INTERNATIONAL ATOMIC ENERGY AGENCY

DIVISION OF RADIATION, TRANSPORT AND WASTE SAFETY

WASTE SAFETY STANDARDS COMMITTEE

(WASSC)

28 June – 1 July 2010

IAEA HEADQUARTERS, VIENNA, AUSTRIA

REPORT OF THE TWENTY-NINTH MEETING
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WASSC MEETING  
IAEA HEADQUARTERS, M BUILDING, ROOM M03  
28 June (Morning) and 1 July 2010

W.1. OPENING OF THE MEETING
Ms. E. Amaral, Director Radiation, Transport and Waste Safety Division (NSRW) welcomed all participants to Vienna and highlighted key issues to be addressed by WASSC during its sessions and during the joint NUSSC and WASSC sessions.

The main topics addressed in her opening speech were focused on the status of the BSS and the further steps for its approval at future Safety Standards Committee meetings and the opportunity for WASSC to discuss and approve two safety guides on Safety Case development and its associated Safety Assessment, for Predisposal Management and Disposal Facilities. She also highlighted the forthcoming Joint Convention and General Conference events.

W.2. CHAIRMAN’S REMARKS
Mr. T. Pather, Chairman of WASSC, welcomed all participants. He noted that this meeting was special as it was the first time WASSC and NUSSC were meeting in joint sessions to discuss matters of common interest. Joint sessions will be held during Monday afternoon, Tuesday and Wednesday. WASSC will have the opportunity to discuss their comments and to get a common position on the documents for approval during the dedicated WASSC sessions on Monday morning and on Thursday.

W.3. ADOPTION OF THE AGENDA
The draft Agenda was adopted. It was noted that certain items had a fixed time assigned in the agenda that could not be changed. WASSC agreed to reschedule individual agenda items, as necessary. The adopted Agenda of the meeting is attached to this report as ANNEX I.

W.4. ADMINISTRATIVE ARRANGEMENTS FOR THE MEETING
Ms. G. Siraky, WASSC Coordinator briefly informed on the administrative arrangements for the WASSC and WASSC/NUSSC sessions. Mr Haraldur Hannesson and Mr Eugenii Emets were welcomed as new WASSC members from Denmark and the Russian Federation respectively. Apologies were received prior to the meeting from the national representatives of Italy, Lithuania, Netherlands, Portugal, Sweden and Ukraine.

W.5. CHAIRMAN’S REPORT FROM WASSC 28TH MEETING
The draft Report of the 28th meeting of WASSC was adopted with two amendments:

a) under W5.1, the last sentence of the first paragraph should finish as “…. Committee approval for the document was sought to be sent to CSS for endorsement”, to be concurrent with the following action.

b) under W5.2, the last sentence of the first paragraph should finish as “…. approval of the document was sought to be submitted to MS for comment.”, to agree with the following action.
W5.1 Actions arisen from WASSC 28th meeting

Ms. G. Siraky summarized the status of the actions arisen from the 28th meeting of WASSC. All the requested actions were fully addressed by the Secretariat.

W.6. FUTURE OF WASTE SAFETY STANDARDS

Ms. G. Siraky presented the table with suggestions for the future for the Waste Safety Standards (WSS) circulated in advance to the meeting. Ms Siraky linked this presentation with the discussions held at past WASSC meeting on the future of WSS, the Reference List of Safety Guides for the long term the Road Map and a gap analysis made at WES. The table was prepared based on the new structure of Safety Standards distributed in general Safety Requirements and Guides, and specific Safety Requirements and Guides. The table referred is included in this report as Appendix I.

Ms Siraky highlighted the feedback received from experts of review or advisory missions that led to the conclusion that several specific safety guides were considered convenient to be included into the Reference List of Safety Guides, taking into account the need of specific guidance on Waste Management. The Safety Guides recommended to be included in the Reference List of Safety Guides for 2015 were:

- Regulatory Control of the releases of radioactive material from facilities and activities (Revision of WS-G-2.3)
- Predisposal Management of Radioactive Waste from Reactors (Rev of WS-G-2.5)
- Storage of Radioactive Waste (Rev. of WS-G-6.1)
- Orphan sources and other radioactive material in the metal recycling and production industry (DS411)
- Safety Case and Safety Assessment for Predisposal Management of Radioactive waste (DS284)
- The Management System for Radioactive Waste, including its disposal (Revision and combination of GS-G-3.3 and GS3.4)
- Monitoring and Surveillance of Disposal Facilities (DS357)
- The Safety Case and Safety Assessment for Radioactive Waste Disposal (DS355)
- Management of mining and milling residues [including NORM residues]. The title and scope of this document to be adjusted while developing the DPP.
- Release of Sites from Regulatory Control on Termination of Practices (WS-G-5.1)
- Safety Assessment for the Decommissioning of Facilities Using Radioactive Material (WS-G-5.2)

In addition the following comments were received:
1) DS447 and DS448 should be developed concurrently, and the Committees will later review them to determine the need to combine the two documents.

2) On DS402 and DS404 WASSC members recommended to combine both documents
W.7. DETAILED DISCUSSION ON STANDARDS FOR APPROVAL


Mr Metcalf presented the document, with an introduction referring to the position of the document in the Structure of Safety Standards and specifically in the Waste Safety Predisposal documents, supporting the facility specific Safety Standards. He also reported on the structure of the document and on the key comments received from WASSC members. Key comments/issues included:

- Safety fundamentals/waste fundamentals/Joint Convention: it was clarified that the Safety fundamentals referred to in the document was SF-1, the Safety Fundamental Principles, published in 2006, as it incorporates all the Waste fundamental principles from SS-111-F
- Diagram of Figure 1, Components of the Safety Case. Some comments indicated that it presents too much information in one diagram.
- Integrated consideration of non radiological aspects: it was clarified that the intention of this reference was to indicate that these aspects have to be considered in the Safety Case.
- Environment
- Long term storage – to be consistent with DS 371
- Spent fuel, in case of being considered a resource, it was noted that the Safety matters are the same
- Non human species – to be consistent with DS 379
- Graded approach – to be illustrated through Safety Reports, in particular the Test Case of SADRWMS project on the Waste Management facility in Thailand. There will be two other Safety Reports: one on the Dual use of casks and on the Waste Management programs for NPPs
- Suggest consideration of a numerical probability threshold, opposing recommendations were received from different MSs
- Specificity of the Safety Case guidance to predisposal activities

There was lengthy discussion on those topics and approval of the revised draft of DS284 was agreed by WASSC to seek NUSSC agreement to forward the document to CSS, after incorporating the comments received, and noting that a considerable amount of time had been spent going over the document. Mr T. Pather noted that the document would be presented to the joint NUSSC/WASSC meeting, and stressed the importance of having a common WASSC position on the document and that no major deliberations were foreseen there, considering that WASSC was the lead group and had already spent considerable time deliberating over the document. WASSC agreed that DS284 will be presented at the joint NUSSC/WASSC session for approval for submission to CSS for approval, subject to the WASSC comments to be incorporated after the meeting and to be approved by WASSC Chair before its submission to CSS.

W.8. DETAILED DISCUSSION ON THE REVIEW OF DPPs

W.8.1 DPP for DS442, the Safety Guide on Regulatory Control of the Releases of Radioactive...
Material from Facilities and Activities, (Revision of WS-G-2.3)

Mr Berkovskyy presented the DPP for the Safety Guide that will revise the existing document WS-G-2.3, published in 2000. He stressed the need for the revision to take into account the recent developments in the radiological protection policy and existing national approaches to the regulatory control of radioactive releases. The following documents have been published since 2000: ICRP 101 “Assessing Dose to the Representative Person for the Purpose of Radiation Protection of the Public and the Optimisation of Radiological Protection”, ICRP Publication No. 103 “The 2007 Recommendations of the ICRP” and the Safety Fundamentals (2006). In addition, the new SG should ensure compliance with the revised BSS. New issues to be addressed are: details of the optimisation process and the discharge authorization process should be additionally elaborated; the different purposes and regulatory status of dose constraints, dose limits and operational limits and conditions; discharges from NORM facilities, from low-risk facilities, non-uniform discharges and planned bulk discharges. A total of five comments were received from the Safety Standards Committees and all were accepted.

The DPP was agreed by committee members to be presented for approval at the joint WASSC/NUSSC session, with only one additional comment, referred to the suitability of the title. The Technical Officer and WASSC members discussed alternative titles, and the following provisional title was agreed: Regulatory Control of Releases of Radioactive Material to the Environment.


W.8.3 DPP for DS448, the Safety Guide on Predisposa Management of Radioactive Waste from Reactors (Revision of WS-G-2.5)

Ms Kinker presented both DPPs for the revision of the Safety Guides that will replace the existing documents WS-G-2.6 (DS447) and WS-G-2.5 (DS448). While the revised safety guide DS448 will cover waste generated by power and research reactors, the revised safety guide DS447 will cover waste generated by fuel cycle facilities with the exception of reactors, mining or spent fuel storage. Both documents will provide up-to-date guidance on meeting and demonstrating compliance with GSR Part 5; full use will be made of recent experience in Member States.

A total of 17 comments were received on the DPPs (8 comments on DS447 and 9 comments on DS448) from the Safety Standards Committees, of which 8 were general comments and 9 were specific comments. WASSC noted and agreed with the RASSC’s comment on the similarity between DS447 and DS448 and felt there needed to be a very clear benefit if two separate safety guides were to be developed. It was emphasized that the feedback received until now from the experts conducting review missions implies the need of guidance on radioactive waste management to be facility specific. Noting that DS447 and DS448 will be prepared concurrently, the committees will later review them to determine the need to combine the two documents. WASSC agreed on the proposal of the Secretariat and both DPPs will be presented at the joint WASSC/NUSSC session for their approval for submission to the CSS for endorsement.
W.9. REVIEW OF DOCUMENTS UNDER DEVELOPMENT


Mr Metcalf introduced the draft Safety Guide indicating its position in the current Safety Standards structure and within the related Waste Safety Standards for the disposal of radioactive waste, and referring also to the proposed content of the document. Mr Metcalf then passed to discuss the issues raised by Committee Members in the comments received for this meeting:

- Simplify diagram on the components of the Safety Case, that could be dealt by dividing the diagram into two or three different diagrams.
- Non radiological component: this issue should be considered while you operate disposal facilities, and with this sense was included into the document.
- Quantitative values: It was suggested not to use quantitative values in this safety guide
- Glossary — It was recommended to introduce a Glossary to this Safety Guide, that it is contrary to the current agreed procedures for establishing Safety Guides. It has been indicated also that the Safety Guide must be read with the Safety Requirements.
- Graded approach – It is difficult to explain the different needs of diverse facilities. In this case, it is important to apply professional judgment.
- Multiple safety functions and defense in depth – This last concept was not used in the document, as the concept of redundancy in a disposal facility it is not applicable, as it is not possible to replace a component, but the idea of redundancy is applied through the concept of multiple safety functions.

Mr Metcalf indicated that all the comments of WASSC Members have been addressed, and that the changes to the draft document will be introduced according to the WASSC Members comments. He also replied to comments raised by committee members during the meeting. Mr Metcalf requested the agreement of WASSC to proceed with this Safety Guide subject to incorporate amendments to the document according to the results of the resolution of WASSC comments and to submit the SG to CSS for endorsement.


W.9.2 DS410 – Draft Safety Guide on National Strategy for Regaining Control over Orphan Sources and Improving Control over Vulnerable Sources

Mr Reber presented the draft document. He pointed out that the objective of the document is to provide a methodology for establishing a national strategy for regaining control over orphan sources and improving control over vulnerable sources, and that the draft SG also provides recommendations on how to assess systematically the national situation, and then how to develop and implement a prioritized national strategy to achieve these goals. The document addresses one of the requirements of the “Code of Conduct of the Safety and Security of Radioactive Sources” and is the result of experience gathered in previous documents (TECDOC-1388), workshops and IAEA advisory/review missions.
Mr Reber outlined briefly the elements to be taken into account for gathering national information for the assessment of the potential problem and on the main steps in developing the national strategy. He also informed WASSC Members that DS410 was approved by RASSC for submission to CSS for endorsement at its past meeting in June 2010 and that no comments received in advance of June RASSC/WASSC meetings.

**WASSC agreed that the DS410, Safety Guide on National Strategy for Regaining Control over Orphan Sources and Improving Control over Vulnerable Sources, could be submitted to CSS.**

**W.9.3 DS411 - Safety Guide on Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries**

Mr Reber presented the draft safety guide, highlighting that its objective is to provide recommendations on applying the Fundamental Safety Principles and meeting the Safety Requirements in relation to the presence of radioactive material in scrap metal and metal products, and that it focuses on responsibilities and actions concerning the discovery of radioactive material and regaining control over it. Mr Reber clearly indicated the scope of the document and made a brief history of its development.

Mr Reber indicated that the document had been improved after Member States comments were incorporated in the areas related to graded approach, emergency preparedness and response and on differing regulatory approaches. Mr Reber presented the comments received from SSC members and their resolution. WASSC members agreed on the resolution of comments.

Mr Reber also informed WASSC Members that DS411 was approved by RASSC for submission to CSS for endorsement at its past meeting in June 2010.

WASSC Member recognized that both documents, DS410 and DS411 were very important and useful documents and that they should be published as soon as possible.

**WASSC agreed that the DS411, Safety Guide on Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries, could be submitted to CSS.**

**W. 10. PROGRESS REPORTS ON STANDARDS UNDER DEVELOPMENT**

**W.10.1 DS421 - Safety Guide on Protection of the public against exposure to natural sources of radiation including NORM residues**

Mr S. Guy presented an overview of progress on DS421. He briefly outlined the history of the document and reported on progress since the last WASSC meeting. The main bulk of outstanding work on the document comprises updating the document in terms of the revised BSS, incorporating the ICRP recommendations on radon, revising the section on the management of NORM residues and reviewing and updating the guidance on building materials. In addition DS421 will include a summary of the report "Exposure of members of the public to a large mineral residue deposit". This report will be published as a TECDOC. A consultants meeting is planned for late July 2010 to advance the draft of DS421 and additional consultancies are planned for later in the year.

A draft of the document is anticipated to be available for review in December 2010.
The Chairman pointed out that DS 421 should be compatible with DS 432 (Radiation Protection of the Public and Environment) as there was a possibility that these two documents may be merged into one document in 2011.

