Waste Safety Standards Committee (WASSC) – Forty-first meeting

WASSC Alone Session

20 and 23 June 2016

IAEA Headquarters, Vienna, Austria

Chairman’s Report
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WASSC Alone Session
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W.1 WASSC SESSION – GENERAL ISSUES

W.1.1 Opening of the Meeting

The 41st WASSC meeting was opened by Mr. Andrew Orrell, Head of the Waste and Environmental Safety Section (WES/NSRW). Mr. Orrell welcomed all participants and provided an overview on the news in the areas of interest which had occurred since the previous meeting in November 2015.

He noted that the DS454 was the only Draft Safety Standard forwarded to the 39th CSS meeting (April 2016) for approval due to issues with technical editors of IAEA Safety Standards in the Safety Standards and Security Guidance Development Section, but emphasized in this context also the importance of quality over rushing timelines.

He further noted that the MODARIA International Project came to an end in November 2015. The related reports of the working groups are in preparation and will be published as TECDOCs. The basis for the follow-up project MODARIA II has been elaborated by the Waste and Environmental Safety Section, and the new project will be launched in November 2016. It will focus on modelling environmental dispersion and transfer of radionuclides, as well as assessing impacts to people and the environment.

Mr. Orrell highlighted the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes, which was successfully organized in Madrid from 23 to 27 May 2016.

Mr. Orrell also drew attention to the International Conference on the Safety of Radioactive Waste Management that will take place in Vienna from 21 to 25 November 2016. This conference will address all aspects of predisposal management and disposal of radioactive waste and spent fuel, including waste arising from accidents. The Secretariat has received more than 200 abstracts, and more than 300 participants have already registered.

During the 60th General Conference in September 2016, the Senior Regulator’s Meeting will have a dedicated session dealing with the licensing process for geological disposal of radioactive waste.

W.1.2 Chairman’s Introduction

The WASSC Chairman, Mr. Geoff Williams, welcomed members and in particular participants attending a WASSC meeting for the first time. He highlighted various topics in the agenda and wished all participants a successful meeting.

W.1.3 Adoption of the Agenda

The Agenda of the 41st WASSC meeting (see Annex I) was adopted without changes. The list of participants is contained in Annex III.
W.1.4 Administrative Arrangements

Ms. Sandra Geupel, Coordinator of WASSC (WES/NSRW) announced the administrative arrangements for the meeting. Ms. Geupel also welcomed all WASSC members, in particular those delegates attending a WASSC meeting for the first time and those participating on behalf of WASSC members, and announced the regrets received. Ms. Geupel also referred to the fact that WASSC meetings adhered to the Agency’s paperless meeting policy and that all the presentations would be made available by the end of the day in the dedicated WASSC web folder.

W.1.5 Report from the 40th WASSC Meeting

The report of the 40th WASSC Meeting was posted to the WASSC-41 meeting web folder. Two editorial comments on agenda item RW3.5 (DS442) were received by Canada and Japan; both were accepted and incorporated into the report.

Action: The Secretariat to include the comments provided by the WASSC members and to finalize the report.

W.1.6 Status of actions arisen from the 40th WASSC meeting

Ms. Geupel presented the current status of actions arising from the previous meeting, WASSC 40, attached to this report as Annex II. All have been implemented since the last meeting.

W.1.7 Waste Safety Standards status and future steps

Ms. Geupel presented the current status of the Waste Safety Standards (WSS). She noted where to find a copy of the latest status of Safety Standards online. She presented the updated work plan for the second half of the four-year period 2014–2017. The following WSS are planned to be submitted:

- for approval at WASSC 42 (November 2016): DS403 (S11), DS468 (S7) and DS489 (S7);
- for approval at WASSC 43 (June 2017): DS459 (S11) and DS477 (S7).

W.2 WASSC SESSION – REVIEW OF IAEA SAFETY STANDARDS

W.2.1 Draft Safety Guide on Management of Radioactive Residues from Uranium Production and Other NORM Activities, DS459

Mr. Zhiwen Fan (WES/NSRW) presented the current status of development of the Safety Guide DS459 to the participants. In June 2011, WASSC 31 concluded that the Safety Guide WS-G-1.2 (published in 2002) was to be revised in the light of new requirements and developments. WASSC 32 and the CSS endorsed the DPP in 2011 and 2012, respectively. The main input considered for the revision are the recently published relevant Safety Requirements and Safety Guides and current practices and experiences in Member States, but also a number of international conferences and workshops on NORM held in 2013 and 2014.

Mr. Fan explained the background for developing the Safety Guide. DS459 will focus on residues generated from uranium production and other NORM activities. It will apply for newly generated
residues and new facilities (including from operation, decommissioning and remediation). The Safety Guide will take into consideration the needs of a new audience with rather weak awareness of radiation safety in NORM activities. It will consider the less developed knowledge and experience to NORM residues compared with those for radiation sources and the nuclear fuel cycle.

Seven Consultancy Meetings have been held between mid-2012 and mid-2016 to develop and discuss drafts of the guide. Progress reports on DS459 were provided at WASSC 38 (November 2014) and WASSC-40 (November 2015). In the course of development of the Safety Guide, the title proposed in the DPP – Management of Radioactive Residues from Mining, Mineral Processing, and other NORM related Activities – has been changed into Management of Radioactive Residues from Uranium Production and Other NORM Activities (endorsed at WASSC 38) to better meet the scope of the Safety Guide.

