NUCLEAR SAFETY STANDARDS COMMITTEE
(NUSSC)

Report of the 48th Meeting
26–27 November 2020

International Atomic Energy Agency
Vienna
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1. GENERAL ISSUES

1.1 Opening of the Meeting

Greg Rzentkowski, DIR NSNI, informed the meeting that former Argentinian Ambassador Rafael Mariano Grossi had been selected by a recent special General Conference as the new DG of the IAEA. The Safety Resolution approved by consensus at GC63 had encouraged Member States (MS) to become Contracting Parties (CPs) to the Convention on Nuclear Safety (CNS) and to host peer reviews. As a result, the number of requests for peer reviews continue to increase, with many MS now requesting a second round. Two TecDocs are being finalized in Consultancy Meetings this week, on the Safety-Security Interface and the Graded Approach. The 5th Regulatory Effectiveness Conference held recently in Den Haag had shared experiences, taking into account actions taken in response to recommendations of previous such conferences.

The IAEA is working on a safety and licensing framework for innovative technologies, which continues to be a challenge. The safety of the current fleet must be a priority because without it, there will be no future for nuclear power.

Preparations continue for the 8th Review Meeting of CNS. Workshops have been held to encourage MS to become CPs, including one in Morocco with another planned in Uzbekistan in early 2020. Aging management and safety culture will be the special topics for the 8th RM.

1.2 Chairman’s Introduction

Mr Philip Webster, Chairman of NUSSC, welcomed the participants and described the Agenda, which had one change from the previous version; NUSSC was being asked to approve three documents at step 1 to proceed to CSS for endorsement to publish, and two documents at step 7 to go for Member State review. There were no DPPs to review for approval to proceed to drafting.

There were several Information items. Following on from the pilot at the previous meeting, the Secretariat described an internal document which we expect to be of interest to the Committee, being the recently-published TECDOC 1874 titled ‘Hierarchical Structure of Safety Goals for Nuclear Installations’.

The proposal from the recent meeting that NUSSC re-visit the ‘holistic’ review of Safety Guides performed following NUSSC 43 would be tackled under Agenda item 4.2; an update showing the status of each of the SS for which NUSSC is the lead had been circulated a couple of weeks before the meeting to allow members to prepare. The item would open with a presentation by the Secretariat of progress against the recommendations made by NUSSC from the original holistic review.

NUSSC had invited Mr Javier Yllera back to discuss progress (or lack of it) on DS508, currently titled ‘Assessment of the Application of General Requirements for Design of Nuclear Power Plants’, being the conversion of parts of TecDoc 1791 into a Safety Guide. This draft Safety Guide was a priority for this NUSSC term.

WebEx was available for the meeting but nobody had requested it.

1.3 Adoption of the Agenda of the 48th NUSSC Meeting

One customary item was absent from the Agenda; there was no Chairs’ report because there had been no CSS meeting since NUSSC 47. A problem with availability of meeting rooms meant that CSS could not meet in early October as it usually does but instead was to meet in late December.
There was one slight change to the draft Agenda; the title of item 1.11 having been revised to ‘Question from NUSSC 47’ since the previous title was not accurate. Greg Rzentkowski would respond to a question from the US regarding survival of off-site infrastructure following a seismic event and the need for sites to self-supply until access to the site could be restored.

1.4 Approval of the Report of the 47th NUSSC Meeting

The report of the previous meeting was approved.

1.5 Actions of NUSSC Meetings

The Scientific Secretary reviewed progress against actions from previous meetings. There was no discussion.

1.6 Dates of the next meetings

The dates of the next NUSSC Meetings were approved:

- 49th NUSSC: 15 – 19 June 2020
- 50th NUSSC: 23 – 27 November 2020

1.7 Status of a Safety Report on Attributability of Radiation Health Effects and Inferring Risks

Ms Katherine Asfaw described that a DPP for a Safety Report had been approved by the internal Coordination Committee and that drafting had started following a Consultancy Meeting attended by representatives of each Safety Standards Committee that had developed an annotated DPP. Mr Webster represented NUSSC at that meeting and he is to be responsible for drafting the ‘Plain Language Appendix’ based on the contributions of the subject matter experts who are writing the body text.