**W.10.2 DS427 - Safety Guide on Radiological Environmental Impact Analysis for Facilities and Activities**

Mr Telleria presented a progress report on the development status of the Safety Guide. He highlighted the aims of the document being to facilitate the elaboration of a standardized and structured approach for the Radiological Environmental Impact Analysis (REIA) to assess prospectively the radiological implications on the public and the environment, for purposes of compliance with a given acceptance criteria. He indicated the coordination of the development of the document with the Safety Fundamentals, the Safety Requirements, existing Safety Guides and with the ones that are under development and with the related Safety Reports. Mr Telleria went on to explaining the type of exposure situations to be covered by the document, as defined by the BSS, and the graded approach to apply for installations of different complexity, from hospitals to Nuclear Power Plans or Repositories. In addition the document would be applicable for different types of analyses needed for the decision and licensing processes. It was clarified that the document will cover the protection of the public and the environment on an integrated manner. WASSC Members enquired about the coverage of the accumulated impact and the impacts due to chemicals and other conventional impacts. It is expected to send the first draft of the document for revision of WASSC during the first quarter of 2011.

**W.10.3 DS432 - Safety Guide on Generic Criteria for the Radiation Protection of the Public and the Environment**

Mr. Boal informed WASSC that the first of several drafting meetings on DS432 had been held in May 2010, that a contract had been given to a consultant to further develop the output of the drafting meeting into the style of a Safety Guide, and that a further drafting meeting was planned to be held later in 2010. It was expected that a mature draft of DS432 would be provided to WASSC during 2011 for initial review by WASSC.

**W.11. OTHER BUSINESS**

**W.11.1. Report on Annual WATEC Meeting**

Ms Mele informed WASSC on the objectives, membership, main activities, working methods and recommendations of WATEC, an International Radioactive Waste Technical Committee that advises and gives support to the IAEA’s RWM programme, and provides a forum for exchange of knowledge and information. The Agenda of past meeting, held in March 2010, touched upon issues and trends in RWM in WATEC Member States, topical sessions were held on Confidence building in RWM, on Legacy waste and on Strategies for the RWM Programme of the IAEA.

Within the main results of the session on Confidence building, WATEC recognized that:

- The Joint Convention and Safety Standards significantly contribute to the stakeholders’ acceptance of RWM.
- Considers peer reviews as an important component of confidence building.

In addition, WATEC endorsed IAEA’s ongoing technical work and network activities that also contribute to stakeholder confidence. In relation to Legacy Wastes, WATEC recommended, inter alia,
to elaborate a possible format for peer reviews on legacy waste and remedial actions and to assist in reconstituting waste data and information on historical waste.

**W.11.2 WASSC Fifth term 3 years Report**

WASSC fifth term 3 years Report is under preparation and should contain suggestions of WASSC Members for next term of WASSC. The topic was open for discussion with committee members. The following suggestions were made by Mr Pather:

- The WASSC 3 yr Report should be brief and focussed in SPESS as a Reference
- It should make reference to the table where we expected to be in 2010, and what status we have achieved and where we are beyond the action plan

In relation for next term, it was recommended to keep track of the decisions made in every document, with the comments received and have this file available to the committee members. This is an ongoing work in WES, and will be further elaborated and reported during next term. An additional comment was made in relation to keep such information in an Excel file. Ms Siraky referred to the current file on Status of WSS on the WASSC web page and presented at the first meeting of this term of WASSC.

Recommendations for next term are very important to construct on the experience gained by committee members during this term. For this reason, this topic was maintained open until WASSC30 for further commenting.

**W.11.3 Discussion on advice to INLEX on German Proposals**

Mr Louvat presented the Position Paper prepared by the Safety Standards Committees Working Group for WASSC and RASSC on the advice to the Expert Group on International Nuclear Liability (INLEX) on the German Proposal for the Exclusion of Small Training and Research Reactors and Nuclear Installations being Decommissioned from the Liability Conventions. He highlighted the criteria for exclusion based on radiological risk, the need for a Safety Assessment supporting the exclusion and the administrative and regulatory aspects of the exclusion process. The document was open for discussion and WASSC agreed and ratified the content of the Position Paper (included as Appendix II to this Report).

*The position paper was ratified by WASSC, and agreed that it could be presented to INLEX.*

**W.11.4 Report on the 6th International Symposium on Naturally Occurring Radioactive Material (NORM VI)**

Mr Wymer noted the following key issues from the Symposium:

- there is broad consensus on which NORM industries are of radiological concern;
- the IAEA’s standards are being increasingly adopted in the regulation of NORM, including the graded approach to regulation and the use of the activity concentration criterion of 1 Bq/g to define the scope of regulatory control;
- worker doses in most NORM industries were less than 1 mSv per year, and only the uranium, thorium and rare earth industries tend to give rise to ranges of worker doses extending above 6 mSv per year;

- there is no evidence of public doses from NORM industries exceeding 1 mSv per year;

- there is increasing recognition and acceptance of NORM residues as being a resource rather than a waste;

- there is negligible radiological risk from the use of phosphogypsum as a soil amendment; and

- there is some concern over the complexity of the BSS for dealing with NORM

W.12 RESULTS OF RECENT WES ACTIVITIES

Mr Louvat presented the work of WES, focusing on the activities that are beyond the development of Safety Standards. The reported activities were:

- Workshop on Licensing of Disposal Facilities, held in Cape Town in December 2009, before the International Conference on Effective Nuclear Regulatory Systems. The workshop was attended by more than 90 participants, among them heads of Regulatory Authorities, Safety Assessment assessors and operators. The results of this meeting allowed us to focus the work on GEOSAF and PRISM.

- WES participated in the Panel of experts of the 22nd Annual Regulatory Information Conference, held in USA in January 2010. The topic of the panel was on Classification of Radioactive Waste (RW). The industry and the regulators supported the IAEA’s classification scheme and suggested the change of the USA current scheme of classification of RW.

- In relation to the Joint Convention a Technical Meeting on Establishing National Waste Management Organizations was held as recommended by the third Review Meeting of the Joint Convention, in Paris in June 2010. Following that an informal meeting of the Contracting Parties to the Joint Convention was held to discuss the Secretariat’s proposals to promote continuity between review meetings and to enhance communications, as requested by the third Review Meeting of the Joint Convention.

- The informal meeting of the Code of Conduct on the Safety and Security of Radioactive Sources to exchange information and lessons learnt was held in May 2010. A special session was held on Disused Sealed Sources (DSS) and its long term management, addressing that the first step is to have a centralized storage facility and as the second step, a disposal facility. Importance was given to take this into account by Member States as most of the accidents happen with DSS.

- Continuous work of WES and WT on their projects and knowledge management and networking on GEOSAF, PRISM, SADRWMS & SAFRAN tool, ENVIRONET, LABONET and IDN.

Mr Louvat also reported on the foreseen events for this year and early 2011:

- The international workshop on “Sustainable Management of Disused Sealed Radioactive Sources” will be held in Portugal, starting on 15 October. It will address the needs of MS with very small programmes or only use of Sealed Sources in industry, medicine and research. The participation of Contracting Parties (CPs) to the Joint Convention (JC) with well developed programmes are also welcome to participate in this meeting to help the target
The audience in developing their programmes to deal with DSS and to show them the benefits of being CPs to the JC.

- The International Conference on “Technical Support Organizations” will be held in Japan, by the end October 2010. Its focus is on the role and actions of technical support organizations on Safety matters, to support Regulatory Authorities, and other implementing organizations.

- The International Conference on “Retrievability and reversibility”, organized by NEA in collaboration with WENRA and the IAEA will be held in Reims, France in December 2010.

- An International Conference on Geological disposal will be held in Kyoto, Japan in October 2011.

Mr Louvat also reported news on staff:

- Mr Phil Metcalf is retiring at the end of this meeting and his position has been advertised and his replacement is in the selection process.

- There were two professional positions of WES advertised recently: one for the Decommissioning and Remediation Unit and another to fill a position in the Radioactive Waste and Spent Fuel Management Unit. Both positions are in the selection process.

- The process to fill the position of WES-SH finished, and the position has been offered to Magnus Westerlind of Sweden.

**W13. CLOSURE OF THE MEETING**

The 29th meeting of WASSC was closed by the Chair, Thiagan Pather, and by the Secretariat, Didier Louvat and Eliana Amaral. Mr Pather rendered tribute to Mr Louvat by acknowledging the latter’s valuable contribution and efforts to achieve the objectives of and well functioning of WASSC, and for the improvement in the quality of Safety Standards.

Ms. Amaral also acknowledged the work of Mr Louvat as an excellent manager, with a strategic vision of overall activities, and for achieving the objectives of the work of the Section.

Mr Louvat rendered also tribute to the work and contribution of Phil Metcalf, who is retiring after this meeting. He was the first Chair of WASSC, and later become member of the Secretariat, therefore he took part in all 29 WASSC meetings. He also acknowledged that Mr Metcalf’s experience will be difficult to replace.

Mr Louvat then closed the sessions by expressing that he was pleased to collaborate with the Chairs of WASSC and also thanked the work of the Chairs Mr Thiagan Pather and Luc Baekelandt.
NW.1. OPENING OF JOINT SESSIONS AND CHAIRMEN’S REMARKS

Mr. Pather and Mr. Vaughan briefly welcomed NUSSC and WASSC Members to the Joint NUSSC/WASSC Meeting.

It was agreed that Mr. Vaughan would chair the Joint Session on 28 June 2010.

NW2. ADOPTION OF AGENDA FOR THE JOINT SESSION

The draft agenda of the Joint NUSSC/WASSC Meeting was put on the website prior to the meeting. There were no comments on it.

_NUSSC/WASSC approved the agenda for the Joint NUSSC/WASSC Meeting (Appendix I)._

NW3. ADMINISTRATIVE ANNOUNCEMENTS

The participants of the Joint NUSSC/WASSC Meeting have been already informed about administrative arrangements at the beginning of the sessions of NUSSC and WASSC.

NW4. INTERACTION WITH OTHER COMMITTEES

NW4.1 Report from the previous meeting of the four Chairs (January and March)

Mr. Pather gave a presentation prepared together with Mr Vaughan on previous meetings of the four Chairs. The meetings were held in January and March 2010. In January, the paper on stakeholder involvement and SPESS were discussed, the draft 3.0 of the BSS for its submission to the IAEA Member States for comment was agreed and the outcomes of the four Committee meetings were reviewed. The draft DS415, issues related to transportable reactors and the review of the drafts in nuclear energy series and nuclear security series were also discussed. In March, the role of the chairs, revised Terms of Reference for Committees, Review of planned NE documents and Feedback from Joint AdSec/CSS task force were discussed.

NW4.2 Report of the RASSC28 Meeting

Mr. Colgan gave a presentation on the 28th RASSC Meeting. He reported on review of safety standards, on reports on international meetings (6th International Symposium on Naturally

**NW4.3 Report of the TRANSSC20 Meeting**

Mr. Stewart gave a presentation on 20th TRANSSC Meeting. He briefly mentioned the current status and future development of the transport standards. Mr. Stewart also reported on alternative working methods tested and used by TRANSSC (small groups of experts working on the same tasks in different parts of world; remote presentation).

**NW4.4a) Report of the CSS27 Meeting**

Mr. Delattre summarized the results of the 27th CSS Meeting held from 17 to 19 March 2010. He informed NUSSC on the safety standards that had been endorsed by the CSS:

- Disposal of Radioactive Waste, Safety Requirement (DS354) – Second review after changes to the introduction suggested by the Russian delegation
- Safety of Nuclear Power Plants: Commissioning and Operation (DS413)
- Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency (DS44)
- Geological Disposal of Radioactive Waste (DS334)
- Storage of Spent Fuel (DS371)

CSS had also approved the following new DPPs:

- DPP for a new safety guide on Radiation Protection of the Public and the Environment (DS432)
- DPP for a new safety guide on Site survey and Site Selection for Nuclear Installations (DS433)
- DPP for a new safety guide on Radiation Safety of Radioisotope Production Facilities (DS434)
- DPP for a new safety guide on Instrumentation and Control and Software Important to Safety for Research Reactors (DS436)
- DPP for the revision of TS-R-1, Regulations for the Safe Transport of Radioactive Material (DS437)
- DPP for the revision of TS-G-1.1, Advisory Material for the IAEA Regulations for the Safety Transport of Radioactive Material (DS425)

Mr. Delattre then briefly reported on the Commission’s discussion of policy issues. He reported that stakeholder involvement policy paper was approved by the CSS and incorporated in the draft.
3.0 of SPESS. The Draft 3.0 of SPESS as well as the Step by Step manual were approved by the CSS and put into force. The Reference list of Safety Guides and criteria for use were approved. CSS also requests that at each CSS meeting the update of the reference list will be presented. The update will reflect actual results at the CSS approval of DPPs. The Safety Standards Committees members and the members of the Commission on Safety Standards were asked to provide suggestions with regard to the Terms of Reference for the next cycle.

Mr. Delattre paid special attention to the Joint AdSec/CSS Task Force meetings held in October 2009 and March 2010. The Terms of Reference were discussed. It was decided to establish a Nuclear Security Series Committee with TOR consistent with the one of the Standards Committees and also to establish a similar review process for Nuclear Security Series publications. The extracts from TOR were presented:

For the short term:

- On the legal basis for the IAEA activities on nuclear security, the task force will consider the assessment performed by the IAEA Secretariat of related legal, statutory and policy issues,
- The task force will follow the implementation of the measures decided to strengthen, and ensure the transparency of the process for the review and approval of the Nuclear Security Series publications,
- The task force will propose steps to progressively establish, within the present regime of developing nuclear safety and security publications, the necessary interface of nuclear safety and security related draft publications, including their cross-verification, to ensure their completeness and consistency.

In the long term, the task force should study the feasibility of the establishment of a Nuclear Safety and Security Standards Series that would have full coverage of nuclear safety and nuclear security.

Mr. Delattre stated that preliminary tasks for the long term objective are as follows:

- An analysis should be made of the various thematic and operational areas of the nuclear security and nuclear safety domains, in order to determine the areas in which each may be unique or where they may overlap. In the areas where the safety and security domains overlap, the areas should be carefully examined in order to determine where associating the domains might be feasible
- A mapping exercise should be carried out to determine how to put together the current structure of general and specific safety standards, and the current structure of nuclear security recommendations

Action items for the 28th CSS meeting were presented:

- Legal nature of the safety standards
- Appropriateness of issuing safety requirements on Legal and Governmental responsibilities
- Nature of the recommendations in safety guides (best practices, good practices – minimum necessary?)
- Translation: status and practice
- Request from the CSS to submit the full text of the revised TS-R-1 to the BoG instead of the table of changes

Mr. Vaughan thanked Mr. Delattre for his presentation.
NW4.4b) Report on the process for the review by Technical Editors

Mr. Delattre gave a presentation on the process for review by Technical Editors. He reported that at the request of the Committees and as described in SPESS, the review by Technical Editors is now performed before review at the Committees meeting of the drafts for final submission to the CSS. Then the draft incorporating MS comments is uploaded on the SSCs web site together with the table of MS comments resolution. The draft, if possible, includes also suggested changes proposed by the Technical Editors. If not, the review by Technical Editors starts immediately after the draft is received by the Coordination Committee. Technical Editors’ proposed changes are submitted to the SSCs one week before the meeting.