The current draft of the Safety Guide includes the following sections: 1. Introduction; 2. Overview of NORM residues; 3. Governmental, legal and regulatory framework; 4. Protection of people and the environment; 5. System for regulatory control; 6. Strategies for NORM residue management; 7. The safety case and safety assessment for NORM residues management; and 8. Safety consideration for long term management of NORM residues. Additional information is provided in three Appendices and four Annexes. Mr. Fan noted that DS459, due to its scope and nature, is a complex Safety Guide, and to address in-situ leaching (ISL) adequately, a specific Safety Report is being developed.

Mr. Fan provided an overview of the comments received by the Committees. In total, 260 comments were received from Germany, Ireland, Japan, Korea, USA and the European Commission. Among them, 206 were accepted without modifications, 24 accepted with modifications, and 30 rejected. He noted that the guide has improved significantly thanks to the comments received. Mr. Fan explained in detail the reasons why specific comments were rejected by the Secretariat. Those comments that either changed the scope of the document or were inconsistent with the Safety Requirements GSR Part 3, GSR Part 5 or SSR-5 were rejected.

Finally, Mr. Fan presented two issues for advice by the Member States in the process of further development of the Safety Guide, based on two comments received. The first issue is the activity limit requiring a radiological risk assessment. In residues from uranium mining, the activity concentrations of all radionuclides in the U-238 and Th-232 decay series are, in most cases, less than 1 Bq/g. In the international practice, however, the activity limit requiring a radiological risk assessment was set to 0.2 Bq/g for each of the above-mentioned radionuclides. The second issue is the question whether a situation of exposure due to radionuclides of natural origin in new construction materials and agricultural fertilizer should be treated as an existing exposure situation, as addressed in footnotes 17 and 64 of the current draft.

Several questions and comments were subsequently raised to the Secretariat.

Australia insisted on the use of a graded approach in regulation of NORM industries, specifically those not related to uranium production. There would be no need for developing a safety case for low-risk activities covered by the scope of the new Safety Guide. Mr. Fan replied that the guidance will follow a graded approach in regulation of radiation risks. This is reflected in particular in Sections 5 to 8 in the DS459.

The European Commission noted that the use of different terms in DS459 like ‘NORM’, ‘NORM residues’ and ‘NORM waste’ would be very confusing. Also the scope and the title of DS459 would require further clarification, for example whether they deal with the radioactive material/residues or radioactive waste from the uranium production and other activities resulting in high concentrations of naturally occurring radionuclides. According to Mr. Fan, these issues will be clarified in the course of further development of the Safety Guide.
With regard to NORM residues arising from phosphate fertilizer production, having often specific activities of more than 1 Bq/g – this was a comment provided by the United States – more specific recommendations on residue management will be given in the next stage of development of DS459.

The document was approved by WASSC to be submitted to Member States for comments.

**Action:** The Secretariat to submit DS459 to Member States for comment.

### W.3 WASSC SESSION – REPORTS FROM WASSC MEMBERS AND INTERNATIONAL ORGANIZATIONS

#### W.3.1 Feedback from South Africa


The waste classification system in South Africa defines six waste classes: High Level Waste (HLW); Low and Intermediate Level Waste – Long Lived (LILW-LL); Low and Intermediate Level Waste – Short Lived (LILW-SL); Very Low Level Waste (VLLW); NORM-L (low activity); and NORM-E (enhanced activity).

Planned measures to improve Radioactive Waste Management include *inter alia* an update of the NNR Regulations on safety standards and regulatory practices, the finalisation of legislation related to the National Radioactive Waste Management Fund; the finalisation of operational arrangements for the Radioactive Waste Disposal Institute (NRWDI); an increased dry storage capacity for used fuel (this term is used in the national legislation instead of spent fuel) at the Koeberg NPP site; the establishment of a centralised Used Fuel Dry Storage Facility by 2025; and the establishment of a National Geological Disposal Facility.

#### W.3.2 Recent Activities of the European Commission

Ms. Borislava Batandjieva-Metcalf, WASSC observer representing the European Commission (EC), provided an overview on the DG Energy Activities on spent fuel and radioactive waste management. She introduced the relevant EURATOM legal instruments, namely

- the Council Directive 2013/59/EURATOM of 5 December 2013 on basic safety standards for protection against the dangers arising from exposure to ionising radiation;
- the Council Directive 2011/70/EURATOM of 19 July 2011 on the responsible and safe management of spent fuel and radioactive waste; and
The Directive 2011/70/EURATOM had placed obligations for EU Member States: (a) to transpose it into national law by August 2013; and (b) to present national programmes and implementation reports by August 2015, followed by national reports every 3 years and international peer reviews on programmes, framework and competent authorities at least every 10 years.

Meanwhile, all 28 EU Member States notified the full transposition of Directive 2011/70/EURATOM into national law. All EU Member States submitted their implementation reports to date. 27 EU Member States submitted their national programmes (19 of them were finalized) to the EC; the remaining one will be expected until end of 2016 (there is a delay mainly due to ongoing Strategic Environmental Assessment procedure). An assessment of programmes and reports is being finalised and questions for clarifications were sent to EU Member States.


The Second Report on the Directive 2006/117/EURATOM will be published in 2016 by the EC.