A further Consultancy Meeting is expected to be convened in 2020 to refine the draft report, with publication planned for end-2020.

1.8 Status of Safety Standards to be reviewed by NUSSC

Mr Svab, NUSSC Scientific Secretary, described progress of those Safety Standards that were currently being revised, with a focus on those for which NUSSC 47 has the lead.

Chair noted that he was pleased that DS 490 ‘Seismic Design of Nuclear Installations’ and DS 498 ‘External Events Excluding Earthquakes in the Design of Nuclear Installations’ which were priorities for NUSSC, had come to the meeting at step 11 as planned. However, he noted that the schedule for DS 497 ‘Revision of seven closely interrelated safety guides on operational safety for NPPs’ had slipped; this would be discussed further under Agenda item 3.3.

Chair also noted that DS503 ‘Protection against Internal and External Hazards in the Operation of Nuclear Power Plants, revision of NS-G-2.1’ had been due to come to NUSSC 48 at step 7 but was delayed.

1.9 TECDOC 1874: Hierarchical Structure of Safety Goals for Nuclear Installations

Mr Javier Yllera described the concept of safety goals and how they were used in IAEA Safety Standards, principally the Safety Guides on PSA. A TECDOC had been prepared with input from several MS to describe the development and application of a hierarchical structure of safety
goals from high level goals to detailed technical requirements. The hierarchy should start in a technology-neutral manner at the Societal level of fundamental safety objectives then move to the Site level of providing adequate protection by means of qualitative safety goals. The hierarchy should then move to the Facility level of safety provisions for all installations on a site, which would be technology-specific and, where possible, quantitative. The TECDOC also includes examples of safety goal frameworks or hierarchies in several MS.

USA asked if there was a vision as to how this document may be used; might it be presented to CSS? Mr Rzentkowski, Dir NSNI, responded that it is intended to help with new technologies such as SMRs; this was the basis for adopting a technology-neutral approach.

Finland asked how this approach can be applied to SMRs (the topic of the presentation at the previous meeting). Mr Rzentkowski responded that the third level of the hierarchy, which applies to the whole site and is technology-neutral, applies to SMRs since they can involve multi-unit dependencies. Other internal IAEA documents of relevance to SMRs are in preparation or being proposed, such as on Risk-Informed Decision-Making, passive safety systems and the use of digital equipment. These are in a work-in-progress; the main ones should be published by end-2020.

1.10 Question from NUSSC 47

A question had been asked at NUSSC 47 on survival of off-site infrastructure following a seismic event (including DEC) and the ability of site to maintain safety functions. Although not captured as an action, the Secretariat had been asked to describe relevant accident management aspects in the Safety Standards. A note had been prepared which referenced those Safety Standards which describe the impact of a seismic event on the off-site infrastructure which could make access to a site difficult, thereby impeding the ability to supply the site and requiring it to be able to sustain itself until such time as access could be restored.

US asked what is a typical length of time for which a site is required to survive should regional infrastructure be damaged. Mr Rzentkowski responded that 72 hours is a common duration for a site to need to self-supply. UK noted that they are now considering requiring that sites be independent for a week, given the possibility of grid collapse.

2. REVIEW OF IAEA SAFETY STANDARDS

2.1 DS490 - SG Seismic Design of Nuclear Installations (rev. of NS-G-1.6)

The publication of this SG was one of the ‘Achievable Short-Term Priorities for NUSSC 8th Term’. It had been posted for approval for submission to CSS at step 11 on 30 August 2019 with a deadline for comments of 4 October. NUSSC had accepted in 2015 the Secretariat’s proposal that this document not be combined with DS498 to revise NS-G-1.5.

USA noted that the footnote on the potential onset of cliff-edge effects should be deleted because the term is defined in the Glossary. The footnote was updated to be consistent with the Safety Glossary.