Mr. Delattre stated that the Technical Editors received ten drafts for review in two months. They could process only six with the current staffing. Proposals for changes made by the Technical Editors are not necessarily only editorial. This is well described in the role of the Technical Editors in SPESS and in its Step by Step manual (see annex II). All these proposals go back to the TO who has the responsibility to assess and discuss them with the Technical Editors. Proposals for changes made by SSCs and approved by the TO are now done in a transparent manner so that the Committees know that the document they approve is the final one (before, this was done after the Committees and before the CSS; even earlier, this was done after the CSS!). At this stage, these are still proposals and they are submitted to the Committees.

The Committees and ultimately the CSS have the last word on any substantial change, either as a result of MS consultation or as a result of the review by the Technical Editors.

Mr. Vaughan thanked Mr. Delattre for his presentation and opened the floor for discussion. The first issue mentioned was that the process of safety standard development (including Technical Editors) should be the same for all SSCs. Mr. Delattre in reply stated that they have three editors. But the maximum workload is for 10 editors to work for 1 month. It was proposed to differentiate between the technical editing of Requirements and of Safety Guides.

The second issue raised and discussed concerned the changes proposed by the Technical Editors (TE) which could be seen as being substantial. Mr. Delattre responded that such changes must be first agreed with TE and consequently approved by SSCs. Mr. Delattre in reply stated that they have three editors. But the maximum workload is for 10 editors to work for 1 month. It was proposed to differentiate between the technical editing of Requirements and of Safety Guides.

The second issue raised and discussed concerned the changes proposed by the Technical Editors (TE) which could be seen as being substantial. Mr. Delattre responded that such changes must be first agreed with TE and consequently approved by SSCs. Mr. Delves added that TE must look at the text as a user. The consensus between TE and TO and the quality of the text must be found out. The Austrian delegate proposed to use two different colours for marking up Technical Editors’ comments and comments from MSs. The ENISS representative proposed that any requirement documents should be edited before sending for comments SSCs.

The Committees agreed on both proposals.

NUSSC/WASSC agreed that Requirements documents should be edited by TE before sending for comments to SSCs.

NUSSC/WASSC agreed that two colours should be used for MS and TE comments in SSs drafts uploaded for SSCs’ comments.

NW.5. TOPICAL SESSION “LEARNING FROM DISASTERS - UNDERSTANDING THE ORGANISATIONAL AND CULTURAL PRECURSORS”

Mr. Vaughan gave a presentation on Nimrod aircraft accident. He briefed the Committees about the background of the accident. RAF Nimrod aircraft (XV/230) was lost over Afghanistan in 2006 – all 14
on board were killed. Fire and explosions appeared after mid-air refuelling, due to escape or leak of fuel. There had been previous incidents and warning signs but not heeded. There was also widespread assumption that Nimrod was “safe” because it had flown for 30 years. The Nimrod Review was performed and the main findings are as follows:

- The accident was avoidable
- Major organizational failings
  - “Incompetence, complacency and cynicism”
  - “Cuts, change, dilution and distraction”
- Serious design flaws and dormant risks…
  - Nimrod safety case “a lamentable job from start to finish”
- Warning signs ignored – trends not spotted – no corporate memory
  - “a yawning gap between the appearance and reality of safety”

The lessons to be learned in the NIMROD case are not new:

- Organization was “byzantine, complex and confused”
- Lack of leadership: shift of focus to “business culture” and financial targets
- Lack of ownership: “outsourcing thinking”

The conclusions from point of view of leadership and organizational change:

- Organizations must ensure stability in safety management during periods of change/cutbacks.
- Safety issues must be dealt with when deskilling / delayering / demanding / contractorisation / budget cuts.
- Lines of accountability for safety must be clear

The independent Review of Nimrod Safety Case was undertaken by Charles Haddon, QC. Some comments from the Review:

“The Nimrod Safety Case was a lamentable job from start to finish. It was riddled with errors. It missed the key dangers. Its production is a story of incompetence, complacency and cynicism. The best opportunity to prevent the accident to XV230 was, tragically, lost.”

“The Nimrod Safety Case process was fatally undermined by a general malaise: a widespread assumption by those involved that the Nimrod was “safe anyway”. The task of drawing up the Safety Case became essentially a paperwork and “tickbox” exercise.”

The fundamental failings of Safety Case are as follows:

- Safety case became an end itself, not an aid to thinking about risks
- Safety case argued Nimrod was safe rather than examining why hazards might render it unsafe
- Operators not involved in production or review of the safety case (false assumptions made)
- Operating experience not fed back into safety case (precursors to XV230 fire)
- Nimrod Safety Case “was virtually worthless as a safety tool”

Finally the Nimrod Review recommends:

Safety Cases should be re-named “Risk Cases” to focus attention they are about managing risk, not assuming safety.

Safety Cases should meet the following principles (SHAPE):
Consequently, Prof. Taylor gave a presentation on “Learning from Disasters – Understanding the Organisational and Cultural Precursors”. He started with a brief overview of background. The presentation was about the causes and ways of reducing the risk of ‘Organisational Accidents’. These events are comparatively rare but often catastrophic and occur in all modern complex technologies. They have multiple causes, involving many people at different levels in an organisation and involve complex interactions between people and both ‘soft’ (e.g. procedures) and ‘engineered’ systems. The presentation draws on work on organisational accidents by Turner, Pidgeon, Blockley, Reason and Leveson and many others. Minimizing the risks of organizational accidents involves using judgement to build and assess the strength of the various defences (Reason’s layers of Swiss Cheese!). It involves what Turner referred to as ‘the sociology of safety’. Schein referred to these as ‘three cultures’ that need to understand and communicate with each other. The presentation summarized some of the key common identified issues under several broad ‘organisational and cultural’ headings, considered what might be done to increase awareness and the ability to form judgements and act on them and summarized some ongoing research which might help in this process.

Prof. Taylor reminded that there have been many organizational accidents and near-misses in industries, such as petrochemicals, nuclear, transport, major civil engineering projects, etc. Some have been during ‘normal’ operation, some during outages and some during one-off projects. There have been many organizational accidents and near-misses in industries such as petrochemicals, nuclear, transport, major civil engineering projects, etc. Some have been during ‘normal’ operation, some during outages and some during one-off projects. The following events were studied:

- Port of Ramsgate walkway collapse (UK, September 1994);
- Heathrow Express NATM tunnel collapse (UK, October 1994);
- ESSO Longford gas plant explosion (Australia, September 1998);
- Tokai-mura JCO criticality accident (Japan, September 1999);
- Hatfield railway accident (UK, October 2000);
- Davis-Besse nuclear reactor incident (USA, February 2002);
- Columbia Shuttle disaster (USA, February 2003);
- Paks Nuclear Plant fuel cleaning accident (Hungary, April 2003);
- BP Texas City refinery accident (USA, March 2005);
- THORP Sellafield reprocessing incident (UK, April 2005).

Findings’ from the 10 events studied have been grouped under the following eight areas (n.b. communication was an issue underpinning all of them, and some also involved specifics such as the management of contractors):

- Leadership issues;
- Operational attitudes and behaviours;
- Business environment;
- Competence;
- Risk assessment and management;
- Oversight and scrutiny;
- Organisational learning;
- External regulation.

In several events, the regulator ‘went missing’ and did not challenge poor practice or conditions. Many of the issues identified may also apply to regulators specific issues include:

- Lack of challenge/over-reliance on the judgement of the licensee/duty holder;
- Assumptions that previous ‘high performers’ had not slipped back and merited less scrutiny;
- Need to check ‘reality’ and not just paperwork;
- Need to assess commitment and competence of leaders (at all levels)
- Did not assess leadership/cultural/organisational issues — an holistic view of the licensee not taken;
- Failure to follow-up concerns and check that actions were actually effective;
- Need to integrate available information through better communication across internal organisational barriers;
- Better recognition/inspection of neglected areas required (orphan plant, ‘buried’ issues etc.).

Prof. Taylor made several conclusions on the future work in the field:

- Study of events has revealed many common issues — across different technologies;
- This may enable us to reduce risks of ‘organisational accidents’;
- Prof. Taylor and his colleagues are now working with industry (not only nuclear) and regulators to try to:

  1. Raise awareness of the issues and types of judgements required and develop new competencies;
  2. Encourage engineers (and others) to understand that ‘widgets and integrals’ are only part of the story (but still very important!);
  3. Promote increased sharing of issues and means of addressing them;
  4. Improve the draft question sets;
  5. Develop new tools to help understand and act on the issues (e.g. practical vulnerability and investigation ‘tools’ using systems concepts). This is the subject of continuing research.

After the presentation, Mr. Bassett (UK) informed about the practical application of Prof. Taylor's work in NII.

Mr. Vaughan thanked Prof. Taylor and Mr. Basset for the information provided and opened the floor for discussion. Brief discussion showed the usefulness of presenting disasters and lessons learned from the SSCs’ Member countries for further NUSSC activities. But there have been no specific conclusions.
NW.6. REVIEW OF DOCUMENTS UNDER DEVELOPMENT

NW.6.1 DS424 Draft Safety Guide on Establishing the Safety Infrastructure for a Nuclear Power Programme

Mr. Graves gave a presentation on DS424. He briefly introduced the objective and content of the document. The safety guide DPP was approved by Coordination Committee in January 2008 and the draft was sent to MS for comments in June 2009. 15 Member States and WNA/CORDELL sent 440 comments. The draft has been generally very appreciatively accepted but the need to ensure that the ultimate objective of actions proposed is the full implementation of the Safety Requirements has been expressed. As a response to one of the comments, the electronic version of safety guide with up to date hyperlinks to safety requirements and other safety guides will be created and posted on the IAEA web.

The application of the guide will be through 11 Modules:

1) Governmental, Legal and Regulatory Framework for Safety
2) Human Resources Development
3) Leadership and Management for Safety, Safety in Operating Organization & Preparation for Commissioning
4) Radiation Protection
5) Site Survey, Site Selection & Site Evaluation
6) Safety of Radioactive Wastes, Spent Fuel and Decommissioning
7) Emergency Preparedness and Response
8) External Support Organizations & Contractors
9) Design Safety, Safety Assessment and Research for Safety and Regulatory Purposes
10) Transport Safety
11) Interfaces with Nuclear Security

The draft has been already approved by TRANSSC and RASSC before the NUSSC/WASSC Meeting.

Mr. Graves asked NUSSC/WASSC for the approval of the DS for submission to the CSS. Mr. Vaughan thanked Mr. Graves for his presentation and opened the floor for discussion. No comment or questions were raised.

NUSSC/WASSC agreed that the DS424 Establishing the Safety Infrastructure for a Nuclear Power Programme could be submitted to CSS.

The Joint NUSSC/WASSC Session continued on Tuesday, 29 June 2010. The session was chaired by Mr. T. Pather.

NW.6.2 DS 414 Draft Safety Requirements on Safety of Nuclear Power Plants: Design

Mr. Gasparini gave a presentation on DS414. He reiterated the history of the document preparation process. The draft was submitted to MS for comments in September 2009 and the deadline for sending comments was January 2010. The comments were received from 16 MS and one international organization, all together 672 (Armenia 29, Austria 13, Belgium 11, Canada 10, Egypt 8, Finland 40, France 178, Germany 75, India 35, Japan 23, Romania 31, Russia 13, Slovakia 4, South Africa 4, UK 48, USA 46, ENISS/WNA 104).
Two revisions (Rev 21-March 2010 and Rev 23-April 2010) of the draft were prepared after considering the comments provided by MS and they were posted on the web area of the Committees in April 2010. The difference between the two revisions was that the second one has also included, in revision mode, the results of the technical editing and some refinements on the resolution of comments. The second draft (Rev23) that represented the latest elaboration by the Secretariat has been proposed for comments and the four Committees (TRANSSC, RASSC, WASSC and NUSSC) would discuss it during the meetings in June 2010. Major changes in draft Rev.23, with respect to the draft sent to MS for comments, were as follows:

- General improvement of the text
- Elimination of repetitions
- Requirement on interfaces between safety and security
- Latest style of format for safety requirements
- More detailed description of the conditions to be considered in the design of SSCs (Design basis)
- Revised definitions
  - Postulated Accident Conditions (Design basis accidents)
  - Severe Plant Conditions (Beyond design basis accidents)
- Qualitative acceptable radiological consequences for “Accident Conditions”

There were 360 comments received on draft Rev. 23 (Austria 43, Brazil 5, Canada 4, France 88, Germany 34, Italy 15, Japan 36, Pakistan 14, Sweden 18, Switzerland 5, UK 13, USA 49, EC 10, ENISS/WNA 26). A preliminary review of the comments received on this draft showed that there have been still many suggestions to improve the quality of the document. It seemed that the majority of these comments could be resolved without reopening long discussions and among a limited group of people. There were, however, some important and controversial issues that, as suggested by some MS, still needed further discussion before proposing the new draft for approval. These issues were mainly related to the proposed new glossary, to the explicit extension of the design basis and the acceptable radiological consequences of severe accidents. The Secretariat was willing to make any possible effort to reach the widest possible consensus on the new requirements; however, it had doubts about the opportunity to prepare a new draft to resolve the latest comments by itself. This would certainly result, in a few months, in a further batch of comments by Members of the Committees with few chances to converge on an accepted draft in a reasonable time. In addition, as the number of comments was quite large, the Secretariat could not resolve them in the short time available before the first committee (TRANSSC) meeting that would take place from 14 to 17 June 2010.

Therefore, to speed up the process of achieving consensus on a new draft of the Requirements the following procedure (the procedure was uploaded on NUSSC webpage on 9 June 2010) was proposed by Secretariat for consideration of NUSSC Members and other Committees:

1) The approval target date by the Committees is postponed to November 2010;
2) The NUSSC meeting in June will focus on achieving consensus on the relevant and more controversial topics:
   - New terms and new definitions (including their impact on other Safety Standards)
   - Requirement 15: Postulated accident conditions and associated requirements
   - Requirement 16: Severe plant conditions and associated requirements
3) NUSSC will establish a group of experts with the authority to assist the Secretariat to prepare and finalize the next draft. The modality of working of this group will be discussed at the coming meeting. The new draft will be posted on the web for comments two months before the first SSC meeting in autumn 2010 (23-26 November 2010).
4) The Committees’ meetings in November and December will discuss and hopefully approve the new draft.