A new EC recommendation on the application of Article 103 of the EURATOM Treaty was adopted on 4 April 2016. Pursuant to this Article, EU Member States are to communicate to the EC draft agreements or contracts with a third state, an international organisation or a national of a third state to the extent that such agreements or contracts concern matters within the purview of the Treaty. The aim of this Article was to ensure that the provisions of the Treaty are not frustrated by agreements or contracts concluded by the Member States with third parties.

EURATOM is continuing to cooperate with the IAEA in the fields of (a) peer reviews on spent fuel and waste management, decommissioning and remediation (ARTEMIS); and (b) reporting inventories.

The first ARTEMIS peer review under the Directive 2011/70/EURATOM is planned for 2017. The EC supports the IAEA in preparation of the ARTEMIS guidelines. A workshop on ARTEMIS peer reviews for EU Member States will be organized by the IAEA from 4–6 July 2016 in Vienna.

A meeting related to the “Status and Trends” Project (IAEA/EC/NEA) for reporting waste inventories took place from 18–22 January 2016 in Luxembourg. The work towards possible harmonization of reporting is ongoing.

W.3.3 Recent Activities of the NEA

Ms. Mari Gillogly, Radioactive Waste Management Policy Specialist representing the OECD/NEA, briefed the audience on recent and upcoming activities of the NEA. She noted that the NEA has established a new division – Human Aspects of Nuclear Safety. This new division focuses on nuclear safety regarding safety culture, human and organizational factors, safety related public communication and stakeholder engagement.

Also, a new NEA Report No. 7290 “Strategic Remediation for the Sustainable Remediation of Nuclear Installations”, was published in May 2016. This report was prepared by the Task Group on Nuclear Site Remediation, whose members were nominated by the NEA Working Party on Decommissioning and Dismantling (WPDD). The report describes the concept of sustainable remediation of contaminated land and groundwater in the context of the decommissioning of nuclear sites. The main steps in the determination of end states are described, and the importance of an adaptive approach is highlighted.
A Radioactive Waste Management Committee (RWMC) Regulators’ Forum Workshop on “Challenges to the regulators in siting and licensing of construction and operations of waste repositories” was organized from 8–9 September 2015 in Helsinki. Over 70 participants from 19 countries participated in this event. The workshop revealed challenges faced by regulators in various phases, i.e. siting, licensing, construction, operation and closure.

In addition, a seminar on lessons learned from the WIPP incidents in 2014 was held on 31 March 2016 in Paris. The objective of this seminar was to discuss effective means to foster safety culture and management elements for continuous safety enhancement. About 80 participants from 17 countries attended this seminar. Ms. Gillogly summarized the main lessons learned:

- Both incidents were preventable, continuous successful operation (as long as 15 years at WIPP) can give way to complacency;
- Safety culture is a group behaviour, a collective responsibility. Everyone in an organization is responsible for safety although management must demonstrate their commitment and leadership by example;
- In addition to management commitment, workers need to understand their work objectives, i.e. communications and continuous training are important;
- WIPP incidents showed problems crept in over time, a questioning attitude to challenge problem situations may prevent accidents;
- In emergency communications, provide correct information early and often, maintain open and transparent public communication, social media can be effective;
- Ensure regulators are notified and kept fully informed and monitor reactions to information.

Ms. Gillogly referred to the current work status of the NEA Expert Group on Inventorying and Reporting Methodology (EGIRM). The objective of EGIRM is to develop a method for presenting national waste inventories reported for international programmes and initiatives in a common scheme, allowing direct, straight-forward comparison. This method will subsequently be used as a tool in the Joint NEA/IAEA “Status and Trends” Project for reporting waste inventories. The current phase focuses on spent fuel and radioactive waste after reprocessing, and radioactive waste accepted for disposal in underground and surface facilities in their respective national strategies.

Finally, Ms. Gillogly introduced three upcoming international events organized by the NEA:

- the Joint NEA/IAEA Workshop on Operational Safety of Deep Geological Repositories, to be held from 29 June–1 July 2016 in Paris;
- the International Conference on Financing of Decommissioning, to be held from 20–21 September 2016 in Stockholm (http://www.oecd-nea.org/rwm/workshops/findecom/); and
- the International Conference on Geological Repositories (ICGR), to be held from 6–9 December 2016 in Paris (http://www.icgr2016.org).

W.3.4 Presentation of the INPRO Manual on the INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Waste Management

Mr. Jon Phillips (NEFW) introduced the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO), which has been initiated in 2001 based on a General Conference Resolution. INPRO is membership based and predominantly guided and funded through extrabudgetary
contributions from INPRO Members (41 Member States plus the European Commission). INPRO’s topical focus is a sustainable development of nuclear energy systems using a cross-cutting approach.

The INPRO Methodology is a holistic (multidimensional) sustainability assessment metric derived from the Report of the World Commission on Environment and Development: Our Common Future (so-called Brundtland Report, published in 1987, http://www.un-documents.net/wced-ocf.htm) on sustainable development. The INPRO Methodology sustainability assessment is a “self-assessment” performed by the Member States. The INPRO Methodology sustainability criteria are not IAEA Safety Standards, but should be consistent with them when touching on topics of safety. The INPRO Methodology (TECDOC-1575, Volumes 1–9, issued in 2008) is an IAEA tool for technical sustainability assessment of nuclear energy systems – developed and used by Member State experts. A project for updating TECDOC-1575 was commenced in November 2012, four reports were completed by 2016. Mr. Phillips presented the structure of the INPRO Methodology area of waste management, consisting of three parts: (1) Waste categorization, classification and waste minimisation; (2) Pre-disposal waste management; (3) End states for all classes of radioactive waste.

