:

   - Retrospective attribution of radiation health effects to past radiation exposures
   - Prospective inference of health risks from radiation exposures
   - Prediction of notional health effects for comparative purposes (e.g., use of collective dose)

   The results of this Consultancy's analysis should be provided preferably to the 43rd CSS in April 2018 for deliberation and decision on a path forward. The results should be captured in a manner that would provide the background information for any proposed modifications to the Safety Fundamentals and/or any other safety-related publications, to support the Secretariat in, for example, the development of a draft Document Preparation Profile (DPP).

2. The WG further recommends that the CSS request the Safety Standard Committees (SSC) to determine which safety standards currently under development and already published could be strengthened in this respect and for the SSC Chairs to report on progress to the CSS meetings in 2018. This is not intended to be an extensive exercise.