Mr. Pather thanked Mr. Gasparini for his presentation and opened the floor for discussion. Some of the NUSSC Members and observers expressed their doubts about correctness of new definitions implemented in DS414. The NPPs under operation would not be complying with the new revised requirements on design (ENISS). Based on the European Directive on Nuclear Safety, there must be PSR performed in member countries. There might be problems with impact of new definitions on the PSR results. Several countries expressed their support to the new approach followed by DS414. Majority of the countries supported the Secretariat proposal on future development of the document. It was decided to establish a Working Group (WG) of NUSSC Members on DS414. The members are: Argentina, France, Germany, Japan, USA, UAE, Austria, Canada and Finland. The WG will be chaired by Mr. G. Vaughan. Mr. Pather highlighted the need for clear justification of new definitions and their implications on other safety standards. Based on it, he concluded that technical editors should be involved in the WG activities.

There was no interest expressed by any WASSC Member to participate in the WG.

The discussion on the WG “work plan” continued within the WG after Tuesday’s official agenda. All WG Members, Chair Mr. G. Vaughan, Mr. Gasparini and Mr. Svab participated. Mr. Vaughan summarized the future activities of the group:

- Small paper on new definitions in DS414 will be prepared to be submitted to the CSS in September 2010. The paper will include the reasons why the new definitions (justification of new definitions) should be implemented.
- The basement document for the new draft of DS414 is the Rev.23.
- List of major issues of DS414 could be also elaborated parallel to implementing NUSSC Members’ comments.
- The “construction” requirements should also be included in DS414.
- The meeting of the WG will be held from 6 – 9 September 2010, in Vienna.

After the end of the 29th NUSSC Meeting on Thursday, 1 July, a brief discussion was held about the immediate tasks of the working group. The following countries were represented: Argentina, Canada, Finland, France, Japan, UAE and USA. Below is the summary of the agreed steps:

1) Mr. Gasparini will select among the comments received from NUSSC Members those directly related to the "difficult" topics (Revised terminology; Requirement 15” Postulated accident conditions, and associated requirements; Requirements 16: Severe plant conditions, and associated requirements) and send them to WG.

2) All WG Members will consider the comments and prepare a proposal for the resolution of the difficult topics having in mind that the formulation should be as consensual as possible. The proposals will be prepared amending in revision mode the text of the latest draft (Rev 23, p.g. 18-20, 56-57) of the revised NS-R-1. The proposals should be posted on the WG web site (http://collaboration.san.iaea.org/LotusQuickr/nsr1nussc/Main.nsf/h_Toc/1BE01B51E0616302C12577650034C3DE/?OpenDocument) and emailed to Mr. Gasparini by the 23rd of July.

3) Mr. Gasparini will prepare a new draft of the revision of NS-R-1 incorporating the "easy
fixing” comments and to the extent possible WG Members input. The new draft will be sent to WG Members before the end of July and also posted on the web site of the WG.

4) The new proposals of WG Members and the new draft will be discussed in the meeting of the WG in Vienna from 6 to 9 September 2010.

NW.6.3 DS405 Draft Safety Guide on Volcanic Hazards in Site Evaluation for Nuclear Installations

Mr. Godoy gave a presentation on DS405. He underlined the objective of the document related to provide recommendations and guidance on assessing the volcanic hazards at a nuclear installation site, so as to enable the identification and characterization in a comprehensive manner of all potentially hazardous phenomena that may be associated with future volcanic events. These volcanic phenomena may affect the acceptability of the selected site during the survey and selection process and some of which may determine corresponding design basis parameters for the installation. The guide is intended to be used mainly during the site selection process of new nuclear installations. It may also be used for existing nuclear installations for a retrospective assessment of the volcanic hazards external to the installation that may affect it. The proposed draft uses graded approach for other nuclear installations than NPPs.

The draft was sent to MS for comments in December 2009. 78 comments were received from MS (Germany 47, Pakistan 2, Russia 6, UK 2, and USA 21). 73 comments were accepted and 5 rejected. Mr. Godoy mentioned several MS comments and issues like:

- High level waste and disposal facilities are not covered by the guide (such facilities were not included in the DPP).
- Definition of capable volcano or volcanic field.
- Deterministic vs. probabilistic approaches for assessing the hazard. (The guide does not specifically advocate for one over the other. It does recommend that both should be applied.)

The revised draft with implemented MS comments was sent to NUSSC and WASSC for comments. 25 comments (France 12, Japan 1, Pakistan 2, USA 4, Canada 6) were sent by Committees Members. 22 were accepted and 3 rejected.

Mr. Godoy asked NUSSC/WASSC for approval of the DS for submission to the CSS. Mr. Pather thanked Mr. Godoy for his presentation and opened the floor for discussion.

During a brief discussion, the Japanese delegation mentioned the rapid progress of research in the field. It expressed the opinion that IAEA International Seismic Safety Center should continue in volcanic hazards research. Mr. Godoy confirmed the continuing efforts of the IAEA in the field.

Mr. Pather closed the discussion and agreed with the NUSSC/WASSC Members that the guide was ready for submission to CSS.

NUSSC/WASSC agreed that the DS405 Volcanic Hazards in Site Evaluation for Nuclear Installations could be submitted to CSS.
NW.6.4 DS417 Draft Safety Guide on Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations

Mr. Godoy gave a presentation on DS417. He mentioned the objective of the draft standard which is to provide guidance on evaluating hazards associated with meteorological and hydrological phenomena that may affect nuclear installation safety. It provides recommendations on determining the corresponding design bases, including measures for site protection. It is intended for use by regulatory bodies and for operating organizations. The draft merges two current safety guides. The guide will be used for the site selection and site evaluation processes of new or existing nuclear installations. It takes into account the hazards “external to the installation”.

The draft was sent to MS for comments in November 2009. 216 comments were received from 9 MS and one international organization, namely Finland 12, France 18, Germany 68, Japan 5, Pakistan 4, Russia 9, Spain/CSN 21, Spain/Enresa 3, UK 22, USA 40 and WNA/CORDEL 14. 175 comments were accepted and 41 were rejected. According to Mr. Godoy, there was significant contribution from Japan to tsunami hazard assessment. In that regard, specific current practice from Japan and USA was put into Annex 2 of the guide. There was also significant contribution from France and USA to meteorological and hydrological hazard assessments in line with recent (deterministic and statistical/probabilistic) methods and practices. The WMO and expert from IPCC Working Group on climate change have been participating in draft development. Mr. Godoy stressed the consistency of DS417 with other safety guides on site evaluation under development and revision. The main issues of DS417 identified when the new draft was prepared after the MS comments were as follows:

- Tsunami induced by landslides and volcanic phenomena: status of research vs. current engineering practice.
- Groundwater monitoring.
- Use of probabilistic approach, uncertainties, experts elicitation.
- Combination of events, Annexes 1 and 5 were merged.
- Measures for site protection.
- Climate change, IPCC latest findings and report.
- Monitoring and warning systems: meteorological and hydrological hazards were treated in a more balanced way and details were moved to Annex 3 for tsunami.
- Improvement of text clarity and editorial corrections.

The new draft with the MS and Technical Editor comments implemented was sent to NUSSC and WASSC for comments. Only 5 comments from NUSSC and WASSC Members were received (France 4, Japan 1). All comments were accepted.

Finally, Mr. Godoy asked NUSSC/WASSC for the approval of the DS for submission to the CSS. Mr. Pather thanked Mr. Godoy for his presentation and opened the floor for discussion.

The US representative informed that there is an ongoing update on tsunami effect on standards in the USA. He proposed the US standards could be used in the future update of the
IAEA safety standards.

Mr. Pather closed the discussion and agreed with the NUSSC/WASSC Members that the guide was ready for submission to CSS.

**NUSSC/WASSC agreed that the DS417 Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations could be submitted to CSS.**

At the very end of the Joint NUSSC/WASSC, Session’s point 6.4, Mr. Godoy summarized NUSSC and WASSC effort during the last 4 years with respect to review and development of safety guides in the subjects involved in recent extreme natural events. These were:

- Earthquakes:
  - Seismic hazard assessment.
  - Seismic safety re-evaluation of existing installations (NS-G-2.13).
- Tsunamis, floods and meteorological phenomena.
- Volcanoes and associated volcanic phenomena.

The future NUSSC/WASSC tasks will be:
- Site Selection (Siting) (DS433)
- Environmental Site Related Aspects (DS427)
- Seismic Design and Qualification for New Installations
- Site Evaluation Safety Requirements (NS-R-3)

**NW.6.5 DS284 Draft Safety Guide on Safety Case and Safety Assessment for Predisposal Management of Radioactive Waste**

Mr Metcalf introduced the document, indicating its position in the structure of safety standards and specifically within the waste safety predisposal documents. Its main role is to support the facility specific safety standards. He also reported on the structure of the document and on the key comments received from WASSC Members, and discussed at the dedicated WASSC session. Key comments/issues included:

- Safety fundamentals/waste fundamentals/Joint Convention: it was clarified that the safety fundamentals referred to in the document was SF-1, the Safety Fundamental Principles, published in 2006, as it incorporates all the waste fundamental principles from SS-111-F.
- Diagram of Figure 1, Components of the Safety Case. Some comments indicated that it presents too much information in one diagram.
- Integrated consideration of non radiological aspects: it was clarified that the intention of this reference was to indicate that these aspects have to be considered in the Safety Case.
- Environment.
- Long term storage – It was stressed the need to be consistent with DS 371.
- Spent fuel, in case of being considered a resource: it was noted that the safety matters are the same.
- Non human species – It was stressed the need to be consistent with DS 379.
- Graded approach – It was agreed to be illustrated through safety reports, in particular the Test Case of SADRWMS project on the waste management facility in Thailand. There will be two
other Safety Reports: one on the Dual Use of Casks and on the Waste Management Programs for NPPs.

- Suggestions for considering guidance on numerical probability thresholds and that opposing suggestions were received from different MSs.
- The specificity of the Safety Case guidance to predisposal activities.

No specific comments from NUSSC were received.

NUSSC and WASSC approved the document for submission to the CSS for endorsement, considering that comments received at WASSC29 will be introduced by the Secretariat and the amendments will be checked by the WASSC Chair for consistency.

**NUSSC/WASSC agreed that DS284, Safety Guide on Safety Case and Safety Assessment for Predisposal Management of Radioactive Waste, with comments to be implemented and to be approved by WASSC Chair, could be submitted to CSS**

**NW.6.6  DS426  Draft Safety Guide on Periodic Safety Review of Nuclear Power Plants**

Ms Toth gave a presentation on DS426. The presentation was an epitome of the presentation done on Monday 28 June 2010 (see Item No. N1.10). She summarized yesterday’s discussion and stated that there is no unresolved issue with NUSSC on DS426.

Ms. Toth asked NUSSC/WASSC for approval of the DS for submission to the CSS. Mr. Pather thanked Ms. Toth for her presentation and opened the floor for discussion.

The UK representative stated that in the UK there are PSR performed also for non-NPP installations. What is the IAEA plan? In response, Ms. Toth said there is the provision in the guide to use graded-approach and to apply the guide on any installation. The need of consistency with new requirements on design of NPPs was stressed several times during the discussion.

**NUSSC/WASSC agreed that the DS426 Safety Guide on Periodic Safety Review of Nuclear Power Plants is approved and could be submitted to CSS after check of editorial changes by the NUSSC Chairman.**

**NW.6.7  DS437  Draft Safety Requirements - Regulations for the Safe Transport of Radioactive Material, 20XX Edition (revision TS-R-1)**

Mr Stewart presented the document and indicated the different steps completed until now. He noted that nearly 500 proposals of amendments were received, and that TRANSSC 19 and several consultant meetings have been working on resolving such proposals. The results of this review led to changes to 80 paragraphs, with additional text to address fissile excepted material, NORM and UF6. Mr Stewart stressed the need to have TS-R-1 and BSS harmonized.

NUSSC and WASSC agreed with TRANSSC and RASSC to approve DS437 for submission to Members States for comment.
NUSSC/WASSC agreed that DS437 Safety Requirements - Regulations for the Safe Transport of Radioactive Material, 20XX Edition (revision TS-R-1) could be submitted to MS.

NW.6.8 DS407 Draft Safety Guide on Criticality Safety

Mr. Jones gave a presentation on the DS407. He briefly summarized the document development. The DPP was approved by the SSCs in April 2006; a draft of the safety guide was posted on Committees website in March 2010. There were 236 comments received from all four Committees on this draft, namely Algeria 2 (NUSSC), Argentina 4 (NUSSC), Belgium 2 (NUSSC), ENISS 18 (WASSC), Egypt 2, Finland 20 (NUSSC), France 58, ISO 20 (TRANSSC), Japan 28 (NUSSC + WASSC), Switzerland 2, UK 37 (NUSSC), USA 43 (all Committees). 198 comments were accepted, 33 comments were rejected and 5 comments were not resolved before the first SSCs Meeting starts (TRANSSC – 14 June 2010). Mr. Jones said that the resolution of the comments resulted in:

- Improved clarity of text
- Additional recommendations
- Consistency in terminology
- Removal of redundant paragraphs
- Editorial corrections

He also mentioned the main changes implemented in the draft from approved DPP. These are as follows:

- New title:
  - DPP - “Criticality Safety”
  - Post Comment – “Criticality Safety for Facilities and Activities Handling Fissionable Material”

- New content:
  - Chapter 6 “Planned Response to Criticality Accidents”
  - Bibliography

- Temporary use of definitions

Mr. Jones stated status of remaining comments – Japan (1) and USA (4). All 5 comments were related to the Chapter 3 of the documents:

- Explain the methods for determining the safety margins for Keff and controlled parameters.
- Add explanatory text relating to fault tolerance.
- Add guidance on what is to be inspected and surveyed when addressing the availability and reliability of safety measures.

All 5 comments were accepted.

Finally, Mr. Jones asked NUSSC/WASSC for approval to send DS407 to Member States for comment. Mr. Pather thanked Mr. Jones for his presentation and opened the floor for discussion.
Mr. Jones was asked by NUSSC to make the new text with all comments implemented available on the SSCs webpage. The new text will be provided by 22 September 2010 at the latest.

**NUSSC/WASSC concluded that DS407 Safety Guide on Criticality Safety should be redrafted. New text will be submitted to NUSSC/WASSC.**

**NW.7. REVIEW OF DOCUMENT PREPARATION PROFILES (DPPs)**

**NW.7.1 DS439 DPP for Appendix IV "Reprocessing Facilities" and Appendix V "Fuel Cycle Research and Development Facilities" of NS-R-5**

Mr. Jones gave a presentation on the DPP for DS439. He explained the objective of the document which is to complete the set of fuel cycle facility safety requirements. This means:

- Add appendices to NS-R-5 to provide specific safety requirements for:
  - Reprocessing facilities
  - Fuel cycle research & development facilities
- Addition of appendices to NS-R-5 will allow completion of the related safety guides:
  - DS360 Reprocessing
  - DS381 R&D

NS-R-5 was published in 2008. The General Safety Requirements are included in Chapters 1 – 10 and Specific Safety Requirements in Appendix I (Uranium fuel fabrication), Appendix II (MOX fuel fabrication) and Appendix III (Conversion and enrichment).