INPRO informally submitted this Manual on Waste Management to NEFW and NSRW for review prior to the document coordination process (DCT) in the Department of Nuclear Energy. The updated Manual will afterwards be presented in the DCT meeting for formal coordination with the Department of Nuclear Safety and Security. NSOC and NSRW felt that a briefing to WASSC should be given. It was agreed between NEFW and NSRW to give the WASSC members the opportunity to review the INPRO Manual on Waste Management and to provide their comments on that document within a period of two months.

Actions:

1. The Secretariat to make the INPRO Manual available at the WASSC website for the WASSC members for a two months comment period.

2. The Secretariat to finalize the INPRO Manual based on the feedback received by the WASSC members (lead: Department of Nuclear Energy).

W.4 DOCUMENTS FOR INFORMATION

W.4.1 Draft Safety Guide on Remediation Process for Areas Affected by Past Activities and Accidents (Revision of WS-G-3.1), DS468

Ms. Tamara Yankovich (WES/NSRW) presented a status update on the development of the Safety Guide DS468 to the participants. She provided the background for the revision of the Safety Guide WS-G-3.1. This guide, issued in 2007, had been developed based on the Safety Requirements in WS-R-3 on Remediation of Areas Contaminated by Past Activities and Accidents (published in 2003, meanwhile superseded by GSR Part 3). WASSC 33 and the CSS endorsed the DPP for DS468 in 2012.

The objectives of DS468 are to provide guidance on implementing the requirements established in GSR Part 3 on remediation of

- Areas contaminated by residual radioactive material arising from past activities that were never subject to regulatory control or were subject to regulatory control but not in accordance with the requirements of the existing IAEA and national safety standards;
Areas affected by a nuclear or radiological emergency, after the release and deposition has finished and adequate information is available to initiate remedial actions.

The new Safety Guide will take into account recent international recommendations, e.g. those of the ICRP. It will also incorporate key recommendations from recent international conferences, such as the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes (Madrid, 23–27 May 2016) and the IAEA Technical Meeting on Remediation Techniques and Strategies in Post-Accident Situations (Vienna, 13–17 June 2016).


Ms. Tamara Yankovich announced that the DS468 would be submitted to the relevant Safety Standards Committees for review and comments prior to their meetings in autumn 2016.

The subsequent discussion on this draft included the question whether the scope of DS468 would address the protection of flora and fauna. The Secretariat clarified that this matter would be out of the scope.

Australia noted that the handling of uncertainties is an essential point when establishing reference levels. One way to reduce such uncertainties would be to establish a comprehensive monitoring programme from the beginning of remediation process. Furthermore, Australia proposed to include an Annex on remediation of NORM sites into the DS468.

The WASSC Chairman, Mr. Williams, suggested to change the term ‘operational derived reference level’ in DS468 to ‘action level’, as the latter one is used in many Member States. The Secretariat responded that such change could possibly create confusion with the term ‘emergency action level’ which is used in GSR Part 7 “Preparedness and Response for a Nuclear or Radiological Emergency”.

Mr. Williams also proposed to include a dedicated section on ‘Pre-Accident Preparedness for Post-Accident Recovery/Remediation’ into the DS468. In this context, he asked the Secretariat to explore whether this topic would be covered in the revision of the Safety Guide GS-G-2.1 “Arrangements for Preparedness for a Nuclear or Radiological Emergency” (lead: EPReSC). The need to provide such guidance was one of the actions arising from the above-mentioned International Conference in Madrid.

Israel was asking whether the clearance of surface-contaminated material would be subject of DS468. The Secretariat responded that this matter will be dealt with in the revision of the Safety Guide RS-G-1.7 “Application of the Concepts of Exclusion, Exemption and Clearance”, which is currently underway by means of splitting the RS-G-1.7 into two new Safety Guides.

W.4.2 Revision of the Safety Guide SSG-15 by Amendment: Storage of Spent Nuclear Fuel, DS489

Mr. Andrey Guskov (WES/NSRW) presented a status update on the revision, by amendment, of the Safety Guide SSG-15 to the participants. He provided the background for the revision of SSG-15, referring to a meeting of a WASSC Working Group held in October 2011. The Working Group had drawn lessons from the Fukushima Daiichi Accident, and recommended that SSG-15 should be
reviewed and revised. At that point in time, WASSC members recommended the re-examination of strategies for spent fuel management.

Two Consultancy Meetings were subsequently held in September 2012 and July 2014. The review conducted by experts indicated that SSG-15 is basically in a good shape for its intended purpose and recommended the document be revised by addendum to some paragraphs, in order to better capture the extreme situations such as multiple initiating events occurring simultaneously. WASSC 38 and the CSS endorsed the DPP for DS489 in November 2014 and April 2015, respectively.

The objective of the revision of SSG-15 is to incorporate the result of the gap analyses on the IAEA Safety Standards based on the feedback from the Fukushima Daiichi Accident. The current scope of SSG-15 will be kept, covering spent fuel storage facilities that may be either collocated with other nuclear facilities (such as a nuclear power plant, research reactor or reprocessing plant) or located on their own sites. As a result of the discussions, the objectives of the revision of SSG-15 will include the following topics, as outlined in the DPP:

- Strengthening accident management;
- Protection against internal and external hazards. The design of a spent fuel storage facility should provide for an adequate margin to withstand internal or external hazards exceeding those to be considered for the design;
- Practical elimination of accidents leading to early or large releases.