The proposed DPP was reviewed by NUSSC and WASSC Members. 11 comments were sent to the Secretariat from 3 NUSSC/WASSC Members. Japan 4 (NUSSC), UK 3 (NUSSC) and USA 4 (WASSC). Basic comments were as follows:

- Add management of radioactive waste
- Add a specific reference to effluent management
- Add a specific reference to cooling as a safety function
- Add a specific reference to limits and conditions
- Include management systems under operation
- Include recording keeping in the MITS section

All the comments were accepted.

Finally, Mr. Jones asked NUSSC/WASSC for approval to submit the DS439 DPP to CSS. Mr. Pather thanked Mr. Jones for his presentation and opened the floor for discussion.

During a brief discussion, Mr. Pather suggested that SPESS should be added to describe the process when an Appendix is developed to the existing safety standard. Mr Vaughan raised the issue of the update of the hard copy publication.
NUSSC/WASSC agreed that DS439 DPP Safety Requirements Appendix IV "Reprocessing Facilities" and Appendix V "Fuel Cycle Research and Development Facilities" of NS-R-5 could be submitted to CSS.

NW.7.2 DS441 DPP for Construction Activities at Nuclear Installations

Mr. Inoue gave a presentation on DS441 DPP. He informed NUSSC/WASSC on the background of the proposed Safety Guide. He emphasized that the objective of manuscript is to make recommendations which will enable construction of nuclear installation to proceed with high quality consistent with applicable codes, standards, and design requirements. The construction is one of the critical prerequisites to ensure safety of nuclear installation during commissioning and operation for its life.

Mr. Inoue informed NUSSC/WASSC that the DPP was uploaded on the NUSSC website prior to the meeting for comments. He received a total of 91 comments from NUSSC/WASSC Members (India 4, Pakistan/PNRA 3, EC 13, US 2, Japan/NISA, JNES 1, ENISS 6, France/AS 9, Hungary 6, Finland 8, Canada/CNSC 24, WNA/CORDEL 15). He reported that 22 comments were accepted, 49 were partially accepted and 20 were rejected.

Mr. Inoue drew the attention of NUSSC/WASSC to the most noteworthy comments and to their responses:

*Comment (EC):* Proposed safety guide does not support any safety requirement.

*TO’s Response:* Currently, no IAEA safety requirement exists on construction of nuclear installations. Future revision of the IAEA safety standard is necessary. However, a great demand and urgency exist to issue such a safety guide as soon as possible for construction projects already taking place world-wide. Moreover the new structure of the safety standards does not require direct link to safety requirements.

*Comment (Canada, USA, WNA/CORDEL):* Manufacturing/Fabrication should be separated from the proposed safety guide.

*TO’s Response:* Manufacturing/Fabrication is an integral part of construction and Member States would benefit greatly from this inclusion. Proposed SG would provide general safety issues which licensee, owner, or regulators should confirm to ensure safety (=quality) of the SSCs.

*Comment (Japan, Pakistan):* The coverage (on Civil /Architectural, Mechanical, Electrical, etc) is too big, complex, and probably not possible to reach consensus. Separate guides or TECDOC is suggested.

*TO’s Response:* There are many aspects of the technical issues which are fundamentally common from the perspective of ensuring SAFETY, and they should be clarified. The proposed safety guide intends to cover general but critically important issues in these technical areas, thereby providing recommendations to licensees, owners or regulators on safety significant issues which should be checked and confirmed during construction to ensure safety (=quality) of the SSCs.

*Comment (France, Hungary):* The intended target (users) should be clarified.

*TO’s Response:* The proposed safety guide is mainly for licensee, owner and regulators to check and confirm during construction to ensure safety (=quality) of the SSCs but can also be used by any stake holders of the construction project. In par.4 “Justification” of the DPP, regulatory bodies and any organization providing technical specifications to a vendor or
assessing vendors’ qualifications and performance are described as possible users.

Comment (Canada, France, Hungary): DPP and the proposed safety guide should clarify each construction organization’s roles, responsibilities, and objectives (i.e. during inspections).

TO’s Response: Each organization’s roles, responsibilities and objectives and their relationships with others are unique for each case. Thus, it is difficult to specify and agree among all members on which actors have what roles, nor make a matrix of all possible cases, except licensee being responsible for safety.

Comment (Pakistan, WNA/CORDEL): Safety classification should be removed since it will be covered by other proposed safety guide, DS367.

TO’s Response: The proposed safety guide will recommend how to implement Safety Classification during construction. For example, implementation of safety classification to: construction requirements specified by design, qualifications of construction personnel, construction methods, QA, records, procurement specification, and tests.

Comment (Finland, WNA/CORDEL): A new section on construction management (= project management) should be added.

TO’s Response: The topics of construction management will overlap significantly with the contents of GS-G-3.1, GS-G-3.5 and its Appendix V (Management System during construction phase).

Comment (almost all Members): Addition of missing technical issues into TOC as subtopics. Inconsistencies among each technical field in TOC are evident.

TO’s Response: TOC has been restructured and simplified to cover all suggested additional issues under these “general” subtopics. Inconsistencies are minimized. Further small changes in TOC are expected in future, but should be kept to a minimum.

Finally, Mr. Inoue asked NUSSC/WASSC for approval to submit the DPP to the Commission. Mr. Pather thanked Mr. Inoue for his presentation and opened the floor for discussion.

The major comments from the extensive discussions were as follows:

Comments from Finland:

(1) I believe NUSSC should first discuss what kind of Safety Guide (SG) we should develop since Finland would like to suggest revising overall TOC structure to incorporate many lessons learned related to organizational and managerial issues from Finland’s construction experience.

Answer (Y. Inoue): The issues related to Management System can be added to a subtopic about Management System under “General Requirements for Construction of Nuclear Installations.”

(2) What should be the hierarchical level of this SG? Don’t we also need a Safety Requirement for this SG?

Answer (Y. Inoue): No single dedicated Safety Requirement exists which supports this SG and this should be considered for the near future development plan.

(3) There is a Safety Report being developed on regulatory activities during construction and this is a questionable process since there could be a lot of overlaps. There should be close collaboration between this Safety Report and this SG, but it does not seem to be happening.

(4) Why is Safety Report for Regulators not a SG? Shouldn’t it be on the same level as this SG?
Answer to (3&4) (M. Lipar- IAEA): There has been an internal discussion about how to write these two documents. It was decided that the IAEA should not make separate SGs made for operators (licensee) and regulators in order to keep consistency with the current SG format (i.e. Conduct of Operation).

G. Vaughan (Chair): The organizational and managerial matters are important issues to be included in this SG. This document is not about construction safety, but about ensuring that during construction the design requirements for safety are met.

FORATOM: The organizational and managerial matters are MOST important issues to be addressed.

Answer Y. Inoue (IAEA): If organizational and managerial issues are the focus of the SG, I think there would be many overlaps with GS-G-3.1/3.5 and there would be too much repetition.

Response by M-L Jarvinen: We believe there are no overlaps with GS-G-3.1/3.5.

Answer Y. Inoue: Then we need to discuss this, but based on your comment #47 in the Comment Resolution Table with your proposed TOC, it looks like there are a lot of overlaps.

Hungary: In the document there should be a section on roles and responsibilities clarifying each, especially contractors. We hope that this is clarified somehow.

Answer Y. Inoue: Since each construction project has unique actors, roles and responsibilities, it would be difficult to make such description but may be discussed in future for possible inclusion. The responsibility of the licensee will be included for sure.

T. Pather: In the DPP there is inconsistency between background and scope of the DPP; in the Background is NPP but in the scope is Nuclear Installation mentioned.

EU: The IAEA should consider developing the safety requirement for construction in the long term.

Japan: DS441 should not be a SG with this TOC. This should be a TECDOC.

Australia: Based on the issues listed in TOC, it should not be a SG.

Japan: Would like to recommend NUSSC that the Technical Officer should overhaul the content of DPP and come back on next NUSSC.

T. Pather: Based on the comments heard so far, the DPP’s justification seems to be weak for a SG. Therefore, it is concluded that the DPP should be revised. But one possibility could be to start this document as a TECDOC and then to produce a SG based on this TECDOC. The subject of the DPP is very important for new embarking countries.

S. Calpena (IAEA): The IAEA definitely needs not only SG on construction but also a requirement considering the amount of construction going on presently in the world. The proposed content of this SG may not be agreeable at the moment but we still need SG and requirement for construction issues.

D. Delattre (IAEA): We need SG on construction beyond what is included in GS-G-3.1/3.5.

Spain: SG on construction is needed. It is beneficial for Member States. There are design, commissioning, and operation SGs, but construction is missing.

T. Pather: In summary, the DPP should be modified with stronger justification and agreeable TOC.

G. Vaughan: Group of experts should be formed (Consultancy Meeting; with representatives of those who commented against this DPP) to revise the DPP. This is indeed an important document and we need to have this guide as a SG. In addition, considering the technical neutrality of these issues
described in this SG, the scope of this guide may be widened to more than nuclear installation. Furthermore, the title may be misleading since readers may only think of it for new builds without manufacturing/fabrication. QA of manufacturing/fabrication is very important and it should be in the SG. It may also be applicable to all life cycles (modification construction during operation, etc.).

**NUSSC/WASSC concluded that DS441 DPP Safety Guide on Construction of Nuclear Installations should be redrafted and submitted to NUSSC/WASSC.**

**NW.7.3 DS442 DPP for SG on Regulatory Control of the Releases of Radioactive Material from Facilities and Activities (Revision of WS-G-2.3)**

Mr Berkovskyy presented the DPP for the safety guide that will revise the existing document WS-G-2.3, published in 2000. He reported on the need for the revision to take into account the recent developments in the radiological protection policy and existing national approaches to the regulatory control of radioactive releases. The relevant documents published in this field since 2000 are: ICRP 101 “Assessing Dose to the Representative Person for the Purpose of Radiation Protection of the Public and the Optimisation of Radiological Protection”, ICRP Publication No. 103 “The 2007 Recommendations of the ICRP” and the “Safety Fundamental Principles”, IAEA, (2006). In addition, the revised SG should ensure compliance with the revised BSS. New issues to be addressed are: details of the optimization process and the discharge authorization process should be additionally elaborated; the different purposes and regulatory status of dose constraints, dose limits and operational limits and conditions; discharges from NORM facilities, from low-risk facilities, non-uniform discharges and planned bulk discharges. A total of five comments were received from the Safety Standards Committees and all were accepted.

Mr Berkovsky reported on the discussions held at WASSC dedicated session, referred to the suitability of the title. It was indicated that the following provisional title as agreed: **Regulatory Control of Releases of Radioactive Material to the Environment.**

**NUSSC/WASSC concluded that DPP for DS442, Safety Guide on the Regulatory Control of the Releases of Radioactive Material from Facilities and Activities (Revision of WS-G-2.3), with comments to be implemented, could be submitted to CSS.**

**NW.7.4 DS448 DPP for the SG on Predisposal Management of Radioactive Waste from Reactors (Revision of WS-G-2.5)**


Ms Kinker presented both DPPs for the revision of the safety guides that will replace the existing documents WS-G-2.6 (DS447) and WS-G-2.5 (DS448). While the revised safety guide DS448 will cover waste generated by power and research reactors, the revised safety guide DS447 will cover waste generated by fuel cycle facilities with the exception of reactors, mining or spent fuel storage. Both documents will provide up-to-date guidance on meeting and demonstrating compliance with GSR Part 5; full use will be made of recent experience in Member States.

A total of 17 comments were received on the DPPs (8 comments on DS447 and 9 comments on DS448) from the Safety Standards Committees, of which 8 were general comments and 9 were specific comments. WASSC noted and agreed with the RASSC’s comment on the similarity between
DS447 and DS448 and felt there needed to be a very clear benefit if two separate safety guides were to be developed. It was emphasized that the feedback received until now from the experts conducting review missions implies the need of guidance on radioactive waste management to be facility specific. Noting that DS447 and DS448 will be prepared concurrently, the Committees will later review them to determine the need to combine the two documents. WASSC and NUSSC approved the DPPs for submission to the CSS for endorsement.

**NUSSC/WASSC agreed that the DPP for DS447, Safety Guide on Predisposal Management of Radioactive Waste from Fuel Cycle Facilities (Revision of WS-G-2.6), with comments to be implemented, could be submitted to CSS.**

**NUSSC/WASSC agreed that the DPP for DS448, Safety Guide on Predisposal Management of Radioactive Waste from Reactors (Revision of WS-G-2.5), with comments to be implemented, could be submitted to CSS.**

**NW.7.6 DS449 DPP for a safety guide on Content of the Safety Analysis Report for NPPs**

Ms. Toth gave a presentation on DS449 DPP. She summarized the objective of this Safety Guide that is to provide guidance for preparing a Safety Analysis Report following a structure and content that allows verifying the compliance of the siting, design, construction, commissioning, operation and decommissioning of the nuclear power plant with the IAEA safety standards. This Safety Guide is intended for nuclear power plants and it will be prepared in a technology neutral form to extend its applicability to nuclear power plants of a different type. She also made an overview of the content of the document. The proposed table of content includes lessons learned from safety documentation recently developed for new reactor designs. In addition, the revised Safety Guide will reflect more the recently published safety standards in the following areas:

- Description of different types of plant systems (civil and structured engineering, mechanical, electrical, I&C)
- Management of safety
- Emergency preparedness
- Decommissioning, environmental aspects
- Accident analysis (analysis of shutdown operational regimes, beyond design basis accidents and severe accidents)
- Deterministic safety analysis and probabilistic safety assessment.

The proposed content of the Safety Analysis Report is as follows:

- Introduction, general plant description and general considerations (including principles of safety management)
- Site related characteristics – External Events Design Bases
- General compliance with requirements for the design of SSCs
- Reactor
- Reactor coolant and connected systems
- Engineered safety features
- Instrumentation and control
- Electric power
- Auxiliary systems
• Steam and power conversion systems
• Radioactive waste management
• Radiation protection
• Conduct of operations
• Plant commissioning
• Safety analysis including transient and accident analyses (deterministic and probabilistic)
• Limits and conditions
• Management systems
• Human factors engineering
• Emergency preparedness
• Environmental aspects
• Decommissioning and end of life aspects

Ms. Toth informed NUSSC/WASSC that the DPP was uploaded on the NUSSC website prior to the meeting for comments. She received a total of 43 comments from NUSSC/RASSC/WASSC Members and observers (Belgium 4, Canada 10, Finland 2, France 7, Japan 2, Pakistan 6, UK 5, USA 5, EC 1, ENISS 1). She reported that 42 comments were accepted or partially accepted and 2 were rejected.