Also, the DS489 has to be made consistent with the new Safety Requirements GSR Part 7 and the five Safety Requirements publications revised after the Fukushima Daiichi Accident under DS462 (i.e. GSR Part 1, GSR Part 4, NS-R-3, SSR-2/1 and SSR-2/2).

A Consultancy Meeting have been held in autumn 2015 to develop and discuss a revised draft version of SSG-15, focused on the three topics identified in the DPP. The experts agreed that, in the case of a significant accident, an early release is not possible for spent fuel storage facilities. As such, more emphasis should be placed on the prevention of large releases. The experts also concluded that internal hazards were not a particular lesson learned from the Fukushima Daiichi Accident and, consequently, did not propose any revisions in this area.

Finally, Mr. Guskov announced that the DS489 would be submitted to the relevant Safety Standards Committees for review and comments prior to their meetings in autumn 2016.

There were no questions or comments to this presentation.

W.4.3 Feedback Analysis of the Safety Guide RS-G-1.8 on Environmental and Source Monitoring for Purposes of Radiation Protection

Ms. Tamara Yankovich (WES/NSRW) presented on the Feedback Analysis of the Safety Guide RS-G-1.8 “Environmental and Source Monitoring for Purposes of Radiation Protection”.

It was noted that a general review of RS-G-1.8 was undertaken by the Secretariat and, based on this review, the following issues in a broad review of the document were identified: (a) the need for ensuring consistency of the revised RS-G-1.8 with current IAEA Safety Standards; (b) terminology issues; and (c) issues with consistency of concepts and topics for clarification.

It was concluded that the process should be initiated to update RS-G-1.8 with the next step involving a Consultancy Meeting to develop a Feedback Analysis Report for the update, which will then serve as a basis to initiate the process to gain approvals to proceed with the update.
A Consultancy Meeting was held from 14–18 March 2016 to develop a Feedback Analysis Report for the update of RS-G-1.8, which will serve as a basis to initiate the process to gain approvals to proceed with the update. A Document Preparation Profiles (DPP) will then be developed and submitted for approval.

As an outcome of the Consultancy Meeting, the experts involved recommended that RS-G-1.8 be revised, based on the following observations:

- A significant number of Safety Requirements and Safety Guides having an interface with RS-G-1.8 were published after RS-G-1.8, e.g. the Safety Fundamentals SF-1 and all seven General Safety Requirements publications.
- The terminology used in RS-G-1.8 is unclear, out-of-date and not consistent with GSR Part 3 and GSR Part 7.

Furthermore, the experts provided *inter alia* the following general recommendations for updating RS-G-1.8:

- Given that RS-G-1.8 was issued prior to the update of SF-1 and the underlying IAEA Safety Standards, usage of the term ‘environmental monitoring’ needs to be more clearly defined in the revised Safety Guide to reflect its purpose.
- More guidance is needed on (a) how to conduct a dose assessment; (b) how to use monitoring data to assess doses to the representative person, as well as flora and fauna (as far as required based on national requirements); (c) how to plan and implement monitoring; (d) the application of a graded approach in the design of a monitoring programme; and (e) reporting requirements.
- RS-G-1.8 needs to be updated to include (a) responsibilities of different parties to communicate and consult with interested parties; (b) more information on data management, quality management, etc. to capture advances made in these areas in the last ten years.

Ms. Yankovich emphasized that the proposed monitoring framework is consistent with the approach developed by the United Nations Environment Programme (UNEP). She presented the proposed structure of update to RS-G-1.8 and the next steps to be taken in preparation of a Draft Safety Guide, which includes the development of a DPP for the revision of RS-G-1.8.

The USA reminded the Secretariat to also consider two other important aspects in the new Safety Guide: benchmarks in monitoring, and validation/verification of monitoring data.

### W.5 STATUS AND FEEDBACK REPORTS BY THE SECRETARIAT

#### W.5.1 Status of all Waste Management Projects related to the Application of the Safety Standards

Mr. Gerard Bruno, Head of the Radioactive Waste and Spent Fuel Management Unit (WES/NSRW), presented an overview of the current status of all waste management projects related to the application of the IAEA Safety Standards in the Radioactive Waste and Spent Fuel Management Unit. Many of these projects have come or are close to an end. Due to turn-over of Staff duties in the unit in 2016, there is a transition period until new projects will start. The following projects were presented briefly:

- Large amount of waste
Objective: To provide guidance to Member States on waste management planning as a part of the overall emergency preparedness that needs to be established for a nuclear or radiological emergency.

Outcomes: A Draft TECDOC “Management of Large Volumes of Radioactive Waste Arising in Nuclear or Radiological Emergencies” has been developed and is now under iteration process with the Publication Committee. A webpage is expected to be developed by September 2016.

CRAFT

Objectives: To develop and apply the SADRWMS methodology and the SAFRAN tool; To provide illustrative examples to complement the Safety Guide GSG-3.

Follow-up: The first Technical Meeting of the follow-up project on different stages of life cycle – with focus on storage facilities, treatment facilities and historical sites – is planned for 2017.

Joint DPC Working Group

Objective: To provide an IAEA document containing recommendations and guidance on the structure and contents of an integrated safety case for a dual purpose storage and transport cask.

Outcomes:
1. Recommendations on revision of IAEA Safety Standards SSG-15 and GSR Part 6 were reported to WASSC and TRANSSC;
2. Publication of a TECDOC: Draft has been developed and presented to the Publication Committee for comments; the document is now under final improvement to be submitted to the Publication Committee until end of 2016.

Follow-up: A Technical Meeting is planned for November 2016 to launch the follow-up project for developing an approach for implementing safety assessment and safety case in order to define generic test conditions for DPC.

PRISM and PRISMA

Objective: Safety assessment and safety case development; Use of the safety case in the decision making process during the lifetime of a near surface disposal facility.

Outcomes: The final report of the PRISM and PRISMA projects was developed, submitted to the Publication Committee and will be published as a TECDOC.

GEOSAF

Objective: To work towards harmonization of approaches to demonstrating the safety of geological disposal, with a special emphasis on the expectations of the regulatory authorities engaged in the licensing process with respect to the development of the safety case.

Outcomes: Three documents have been drafted:
1. Main report to be published as a TECDOC – latest draft is available on the web site, was submitted to the Publication Committee and is now under finalization by the project Chairs to be submitted for approval in a few months;
2. Report of the Task Group on Operational Safety (companion report) final draft is available on the GEOSAF II web site;
3. Project report to be published on the GEOSAF II web site until end of 2016.

ILW
– Objectives: To discuss specific safety issues that need to be taken into account in the development of an ILW disposal facility; To develop a Safety Report.

– Outcomes: The final draft “Disposal of Intermediate Level Radioactive Waste” is under preparation for submission to the Publication Committee and is intended to be published as a Safety Report in late 2016 or early 2017.

- **HIDRA**

  – Objective: To develop a report and leaflet that include: (a) the role of human intrusion in the context of the safety case; and (b) the methodology or process to consider inadvertent human intrusion.

  – Outcomes: The project report is developed as a TECDOC and is planned to be submitted to the Publication Committee by September 2016.

  – Follow-up: HIDRA Phase II, focusing on the role of assessments of inadvertent human intrusion for decision making throughout life cycle of the safety case, was launched at the first Plenary Session in January 2016.

No questions or comments to this presentation were raised by the participants.

**W.5.2  Feedback from the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes**

Mr. Vladan Ljubenov (WES/NSRW) and Mr. Geoff Williams (WASSC Chairman) briefed the participants on the outcomes of the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes, which was held from 23–27 May 2016 in Madrid. Some 530 delegates from 54 Member States and 4 International Organizations attended the conference. They represented policy and decision makers as well as technical experts from national and local governments, funding organizations, regulatory authorities, public health authorities, facility operators and waste management organizations.

The conference was structured into seven thematic sessions and included nine panel discussions. The proceedings of the conference will be published by the IAEA and made available on the conference website  ([http://www-pub.iaea.org/iaemtets/50801/International-Conference-on-Advancing-the-Global-Implementation-of-Decommissioning-and-Environmental-Remediation-Programmes](http://www-pub.iaea.org/iaemtets/50801/International-Conference-on-Advancing-the-Global-Implementation-of-Decommissioning-and-Environmental-Remediation-Programmes)).

The following recommendations are contained in the Report by the Conference President:

- Governments to establish policies and strategies for Decommissioning and Environmental Remediation (D&ER);

- D&ER programmes to be undertaken at the earliest reasonable opportunity, once the necessary prerequisites are in place;

- International standards to be enhanced, especially in the area of environmental remediation;

- International community need to do more to identify what levels of radioactive contamination could generally be regarded as being sufficiently low that they did not pose a threat to the safety of people and the environment (more quantitative standards and criteria);

- Additional consideration to be given to establishing international guidelines for post-accident recovery (reference levels, decommissioning end states and strategies, waste management and disposal strategies);
• International standards should address conditional clearance of materials from decommissioning;
• International guidance to be developed on stakeholders engagement in decision making for D&ER;
• Additional efforts needed at international level to achieve greater coordination of research and development activities related to D&ER;
• Integration of waste from D&ER into the national waste management strategies is of key importance for advancing implementation of decommissioning and remediation;
• Member States to support early planning for decommissioning of facilities and preparation of national inventories of contaminated sites – to ensure adequate provisions are available when needed and available resources are used in an optimal way;
• The IAEA to present a report on the conference outcomes to the next General Conference in September 2016;
• The IAEA to formulate a Plan of Actions aimed at addressing the identified issues.

There were no further questions or comments to this presentation.