Ms. Toth drew the attention of NUSSC/WASSC to several comments. Finally, Ms. Toth asked NUSSC/WASSC for approval to submit the DS449 DPP to CSS.

Mr. Pather thanked Ms. Toth for her presentation and opened the floor for discussion. There was several times raised the question why the content of SAR for NPPs is prepared and the other one for content of SAR for Research Reactors. Some of the participants stressed that it is a good chance to combine this content of SAR for NPPs with content of SAR for Research Reactors. Mr. Pather was of the opinion that the DPP should reflect all nuclear installations and not only the NPPs. Mr. Vaughan offered the UK help with broadening SAR content to the fuel fabrication facilities.

**NUSSC/WASSC concluded that DS449 DPP Content of Safety Analysis Report should be redrafted and submitted to NUSSC/WASSC again.**

**NW.8 STATUS REPORT ON DOCUMENTS UNDER DEVELOPMENT**

**NW.8.1 DS379 Draft SR Protection against Ionizing Radiation and for the Safety of Radiation Sources (Rev BSS)**

Mr. Boal presented to WASSC and NUSSC members a summarized report on the results of the Member States’ consultation on the revised version of the BSS and on the results of the RASSC meeting where such outcomes were discussed. He informed that at the end of the period of Member States’ consultation more than 1500 comments had been received from 37 IAEA Member States as well as from the international organizations. He also pointed out that the closing date for comments was 31 May 2010, and in the 4 weeks since the comment deadline the IAEA Secretariat had analysed the comments and identified 12 key issues and that RASSC members had been asked to provide feedback on them at their meeting held from
21-24 June 2010. RASSC members had raised a further 10 issues for discussion during the RASSC meeting. He informed WASSC and NUSSC members of the outcome of the discussions at RASSC on each of the 22 issues. Full details of the discussion at RASSC can be found in the report of the RASSC28 meeting.

Mr. Boal concluded his presentation by outlining the next steps in the revision of the BSS and that the Secretariat would be asking the Safety Standards Committees to approve the revised BSS, after incorporating the resolution of Members States’ comments at their meetings to be held in November and December 2010.

WASSC and NUSSC raised a number of issues for clarification, including the final sentence of para. 1.23 concerning the relevance of radiation protection practices in setting smoking policies in workplaces; and whether WASSC and NUSSC would receive an edited version of the revised BSS prior to their next meetings. The latter was confirmed by the Secretariat.

**NW.8.2 DS401 Draft Safety Guide on Justification of Practices**

Mr. Boal provided WASSC and NUSSC members with an overview of the history of the development of DS401. He pointed out that the Secretariat had started preparing a Safety Report on the matter in 2004 that this document had been reviewed by RASSC at both of its meetings during 2005 and that RASSC had asked that the Safety Report be upgraded to a Safety Guide. RASSC had approved a DPP for DS401 during 2006. Mr. Boal added that work on DS401 has been paused during 2007, as the revision of the BSS would impact on the content of DS401. Mr. Boal outlined the scope and content of DS401 and the work that has been carried out on DS401 in the past 6 months to bring it in line with the revised BSS and with the latest recommendations of the ICRP. He informed WASSC and NUSSC of the comments that had been received from RASSC members on the latest draft of DS401 and on how the Secretariat would deal with them.

WASSC and NUSSC raised some issues:

- Whether it would be beneficial to include NPPs in the scope of DS401. Discussion continued about the level of demonstration needed for the justification process that could go far beyond safety and protection matters, and if a justification study would be required for each practice or for a type of practice. Finally no consensus was reached on the topic.

- The justification of scanners in airports; and that while it would be appropriate to justify their use in some airports, it may, however, be inappropriate to justify their general use in all airports.

**NW.9 TOPICAL SESSION ON DISCUSSION OF DECOMMISSIONING DOCUMENTS UNDER ELABORATION (DS402, DS404)**
NW.9.1  *Ds402 Draft Safety Guide on Decommissioning of Nuclear Power Plants and Research Reactors (to supersede WS-G-2.1), and*


Ms Wong presented a progress report on the Safety Guides on Decommissioning, as well as, a discussion on comments received on the preliminary drafts of DS402 and DS404. Specifically, she reported on the background of revising these safety guides, their table of contents, a proposed schedule for completing the revisions, and proposed resolutions of the comments received from Japan, UK and USA. The Committees’ discussion focused on the need to have separate or joint documents. The Secretariat was encouraged to combine the guidance documents of DS402 and DS404 although there are different complexities involved in decommissioning both types of facilities.

**NW.10  OTHER BUSINESS**

**NW.10.1  Issues related to barge mounted transportable reactors**

Mr. Gasparini gave a presentation on issues related to barge mounted transportable reactors. He reminded the Committees that some countries have expressed interest in developing small nuclear power plants, including transportable reactors. The DPP of the new Safety Guide on “Small and medium, transportable and floating NPPs” was presented to NUSSC and TRANSSC in October 2009. NUSSC made following comments on it:

- Scope is too broad
- Safety standard premature (no consolidated experience)
- DPP should be put on hold
- Confirm that the current safety requirements are applicable and sufficient for non-LWR reactors. Reduce the scope to more promising designs

Independently, CSS asked the Committees and the Secretariat to identify the safety issues related to transportable reactors. The secretariat will report on it to CSS in September 2010.

The Secretariat drafted a paper that was presented for comments to the Meeting of the Chairs of the Safety Standards Committees from 14 to 15 January 2010 in Vienna.

Following comments (mainly from TRANSSC), a new draft paper was prepared with the title: Issues related to barge mounted transportable reactors.

There were several options and scenarios developed and assessed with focus on reactors transportable by sea and by inland waterways.

These are as follows:

- Assumption: Reactors return to the supplier country at the end of life
- Refuelling option 1 - Factory refuelled NPP
- Refuelling option 2 - On site refuelled NPP
- Scenario 1 - Domestic floating NPP
- Scenario 2 - Imported floating NPP
- Scenario 3 - Imported operated floating NPP
- Scenario 4 - Fully outsourced floating NPP

Results of preliminary assessment showed that:

- Evaluation is based on limited information available
• Issues related to legal framework, regulations, security and transport are the most relevant and challenging
• It is expected that some new approaches and instruments are necessary
• Issues related to siting, design and operation can be addressed using current technology and practice with limited innovation

The specific issues identified are:

**Legal and Regulatory**
- Acceptability of each of the proposed options and scenarios
- National nuclear legislation of vendor and recipient countries
- Legal implications in case the plant is not solely transported through national territories waters
- Sharing responsibility for liability and security
- Compatibility of regulations in the supplier and host states
- New regulatory and licensing approaches
- Responsibility for operation and supervision
- Potential transport of a fuelled reactor
- Emergency planning
- Waste management
- Applicability and adequacy of existing IAEA Safety Standards

**Security and physical protection**
- Malevolent attack to the reactor or to fuel during transport (sea or river)
- Stealing or hijacking of fuel or reactor during transport
- Malevolent collisions
- Stand off attacks to the plant during operation
- Physical protection of the plant during operation
- Coordination of security arrangements by the operator, as supplier, with the national security organization
- Applicability and adequacy of existing IAEA security series

**Transport**
- Transport on national territorial water
- Transport on international water
- Transport on rivers
- Transport of a reactor with fresh fuel
- Transport of a reactor with irradiated fuel
- Transport of a refuelled reactor
- Transport of activated parts
- Transport of radioactive waste
- Compliance with current package requirements
- Package testing
- Approval by multiple national competent authorities
- Applicability and adequacy of existing IAEA safety standards

**Environmental protection**
- Large contamination of sea water or river water during transport
- Large contamination of sea water or river water during operation
- Effect on the environment
- Effects on current and future generations
- Applicability and adequacy of existing IAEA safety standards

**Siting**
- Effects of external events associated to the particular location of the plant (tides, waves, wind)
- Response to earthquakes and tsunami
• Impact of other floating ships
• Possible fire due to dispersion of oil by tanks
• Diffusion of radioactive substances released directly in the water
• Applicability and adequacy of existing IAEA safety standards

Design
• Definition of the design basis associated with the site and special condition of operation
• Implication of the design basis on the actual design of SSCs
• Anchoring systems, recipient structures
• Connection to a very small and unstable grid (or no grid at all)
• Emergency energy supply (current designs claim the complete independence from the land supply)
• Protection against flooding
• Modality and equipment for refuelling
• Sinking of the floating reactor
• Applicability and adequacy of existing IAEA safety standards

Operation
• Radioactive waste treatment and storage
• Fresh and spent fuel storage
• Refuelling
• Shift turnover and staff motivation (if they have stay on board)
• Staff retraining/simulator
• Major maintenance and ISI
• Storage of consumable materials
• Applicability and adequacy of existing IAEA safety standards

Mr. Gasparini stated that apparently the current IAEA safety standards are fully applicable on the Barge Mounted Transportable Reactors. However, this should be confirmed by a general detailed review of the standards in all areas. It is necessary to determine if the existing requirements are sufficient and if additional dedicated safety guides are necessary. The existing experience on design, licensing and operation of reactors mounted on ships (ice breakers) and submarine can certainly provide useful information and should be collected.

Mr. Gasparini stressed that the IAEA needs to be prepared to provide assistance to countries interested in floating reactors and near future activities should be as follows:

- Acquire knowledge
- Review current legal instruments
- Review current safety standards
- Identify and fill the existing gaps
- Prepare needed documents
- Legal and regulatory aspects seems to be the more urgent to be addressed

Finally, Mr. Gasparini asked for comments and inputs from the participants on the issues related to the Barge Mounted Transportable Reactors by the end of July 2010.

Mr. Vaughan thanked Mr. Gasparini for the presentation and opened the floor for discussion. Several issues were raised during discussion related to e.g. decommissioning of such reactors, liability in the case of severe accident, security. Mr. Pather stressed that we should take into account only the issues which are not in contrary with the IAEA requirements. Mr. Vaughan made a conclusion that we must be focused only on special issues specific to the “floating reactors”. The assumption must be done that reactors will follow country regulations.
NW.10.2 New Terms of Reference of SSCs

Mr. Delattre made a presentation on the new Terms of Reference of SSCs. He briefly reminded the “mission” of SSCs. This is:

- To advise on the approach to the development of SSs, and to advise on priorities;
- To review proposals and to approve DPPs prior to their submission to CSS;
- To review draft SSs, considering the value of each draft standard and the needs of users of the standards; and
- To approve the text of draft SSs prior to their submission to Member States for comments and again prior to their submission to the CSS.

He provided NUSSC and WASSC with the statistics of SSCs’ membership since 1996. He also repeated the history of the draft ToR development. Mr. Delattre also reported on the main suggestions for amendments received on the draft:

- Programmatic (macroscopic) function for the SSCs was internally suggested (e.g. OLA, EXPO);
- The need to put more emphasis on the Committees’ role regarding the feedback from the users of safety standards and the review of feedback reports prepared by the Secretariat;
- To reflect the final policy paper on stakeholder involvement;
- To clarify the role and responsibility of the head of each national delegation, including national stakeholder consultation and coordination
- The possible consultation of the SSCs on other documents than the safety standards series draft publications (i.e. Nuclear Security Series and Nuclear Energy Series for example); and
- The necessary flexibility to allow the consultation of the SSCs on issues related to the safety standards and their application (e.g. the INLEX issue).

Mr. Vaughan thanked Mr. Delattre for the presentation and opened the floor for discussion. Mr. Vaughan was of the opinion that when discussing any DPP, the feedback report should be available to the Committees. Canadian representative highly appreciated the presentation on the IAEA IRS during the last CSS Meeting and also the IAEA Conference on Operational Experience Feedback as a good source of reflections for SSCs. Mr. Lipar offered the periodic presentations on results of IRS root causes analysis etc. to the SSCs. Mr. Pather stated that such presentations/consultations should be to the extent as much as possible within SSCs.

NW.10.3 List of Nuclear Energy (NE) Series

Mr. Forsström gave a presentation on Nuclear Energy Series. He explained that earlier all Nuclear Energy (NE) reports were TECDOC’s or TRS which had consecutive numbering, they were mixing subjects, they had no structure and there was no revision process. While Nuclear Energy Series:

- Organize the reports by subject
- Organize the reports by level of advice
- Improve the quality by a structured production and consultation process and regular revisions
- Ensure consistency with other documents in information and messages through this process

In general, NE documents provide advice for those either planning or implementing nuclear activities (mainly nuclear power) and they are based on best practices in the MSs.
Basic principles were agreed between DDG-NE and DDG-NS

- Safety standards are boundary conditions for NE documents
- No development of safety standards in NE documents
- NE is responsible that if safety standards are reproduced they should be updated as appropriate
- NS is represented in NE Document Coordination Team and should participate in the review at various stages to ensure harmony with safety standards.

Mr. Vaughan thanked Mr. Forsström for the presentation and opened the floor for discussion. The committees stressed the need to ensure that where requirements from the Safety Standards Series were incorporated in the NE series documents the requirements are not changed or reworded. Further it was agreed that the documents being produced under the NE series would be submitted to the Safety Standards committees on request from the committees.

**NW.10.4 Report on the International Conference on Management of Spent Fuel from Nuclear Power Plants**

Mr Metcalf presented an overview of the past conference on the Management of Spent Fuel from Nuclear Power Plants, held in Vienna from 31 May to 4 June 2010. He pointed out that more than 200 experts from over 40 countries had attended the conference. The main facts and topics of his presentation are summarized below:

- Most of spent nuclear fuel is stored in reactor pools and in interim storage facilities
- France, Russia, Japan, India and others have ongoing recycling programmes
- Finland, Sweden and France are moving towards the licensing of geological disposal
- There is an urgent need to move on towards final disposal options
- Storage times may extend over 100 years, that raises questions on safety, security and sustainability of storage options
- There is increasing recognition of these issues by regulators, that imply further investigations and discussions are needed
- There are more than 60 ‘newcomers’ interested in nuclear power
- There is limited reliable information on back-end of SF solutions
- It is unrealistic to expect guaranteed back end solutions from NPPs vendors (reprocessing, storage, disposal)
- The IAEA should provide information on long term issues to enable intelligent buyers
- The operational experience accumulated until now shows that SF is being managed safely
- Standards should be continuously reviewed to reflect new knowledge & experience (to include extended storage, harmonized requirements for dry cask design)
- There is a growing awareness of the linkage between storage and transport
- Transport needed regardless of open or closed fuel cycle
• ‘Dual use’ cask is a well-established technology for storage

• There is a need for a holistic approach to standards and regulation to address interface issues between storage and transport

• Experimental studies investigating degradation phenomena affecting storage in the long term suggest storage systems will continue to provide safety for extended periods of time.