W.5.3 Information on the International Conference on the Safety of Radioactive Waste Management

Mr. Gerard Bruno, Head of the Radioactive Waste and Spent Fuel Management Unit (WES/NSRW), provided a short overview on the International Conference on the Safety of Radioactive Waste Management, which will take place from 21–25 November 2016 in Vienna (http://www-pub.iaea.org/iaem/50807/International-Conference-on-the-Safety-of-Radioactive-Waste-Management). Its scope covers all aspects of predisposal management and disposal of radioactive waste and spent fuel, including waste arising from accidents. However, the management of radioactive waste and residues from mining activities, as well as the control of discharges from nuclear facilities and activities, are out of the scope. Two Panel Discussions will be held, one during the Opening Session and another one during the Closure Session with the Chairpersons of the eight individual sessions. These sessions will deal with the following topics:

• WPr – Predisposal – Waste Processing
• STO – Predisposal – Storage
• V&LLW – Disposal of Very Low Level Waste and Low Level Waste
• ILW – Disposal of Intermediate Level Waste
• DSRS – Disposal of Disused Sealed Radioactive Sources
• HLW – Disposal of High Level Waste, Including Spent Nuclear Fuel Declared as Waste
• PAWN – Post-Accident Waste Management: Lessons Learned and Preparedness

Until the deadline in April, 206 abstracts from 55 countries were submitted, of which 133 abstracts from 52 countries were accepted by the Secretariat.
W.6 CLOSING OF THE MEETING

W.6.1 Any other business

No further business was discussed.

W.6.2 Dates of future meetings

The Secretariat confirmed that the next WASSC meeting will be held in the week from 28 November to 2 December 2016. The dates for the meetings in 2017 have yet to be fixed.

W.6.3 Conclusions of the 41st WASSC meeting

The WASSC Chairman, Mr. Williams, concluded the session by thanking all the WASSC members and observers from international organisations for their active participation in the meeting. He also thanked the Secretariat for their work in organizing the meeting and noted that the Joint Topical Session on NORM was particularly informative and useful. Mr. Williams proposed to organize a Joint Session with EPReSC during one of the upcoming WASSC meetings.

The Chairman thanked all the WASSC members and observers from international organisations for their active participation in the meeting. He thanked the Secretariat for their work in organizing the meeting and noted that the Joint Topical Session on NORM was particularly informative and useful. Mr. Williams concluded on the importance and effectiveness of the process of approval Safety Standards and clear Security Guidance documents, by meeting together.

W.6.4 Closure

The 41st WASSC meeting was closed by the Chairman, Mr. Williams, who wished all participants a safe trip back home.
ANNEX I
AGENDA

41st Meeting of the Waste Safety Standards Committee (WASSC)

20 and 23 June 2016
Vienna International Centre
Meeting room M2, Building M, First Floor

Monday, 20 June 2016, at 14:00

<table>
<thead>
<tr>
<th>W 1</th>
<th>General Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 1.1</td>
<td>Opening of the Meeting</td>
</tr>
<tr>
<td>W 1.2</td>
<td>Chairman’s Introduction</td>
</tr>
<tr>
<td>W 1.3</td>
<td>Adoption of the Agenda</td>
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<tr>
<td>W 1.4</td>
<td>Administrative Arrangements</td>
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<tr>
<td>W 1.5</td>
<td>Report from the 40th WASSC meeting</td>
</tr>
<tr>
<td>W 1.6</td>
<td>Status of actions arisen from the 40th WASSC meeting</td>
</tr>
<tr>
<td>W 1.7</td>
<td>Waste Safety Standards – Status and future steps</td>
</tr>
</tbody>
</table>

W 2 Review of IAEA Safety Standards

| W 2.1 | DS459 Draft Safety Guide on Management of Radioactive Residues from Uranium Production and Other NORM Activities | For approval for submission to the MS | Mr. Z. Fan |

W 3 Reports from WASSC Members and International Organizations

| W 3.1 | Feedback from South Africa | For information | Ms. V. Maree |
| W 3.2 | Recent Activities of the European Commission | For information | Ms. B. Batandjiev-Metcalf |
W 3.3 Recent Activities of the NEA  
*For information*  
Ms. M. Gillogly

W 3.4 Presentation of the INPRO Manual on the INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Waste Management  
*For information*  
Mr. J. Phillips

### Thursday, 23 June 2016, at 09:00

**W 4 Documents for Information**

<table>
<thead>
<tr>
<th>W 4.1</th>
<th>DS468 Draft Safety Guide on Remediation Process for Areas Affected by Past Activities and Accidents (Revision of WS-G-3.1)</th>
<th><em>For information</em></th>
<th>Ms. T. Yankovich / Ms. M. Roberts</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 4.2</td>
<td>DS489 Revision of the Safety Guide SSG-15 by Amendment: Storage of Spent Nuclear Fuel</td>
<td><em>For information</em></td>
<td>Mr. A. Guskov</td>
</tr>
<tr>
<td>W 4.3</td>
<td>Feedback Analysis of the Safety Guide RS-G-1.8 on Environmental and Source Monitoring for Purposes of Radiation Protection</td>
<td><em>For information</em></td>
<td>Ms. T. Yankovich</td>
</tr>
</tbody>
</table>

**W 5 Status and Feedback Reports by the Secretariat**

<table>
<thead>
<tr>
<th>W 5.1</th>
<th>Status of all Waste Management Projects related to the Application of the Safety Standards</th>
<th><em>For information</em></th>
<th>Mr. G. Bruno</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 5.2</td>
<td>Feedback from the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes</td>
<td><em>For information</em></td>
<td>Mr. V. Ljubenov and Mr. G. Williams</td>
</tr>
<tr>
<td>W 5.3</td>
<td>Information on the International Conference on the Safety of Radioactive Waste Management</td>
<td><em>For information</em></td>
<td>Mr. G. Bruno</td>
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</table>

**W 6 Closing of the Meeting**

<table>
<thead>
<tr>
<th>W 6.1</th>
<th>Any other business</th>
<th>Mr. G. Williams</th>
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<tbody>
<tr>
<td>W 6.2</td>
<td>Dates of future meetings</td>
<td>Mr. G. Williams</td>
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<tr>
<td>W 6.3</td>
<td>Conclusions of the 41st WASSC meeting</td>
<td>Mr. G. Williams</td>
</tr>
<tr>
<td>W 6.4</td>
<td>Closure</td>
<td>Mr. A. Orrell</td>
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## ANNEX II
LIST OF ACTIONS

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Action</th>
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<tbody>
<tr>
<td>W1.5</td>
<td>WASSC-40 Draft Report: The Secretariat to include the comments provided by the WASSC members and to finalize the report</td>
</tr>
<tr>
<td>W2.1</td>
<td>DS459, Draft SG: Management of Radioactive Residues from Uranium Production and Other NORM Activities, to be submitted to the Member States for comment</td>
</tr>
<tr>
<td></td>
<td>1. The Secretariat to make the INPRO Manual available at the WASSC website for the WASSC members for a two months comment period</td>
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<td></td>
<td>2. The Secretariat to finalize the INPRO Manual based on the feedback received by the WASSC members (lead: Department of Nuclear Energy)</td>
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### ANNEX III
### LIST OF PARTICIPANTS

**Waste Safety Standards Committee (WASSC)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Argentina</td>
<td>Ms Marcela Medici</td>
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<tr>
<td>Australia</td>
<td>Mr Geoff Williams</td>
<td>CHAIRMAN</td>
</tr>
<tr>
<td>Belgium</td>
<td>Mr Walter Blommaert</td>
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<tr>
<td>Brazil</td>
<td>Mr Nerbe Rupert Junior</td>
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<tr>
<td>Bulgaria</td>
<td>Mr Nikolay Grozev</td>
<td>Alternate</td>
</tr>
<tr>
<td>Canada</td>
<td>Ms Pamela Doughty</td>
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<tr>
<td>China</td>
<td>Mr Xinhau Liu</td>
<td>Alternate or Advisor</td>
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<tr>
<td>China</td>
<td>Mr Qiaoe Zhang</td>
<td>Alternate or Advisor</td>
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<tr>
<td>Croatia</td>
<td>Mr Dejan Skanata</td>
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<tr>
<td>Denmark</td>
<td>Mr David Ulfbeck</td>
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<tr>
<td>Egypt</td>
<td>Mr Mohamed Abdel Geleel</td>
<td>Alternate</td>
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<tr>
<td>Finland</td>
<td>Ms Kaisa-Leena Hutri</td>
<td>Alternate</td>
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<tr>
<td>France</td>
<td>Mr Christophe Serres</td>
<td>Alternate</td>
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<tr>
<td>Germany</td>
<td>Mr Christain Goetz</td>
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<td>Hungary</td>
<td>Mr Istvan Lazar</td>
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<tr>
<td>India</td>
<td>Mr Chetan Karkash Kaushik</td>
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<td>Israel</td>
<td>Mr Roni Hakmon</td>
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<td>Italy</td>
<td>Ms Nadia Cipriani</td>
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<tr>
<td>Iran</td>
<td>Mr Hossein Sadeghloo</td>
<td>Alternate</td>
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<tr>
<td>Japan</td>
<td>Mr Ryuta Dobashi</td>
<td>Alternate or Advisor</td>
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<td>Japan</td>
<td>Mr Tatsuya Kijima</td>
<td>Alternate or Advisor</td>
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<tr>
<td>Japan</td>
<td>Mr Taiki Yoshii</td>
<td>Alternate or Advisor</td>
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<tr>
<td>Japan</td>
<td>Mr Hirokazu Tachikawa</td>
<td>Alternate or Advisor</td>
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<tr>
<td>Korea, Republic of</td>
<td>Mr Won-Jae Park</td>
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<td>Netherlands</td>
<td>Ms Saskia van Hensbergen</td>
<td>Alternate</td>
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<tr>
<td>Norway</td>
<td>Ms Mette Nilsen</td>
<td>Alternate</td>
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<td>Poland</td>
<td>Ms Barbara Zielinska</td>
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<tr>
<td>Russian Federation</td>
<td>Mr Andrei Sobolev</td>
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<tr>
<td>South Africa</td>
<td>Ms Vanessa Maree</td>
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<tr>
<td>Spain</td>
<td>Ms Julia Lopez de la Higuera</td>
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<td>Sweden</td>
<td>Mr Bengt Hedberg</td>
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<tr>
<td>Switzerland</td>
<td>Mr Olivier Beffort</td>
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<tr>
<td>Ukraine</td>
<td>Mr Volodymyr Berkovsky</td>
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<tr>
<td>United Kingdom</td>
<td>Ms Denise Varley</td>
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<tr>
<td>United States of America</td>
<td>Mr John Tappert</td>
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- **Advisors**
  - Australia: Mr Peter Hondros
  - China: Mr Peter Hondros
  - Germany: Mr Markus Archinger
  - Germany: Mr Kai Moeller
  - Japan: Mr Peter Hondros
Russian Federation  Ms Marina Nepeypivo
United States of America  Mr Rateb Abu-Eid

Organizations
European Commission  Ms Borislava Batandjieva-Metcalf
OECD/NEA  Ms Mari Gillogly
ISSPA  Mr John Miller
UNEP  Mr Ferid Shannoun