• The extended benefits of the Joint Convention had been recognized, where information exchange promotes confidence

• International organizations encouraged to increase peer review and regulatory reviews

• It was recognized that disposal is necessary regardless of closed or open fuel cycle

• There is the need to emphasize that engineering solutions for disposal are feasible and can be implemented assuring safety

• Finally, the availability and cost of Uranium and the philosophy to be adopted on spent fuel disposal will determine open or closed fuel cycles.

NW.11. NUSSC/WASSC JOINT SESSION – CONCLUSIONS – CLOSURE

Mr. Vaughan concluded the Joint NUSSAC/WASSC Meeting by stating that Members of both Committees highly appreciated the Topical Presentations. He thanked the Committees for their contributions and the highly professional discussions.
## APPENDIX I TO WASSC 30 REPORT

### TABLE WITH PROPOSAL OF CHANGES TO THE REFERENCE LIST OF WASTE SAFETY GUIDES

(As compared to the Reference List of Safety Guides discussed in 2008)

April 2010

<table>
<thead>
<tr>
<th>Reference List of SGs discussed in 2008</th>
<th>Proposal of Reference List of WSGs in 2010</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WS area: Releases to the Environment</strong></td>
<td></td>
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<tr>
<td><strong>Basic Safety Standards (DS379)</strong></td>
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<tr>
<td>9. Environmental and Source Monitoring for Purposes of Radiation Protection (GSG, RS-G-1.8)</td>
<td>9. Environmental and Source Monitoring for Purposes of Radiation Protection (GSG, RS-G-1.8)</td>
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<td></td>
<td>Regulatory Control of the releases of radioactive material from facilities and activities (Rev of WS-G-2.3)</td>
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<tr>
<td><strong>WS area: Predisposal Management of Waste</strong></td>
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<tr>
<td><strong>Basic Safety Standards (DS379)</strong></td>
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<tr>
<td><strong>11. Classification of Radioactive Waste (Recently published DS390, as GSG-1)</strong></td>
<td><strong>11. Classification of Radioactive Waste (Recently published DS390, as GSG-1)</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Orphan sources and other radioactive material in the metal recycling and production industry (DS411)</strong></td>
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<tr>
<td></td>
<td><strong>Safety Case and Safety Assessment for Predisposal Management of Radioactive waste (DS284)</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>The Management System for Radioactive Waste, including its disposal (Revision and combination of GS-G-3.3 and GS3.4)</strong></td>
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</table>

**WS area: Predisposal Management of Waste from NFCF**

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Safety of Nuclear Fuel Cycle Facilities – NS-R-5</strong></td>
<td><strong>Safety of Nuclear Fuel Cycle Facilities – NS-R-5</strong></td>
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<tr>
<td><strong>Basic Safety Standards (DS379)</strong></td>
<td><strong>Basic Safety Standards (DS379)</strong></td>
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</tbody>
</table>
### WS area: Disposal of Waste

**Disposal of Radioactive Waste – DS354**  
Basic Safety Standards (DS379)

63. Geological Disposal of Radioactive Waste (DS334)  
64. Borehole Disposal Facilities of Radioactive Waste (SSS-G-1)  
65. Disposal of Radioactive Ores (Planned New SG) |
| --- | --- |

| 63. Geological Disposal of Radioactive Waste (DS334) |
| 64. Borehole Disposal Facilities of Radioactive Waste (SSS-G-1)  
65. Disposal of Radioactive Ores (Planned New SG) |

- ?? Intermediate Level Waste disposal (New SG)
- Monitoring and Surveillance of Disposal Facilities (DS357)
- The Safety Case and Safety Assessment for Radioactive Waste Disposal (DS355)

### WS area: Management of Waste/residues from mining/NORM industries

**Basic Safety Standards (DS379)**  
Disposal of Radioactive Waste – DS354

<table>
<thead>
<tr>
<th>5. Protection of the Public (that includes DS421)</th>
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| 5. Protection of the Public (that includes DS421)  
Management of mining and milling residues [including NORM residues] |
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| (8) |
| (9) |
| (10) |
| (11) |

| (12) |
### WS area: Decommissioning


<table>
<thead>
<tr>
<th>Basic Safety Standards (DS379)</th>
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<tbody>
<tr>
<td>2. Regulatory Control of Facilities and Activities (that includes WS-G-5.1)</td>
</tr>
<tr>
<td>8. Integrated Safety Assessment and Decision Making (that includes generic part of WS-G-5.2)</td>
</tr>
<tr>
<td>31. Radioactive Waste Management Aspects for the Design of NPPs, Research Reactors and Waste Management Systems (that includes facility specifics parts of WS-G-5.2)</td>
</tr>
<tr>
<td>60. Decommissioning of Nuclear Installations (Integration of DS402 and DS404)</td>
</tr>
<tr>
<td>61. Decommissioning of Facilities Using NORM (Planned new SG)</td>
</tr>
<tr>
<td>77. Decommissioning of Medical, Industrial, Research, Agriculture and Education Facilities (DS403)</td>
</tr>
</tbody>
</table>

- Decommissioning of Nuclear Power Plants and Research Reactors (DS402)
- Decommissioning of Nuclear Fuel Cycle facilities (DS404)
- 61. Decommissioning of Facilities Using NORM (Planned new SG – it should include also long-term management of NORM)
- 77. Decommissioning of Medical, Industrial, Research, Agriculture and Education Facilities (DS403)
- Release of Sites from Regulatory Control on Termination of Practices (WS-G-5.1)
- Safety Assessment for the Decommissioning of Facilities Using Radioactive Material (WS-G-5.2)

### WS area: Remediation


<table>
<thead>
<tr>
<th>Basic Safety Standards (DS379)</th>
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</thead>
<tbody>
<tr>
<td>15. Remediation Process for Areas Affected by Past Activities and Accidents (WS-G-3.1)</td>
</tr>
</tbody>
</table>

NOTES

(1) SG on Regulatory Control of the releases of radioactive material from facilities and activities (Rev of WS-G-2.3) should stay in the list of SGs to address in full detail all aspects of the authorization process for releases to the environment (Pls. see DS442)

(2) SG on Predisposal Management of Radioactive Waste from Reactors (DS448) should remain a separate document in the list of SGs to address specific guidance for the predisposal management of RW in Nuclear Power Plants and Research Reactors

(3) SG on Predisposal Management of Radioactive Waste from Fuel Cycle and other Facilities (DS447) should remain a separate document in the list of SGs to address specific guidance for the predisposal management of RW in Nuclear Fuel Cycle facilities and centralized RWM facilities

(4) SG on Storage of Radioactive Waste (Rev. of WS-G-6.1) should stand alone as these facilities and activities are different in nature to the other predisposal facilities.

(5) SG on Orphan sources and other radioactive material in the metal recycling and production industries (DS411) should be kept in the Reference list of SGs as it provides relevant information for prevention and intervention in such cases/industries. The document is relevant for the operators of predisposal management facilities, as they are key responders to these types of situations, and the SG provides useful information on situations where they have to be prepared to intervene.

(6) SG on the Safety Case and Safety Assessment for Predisposal Management of Radioactive waste (DS284) should be kept in the Reference List of SGs as it provides detailed guidance on the development of the elements of the Safety Case and conducting Safety Assessments of predisposal facilities, that have a key role in demonstrating safety for reporting and confidence building.

(7) SG on the Management System for Radioactive Waste, including its disposal (new proposal to revise and combine GS-G-3.3 and GS3.4) should be kept in the Reference List of Safety Guides to provide specific guidance on such activities and facilities and to ensure proper management of interdependencies between predisposal and disposal of RW.

(8) We have uncertainties on the need of the SG on Intermediate Level Waste disposal (New SG), as recommended during discussions on the common framework for the disposal of RW, but later, in the Workshop on Disposal of Radioactive waste in Korea, this recommendation was disregarded. WASSC should advise on the need (or not) of this SG.

(9) The SG on Disposal of Radioactive Ores (Planned New SG) was removed from the new proposal as Ores are valuable commodities and its disposal cannot be envisaged. Specific guidance is needed on the Management of mining and milling residues, including its disposal (pls. see 12 below).
(10) The SG on Monitoring and Surveillance of Disposal Facilities (DS357) is included as a stand alone document as it is thematic in nature and provides detailed guidance to serve the specific facility related Safety Guides.

(11) SG on The Safety Case and Safety Assessment for Radioactive Waste Disposal (DS355) should be kept in the Reference List of SGs as it provides detailed guidance on the development of the elements of the Safety Case and conducting Safety Assessments of disposal facilities, that have key a role in demonstrating safety for reporting and confidence building. In addition it serves the facility specific safety guides: SSG-1, DS334 and DS356.

(12) This proposal of a SG on Management of mining and milling residues [including NORM residues] should be the revision of the existing document WS-G-1.2. This proposal takes into account the need to have a specific document for the management of such material, expressed at last WASSC meeting and the need to have a replacement to the previous title suggested in the Reference List of Guides (the new SG on Disposal of Radioactive Ores). In addition, the current revision of WS-G-1.2, after being combined with another document dealing with NORM (DS421) gives small room for specific guidance on the substantive matter.

(13) The proposal for this area is to maintain separate documents for decommissioning of Reactors (DS402) and Nuclear Fuel Cycle Facilities (DS404). Notwithstanding this, consolidation of both is feasible, and it is subject to discussion at WASSC29.

(14) The proposal is to maintain WS-G-5.1 as a separate guide, as the inclusion of only the regulatory control part in a generic Safety Guide on Regulatory Control, would imply that the specific guidance on the development and implementation of the cleanup activities will be lost.

(15) In relation to WS-G-5.2, this SG should be left in circulation for 5 years to evaluate how well it serves the needs of the Member States.

COMMENTS RECEIVED FROM WASSC29:

On note (2) and (3) WASSC recommended to develop both documents concurrently, and the Committees will later review them to determine the need to combine the two documents.

On note (12) WASSC members recommended that the title and scope of this document to be adjusted while developing the DPP.

On note (13) WASSC members recommended to combine the documents DS402 and DS404
APPENDIX II TO THE WASSC 30 REPORT

Final Version - 01/07/2010

Advice to the INLEX Expert Group

Position Paper of the Safety Standards Committees Working Group for WASSC and RASSC: Advice to the Expert Group on International Nuclear Liability (INLEX) on the German Proposal for the Exclusion of Small Training and Research Reactors and Nuclear Installations being Decommissioned from the Liability Conventions

1. Introduction

The German Delegation has requested the competent IAEA advisory bodies to consider a “German Proposal” for submission to the IAEA Board of Governors for approval to establish, in accordance with Article I (2) (a) of the 1997 Vienna Convention on Civil Liability for Nuclear Damage; and Article 1 (2) (a) of the Annex to the Convention on Supplementary Compensation for Nuclear Damage, criteria for the exclusion of:

- nuclear installations being decommissioned, and
- small low-power training and research reactors

from the application of the said Conventions.

The IAEA Safety Standards Committees Working Group (SSCWG) was set at the Request of WASSC and RASSC at their joint meeting in November 2009. The membership of the SSCWG was: the four Chairs of the SSC’s: NUSSC, RASSC, TRANSSC and WASSC, one representative of a WASSC member, the Scientific Secretaries of the four SSCs, the WES-SH (or his alternate), an observer of NEA(OECD) and a consultant to the IAEA. Please see Annex 1 for the full list of participants.

The SSCWG recognises the desirability of developing exclusion criteria to allow nuclear facilities presenting low risk to be excluded from the requirements of the Liability Conventions; and in principle, supports the idea. Such criteria, when developed and agreed upon, could be important and useful to serve other purposes. Therefore, they must have a sound and defensible basis to withstand scrutiny, review, and inspection by any interested party.

In this paper, advice is given on: radiological criteria for the exclusion of nuclear facilities (keeping disposal facilities out consideration for exclusion) from the Vienna Convention, the safety assessment methodology for determining compliance with the criteria, and the associated administrative and regulatory process to be adopted by the requesting Member State.

The advice provided in this paper pertains to radiological safety aspects; legal, political, social and economic aspects are not addressed. The Paper takes account of the submissions of the German Delegation and of outcomes of the two meetings of the Working Group (SSCWG) in January and March 2010.

This position paper was ratified by RASSC and WASSC at their meetings held on 21 and 28 June 2010 respectively.
2. Criteria

Article I (2) (a) of the 1997 Vienna Convention and Article 1 (2) (a) of the Annex to the 1997 Convention on Supplementary Compensation for Nuclear Damage read as follows (emphasis added):

“An Installation State may, if the small extent of the risks involved so warrants, exclude any nuclear installation or small quantities of nuclear material from the application of this Convention, provided that -

a) with respect to nuclear installations, criteria for such exclusion have been established by the Board of Governors of the International Atomic Energy Agency and any exclusion by an Installation State satisfies such criteria; ...

According to the German Proposal of March 2010, ‘risk’ in the context of the Conventions means risk of harm to persons, damage to property, economic losses, costs of remediation and preventive measures, etc.

The SSCWG considers that it is able to provide guidance on criteria related to the risks to people from ionizing radiation based on international recommendations. However, specification of acceptable levels regarding potential social and economic impacts and consequences, in the event of a nuclear emergency, is outside its area of expertise.

Determining whether a nuclear installation can be excluded from the application of the Liability Conventions requires the identification and assessment of all potential non-planned events that could cause off-site consequences for comparison with some criteria of acceptability. In this context, the SSCWG believes that the criteria for acceptability should be based on radiological risk, taken in this case to mean the probability of the occurrence of the event and the predicted consequences of such an event.

The radiological risk issue in the context of nuclear installations has been discussed by international working groups (e.g., as reflected in IAEA INSAG-9 (1995) [1]), but there are no specific international criteria for the exclusion of nuclear installations based on low risk. However, it is possible to draw on this and other related guidance (e.g., ICRP Publication No. 103 (2007) [2] and Draft 3.0 of BSS revision [11]) to make some proposals for the current application.

The SSCWG proposes that if it can be shown that the annual effective dose to a ‘representative persons’ from postulated incidents and/or accidents at nuclear facilities does not exceed 1 mSv, the installation could be considered as a candidate for possible exclusion from the Liability Conventions. Since the ‘representative person’ is chosen to reflect the most highly exposed group of individuals, it can be assumed that the majority of the exposed population would be exposed to very much lower levels of radiation [2].

If the assessed annual effective doses from incidents and/or accidents to the representative persons exceed 20 mSv, consideration for exclusion of the facility would not be appropriate.

If the assessed annual effective doses from incidents and/or accidents to the representative persons fall in the range 1 to 20 mSv, then exclusion of the facility may be possible if the probability of the accidents or incidents that produce such doses are judged to be sufficiently low.
The representative person is assumed to be located offsite, that is, at, and beyond, the closest place at which the public can gain access to the building/area housing the nuclear installation.

It is important to recognise that radiation dose is, on its own, insufficient to be able to determine the full extent, and hence total cost, of a incident or accident at a nuclear installation and additional considerations, such as extent of the need for relocation of people and the area where the banning of food stuffs would be required, should also be assessed.

3. Safety Assessment

Safety assessments are used, among other things, to examine the consequences of potential accidents at nuclear installations. A well-defined safety assessment framework should be developed as a basis for checking compliance with the exclusion criteria.

The safety assessment framework requires the description and specification, among other things, of: the scenarios to be considered which could lead to the potential release of radionuclides under accidental conditions, the environmental conditions to be assumed, the transport of potential released radionuclides, the exposure pathways to be evaluated, the dosimetry to be applied in evaluating radiation doses, and the assumptions to be made regarding the location and habits of the representative. The results of the analysis should be compared for compliance with the proposed exclusion criteria.

The assessment framework should be based on the relevant requirements and guidance contained in IAEA Safety Standards documents [3-7].

4. Administrative and Regulatory aspects

It should be made clear in any proposal for exclusion from the Liability Conventions how the exclusion is to be administered in the country in which it is to be applied, that is, who should perform the assessment, who should review it and who eventually should approve it.

If the independent review (or the subsequent review by the regulatory authority) indicates deficiencies in the safety assessment, e.g., additional scenarios to be considered or different assumptions in the consequence assessment, it may be necessary to revise the assessment to take these factors into account.

The exclusion should be managed as part of the regulatory system in the country. It should be clear that the exclusion is only from the liability conventions and not from national obligations. The operator should have made adequate financial provisions to cover liability aspects.

The national regulatory process should be in line with the relevant requirements and recommendations set out in the IAEA Safety Standards [8-10].

5. References


### ANNEX I TO THE WASSC30 REPORT

Nuclear Safety Standards Committee (NUSSC) - 29th Meeting  
Waste Safety Standards Committee (WASSC) –29th Meeting  
IAEA Boardroom A, Room M 03, M Building

#### AGENDA

**WASSC meeting, Room M 3, M Building, first floor**

**Monday, 28 June 2010 (Morning, 9:30)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>W1</td>
<td>Opening of WASSC session</td>
<td>E. Amaral (Dir-NSRW)</td>
</tr>
<tr>
<td>W2</td>
<td>Chairman remarks</td>
<td>T. Pather</td>
</tr>
<tr>
<td>W3</td>
<td>Adoption of the Agenda of the WASSC Session</td>
<td>T. Pather</td>
</tr>
<tr>
<td>W4</td>
<td>Chairman’s Report from 28th meeting and actions arising</td>
<td>T. Pather</td>
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<tr>
<td>W5</td>
<td>Future of Waste Safety Standards</td>
<td>G. Siraky</td>
</tr>
</tbody>
</table>

**W6. Detailed discussion on Standards for approval**

  **P. Metcalf**

**W7. Review of DPP’s**

- **W7.1** DS442 DPP for SG on Regulatory Control of the Releases of Radioactive Material from Facilities and Activities (Revision of WS-G-2.3)  
  **V. Berkovskyy**
- **W7.2** DS447 DPP for the SG on Predisposal Management of Radioactive Waste from Fuel Cycle Facilities (Revision of WS-G-2.6)  
  **M. Kinker**
- **W7.3** DS448 DPP for the SG on Predisposal Management of Radioactive Waste from Reactors (Revision of WS-G-2.5)  
  **M. Kinker**
Monday 28 June 2010 (14:00), Room M1, M Building first floor

NUSSC/WASSC Joint Session

1. Opening of Joint Sessions and Chairmen’s Remarks
   T. Pather
   G. Vaughan

2. Adoption of agenda for the Joint Session
   For approval
   NUSSC & WASSC Members

3. Administrative arrangements for the meeting
   For information
   G. Siraky, M. Svab

4. Interaction with other Committees
   For information

4.1 Report from the previous meeting of the 4 Chairs
   (January & March)
   T. Pather
   G. Vaughan

4.2 Report of the RASSC28 Meeting
   T. Colgan

4.3 Report of the TRANSSC20 Meeting
   J. Stewart

4.4 a. Report of the CSS27 Meeting
   D. Delattre

   b. Report on the process for the review by Technical Editors

5. Topical Session “Learning from Disasters – Understanding the Organisational and Cultural Precursors”
   For information and discussion
   D. Taylor

6. Review of Documents under development

   6.1 DS424
   Draft Safety Guide on Establishing a Safety Infrastructure for a National Nuclear Power Programme
   For approval for submission to CSS
   D. Graves

   6.2 DS 414
   Draft Safety Requirements on Safety of Nuclear Power Plants: Design
   For approval for submission to CSS
   M. Gasparini
| 6.3 DS405 | Draft Safety Guide on Volcanic Hazards in Site Evaluation for Nuclear Installations | For approval for submission to CSS | A. Godoy |
| 6.4 DS417 | Draft Safety Guide on Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations | For approval for submission to CSS | A. Godoy |
| 6.5 DS284 | Draft Safety Guide on Safety Case and Safety Assessment for Predisposal Management of Radioactive Waste | For approval for submission to CSS | P. Metcalf |
| 6.6 DS426 | Draft Safety Guide on Periodic Safety Review of Nuclear Power Plants | For approval for submission to CSS | C. Toth |
| 6.7 DS437 | Draft Safety Requirements - Regulations for the Safe Transport of Radioactive Material, 20XX Edition (revision TS-R-1) | For approval for submission to MS | J. Stewart |
| 6.8 DS407 | Draft Safety Guide on Criticality Safety | For approval for submission to MS | G. Jones |

7. **Review of DPPs**

<p>| 7.1 DS439 | DPP for Appendix IV &quot;Reprocessing Facilities&quot; and Appendix V &quot;Fuel Cycle Research and Development Facilities&quot; of NS-R-5 | For approval for submission to CSS | G. Jones |
| 7.2 DS441 | DPP for Construction Activities at Nuclear Installations | For approval for submission to CSS | Y. Inoue |
| 7.3 DS442 | DPP for SG on Regulatory Control of Releases of Radioactive Material from Facilities and Activities (Revision of WS-G-2.3) | For approval for submission to CSS | V. Berkovskyy |
| 7.4 DS448 | DPP for the SG on Predisposal Management of Radioactive Waste from Reactors (Revision of WS-G-2.5) | For approval for submission to MS | M. Kinker |</p>
<table>
<thead>
<tr>
<th></th>
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<th>Document Title</th>
<th>Approval Status</th>
<th>Responsible Party</th>
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<td>7.5</td>
<td>DS447</td>
<td>DPP for the SG on Predisposal Management of Radioactive Waste from Fuel Cycle Facilities (Revision of WS-G-2.6)</td>
<td>For approval for submission to CSS</td>
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<tr>
<td>7.6</td>
<td>DS449</td>
<td>DPP for a safety guide on Content of the Safety Analysis Report for NPPs.</td>
<td>For approval for submission to CSS</td>
<td>C. Toth</td>
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</table>

| 8   | Status report on documents under development |
| 8.1 | DS379 Draft SR Protection against Ionizing Radiation and for the Safety of Radiation Sources (Rev BSS) | For information | R. Czarwinski |
| 8.2 | DS401 Draft Safety Guide on Justification of Practices | For information and discussion | T. Boal |

| 9   | Topical session on discussion of Decommissioning documents under elaboration (DS402, DS404) |
| 9.1 | DS402 Draft Safety Guide on Decommissioning of Nuclear Power Plants and Research Reactors (to supersede WS-G-2.1), and | For initial review and discussion | M. Wong |
| 9.2 | DS404 Draft Safety Guide on Decommissioning of Nuclear Fuel Cycle Facilities (to supersede WS-G-2.4) |

| 10  | Other Business |
| 10.1| Issues related to barge mounted transportable reactors | M. Gasparini |
| 10.2| New Terms of Reference of SSC's | For information and discussion | D. Delattre |
| 10.3| List of Nuclear Energy (NE) Series | For information | H. Forsström |
| 10.4| Report on the International Conference on Management of Spent Fuel from Nuclear Power Plants | For information | P. Metcalf |

| 11  | Conclusions of WASSC/NUSSC Joint Session | T. Pather G. Vaughan |

53/58
### W8. Review of Documents under development

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<td>National Strategy for Regaining Control over Orphan Sources and Improving Control over Vulnerable Sources</td>
<td>For approval of submission to CSS for endorsement</td>
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<tr>
<td>W8.3 DS411</td>
<td>Safety Guide on Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries</td>
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### W9. Progress reports on Standards under development

<table>
<thead>
<tr>
<th>W9.1 DS421</th>
<th>Safety Guide on Protection of the public against exposure to natural sources of radiation including NORM residues</th>
<th>For information</th>
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</thead>
<tbody>
<tr>
<td>W9.2 DS427</td>
<td>Safety Guide on Radiological Environmental Impact Analysis for the verification of Radiological Protection (in the framework of an EIA)</td>
<td>For information</td>
</tr>
<tr>
<td>W9.3 DS432</td>
<td>Safety Guide on Generic Criteria for the Radiation Protection of the Public and the Environment</td>
<td>For information</td>
</tr>
</tbody>
</table>

### W10. Other Business

<table>
<thead>
<tr>
<th>W10.1</th>
<th>Report on Annual WATEC Meeting</th>
<th>For information</th>
</tr>
</thead>
<tbody>
<tr>
<td>W10.2</td>
<td>WASSC Fifth term 3 years Report</td>
<td></td>
</tr>
<tr>
<td>W10.3</td>
<td>Discussion on advise to INLEX on German Proposals</td>
<td>For discussion and approval</td>
</tr>
</tbody>
</table>
W10.4 Report on the 6th International Symposium on Naturally Occurring Radioactive Material (NORM VI)  
For information  
D. Wymer

W11. Results of Recent WES activities  
D. Louvat

W12. Dates of future meetings

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>28th CSS meeting</td>
<td>30 September - 1 October 2010</td>
</tr>
<tr>
<td>30th NUSSC meeting</td>
<td>22 - 25 November 2010</td>
</tr>
<tr>
<td>Joint 29th RASSC – 30th WASSC meeting</td>
<td>6-10 December 2010</td>
</tr>
<tr>
<td>29th CSS meeting</td>
<td>25 – 27 May 2011</td>
</tr>
<tr>
<td>Joint 30th RASSC – 31st WASSC meeting</td>
<td>27 June – 1 July 2011</td>
</tr>
<tr>
<td>30th CSS meeting</td>
<td>3 – 7 October 2011</td>
</tr>
</tbody>
</table>

W13. Conclusions of the meeting  
T. Pather

W14. Closure of WASSC meeting  
D. Louvat
ANNEX II – AGREED LIST OF ACTIONS

ACTIONS FOLLOWING 29th WASSC/ 29th NUSSC MEETING

JOINT WASSC/NUSSC SESSIONS

<table>
<thead>
<tr>
<th>ITEM AG</th>
<th>ACTION</th>
</tr>
</thead>
</table>
| NW4.4   | 1) Requirements documents to be edited by TE before revision of SSC for approval for submission to CSS  
         | 2) Two colours be used for MS and TEs comments in SSs drafts uploaded for SSCs comments |
|         | Secretariat | ASAP |
| NW6.1   | DS424 to be sent to CSS for endorsement |
| Secretariat | ASAP |
| NW6.2   | DS414 to be redrafted considering comments received  
         | A WG will be set to update document to be put to NUSSC30/WASSC30 |
|         | Secretariat | ASAP |
| NW6.3   | DS405 to be sent to CSS for endorsement |
| Secretariat | ASAP |
| NW6.4   | DS417 to be sent to CSS for endorsement |
| Secretariat | ASAP |
| NW6.5   | DS284 to be sent to CSS for endorsement with comments incorporated |
| Secretariat | ASAP |
| NW6.6   | DS426, to be sent to CSS with comments incorporated |
| Secretariat | ASAP |
| NW6.7   | DS437 to be sent to Member States for comments |
| Secretariat | ASAP |
| NW6.8   | DS407 to be completed with additional text to be elaborated and final draft to be sent for consideration of SSCs meetings Nov-Dic |
| Secretariat | ASAP |
| NW7.1   | DPP for DS439 to be sent to CSS – Clarify modification in paper copies of the revised version |
| Secretariat | ASAP |
| NW7.2   | DPP for DS441 to be redrafted and resubmitted to NUSSC and WASSC |
| Secretariat | ASAP |
| NW7.3   | DPP for DS442 to be sent to CSS with comments to be considered |
| Secretariat | ASAP |
| NW7.4 | DPP for DS448 to be sent to CSS with comments to be considered | Secretariat | ASAP |
| NW7.5 | DPP for DS447 to be sent to CSS with comments to be considered | Secretariat | ASAP |
| NW7.6 | DPP for DS449 to be redrafted and resubmitted to NUSSC and WASSC for approval | Secretariat | ASAP |
| NW9.1&9.2 | DS402 and DS404 to be combined | Secretariat | ASAP |
| NW10.1 | Document on issues related to barge mounted transportable reactors to be amended incorporating comments and to be sent again to SSCs for submission to CSS | Secretariat | ASAP |
| NW10.3 | Documents of NE to be circulated to SSCs on specific request | Secretariat | ASAP |
### WASSC SESSIONS

<table>
<thead>
<tr>
<th>ITEM AG</th>
<th>ACTION</th>
<th>WHO</th>
<th>WHEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>W5</td>
<td>Table on Future of WSSs to be included into WASSC 3 year Report as suggestions of this term of WASSC for next term of WASSC</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>W8.1</td>
<td>DS 355 to be sent to CSS for endorsement with comments to incorporated,</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>W8.2</td>
<td>DS410 to be sent to CSS for endorsement</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>W.8.3</td>
<td>DS411 to be sent to CSS for endorsement</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>W.10.2</td>
<td>Draft WASSC Fifth term 3 years Report to be presented for discussion at WASSC30</td>
<td>Secretariat and the Chair</td>
<td>ASAP</td>
</tr>
<tr>
<td>W10.3</td>
<td>Position Paper on advise to INLEX on German Proposals to be sent to OLA</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
</tbody>
</table>