WANO asked what values are to be used for the hazard return frequency. Response was that 1E-4 is common for NPPs; other installations use a shorter period. Document proposes 1E-4 to 1E-5 to reflect MS practices. Deterministic assessments that use the maximum credible earthquake are an acceptable alternative to a probabilistic hazard assessment if it is possible to live with the conservatism associated with this approach.
ENISS was worried by the lower frequency. Response was that there is no data for the severity of such hazards; 1E-5 is used in some MS associated with the median hazard curve which is not influenced by uncertainties and therefore extrapolation can be accepted or the ratio between hazard parameters corresponding to 1E-5 and 1E-4 can be used to the site-specific design ground motion response spectrum.

Japan noted that some revisions had been made following WASSC in late-October, making the document difficult to review in a short time without knowing what had been changed. Response was that comments often come late or via the wrong channel; which the Secretariat always attempts to incorporate but this leads to multiple revisions being posted on the website.

→ NUSSC approved DS490 for submission to CSS.

2.2 DS498 - SG External Events Excluding Earthquakes in Design of Nuclear Installations

The publication of this SG was one of the ‘Achievable Short-Term Priorities for NUSSC 8th Term’. It had been posted for approval for submission to CSS at step 11 on 30 August 2019 with a deadline for comments of 4 October.

Germany noted that some paragraphs had been moved to other locations, which was not evident in track changes; asked that a Comment be added to each to explain. Response was that it is common to receive several hundred editorial comments, many of which involve moving text in order to improve logical flow; it would be too complex to add a comment for each.

WANO asked if defence in depth should be provided to maintain a ‘dry site’ for new reactors. Response was that the designer should show that the margin is there to protect against a higher water level, using a best estimate approach. For beyond design basis flood, it is enough to show that one train remains available.

ENISS found the wording about lightning to be strange; asked why additional protection is stated to be needed when it is described below? Response was that lightning is treated differently to other external events; 5.69 is intended to introduce the topic, then detailed guidance is given below.

→ NUSSC approved DS498 for submission to CSS.

2.3 DS507 - SG Seismic Hazards in Site Evaluation for Nuclear Installations

This SG had been posted for approval for submission to CSS at step 11 on 30 August 2019 with a deadline for comments of 4 October.

Germany noted that many comments seemed to have been quite emotional, highlighting 6.2 on probabilistic assessment, which is state of the art but which not all MS use. Asked if their compromise comment posted yesterday might help. Mr Delattre preferred 6.8 in response but this did not satisfy Germany. The meeting returned to the topic following discussion between the Technical Officer, Germany and France, resulting in a proposal to add text to 6.1 indicating that further information could be found in 6.8 and 6.15 on use of the probabilistic and deterministic approaches.

→ NUSSC approved DS507 for submission to CSS.
2.4 DS509 – SG Revision by amendment NS-G-4.1-4.6, SSG-10 & SSG-37 [SGs for research reactors]

These SGs had been posted for review for approval for submission to MS at Step 7 on 30 August 2019 with a deadline for comments of 4 October. The structure of six of the eight Safety Guides is essentially unchanged; 4.4 and 4.6 have had small changes made for consistency with the others or to correct an error.

Finland asked about the experience of Secretariat to revise multiple SGs simultaneously. Response was that it had been onerous but there are also benefits in consistency and in resolving common issues in multiple documents at once.

Germany noted the need for consistency of terminology between documents, proposed an extra step after Step 8 for this purpose. Mr Delattre responded that revising multiple documents at once gives benefits for marginal extra effort; in the future extra time for review can be given if this would help. The consistency check will be done by technical editors prior to step 11. Chair reminded the meeting that this was a focussed revision by amendment, as had been the case for DS462, so MS were not being asked to review eight full SGs but only parts of them.

Canada liked the explanation of the general themes for why comments were accepted or resolved.

→ NUSSC approved DS509 for submission to MS.

2.5 DS516 – SG Criticality Safety in the Handling of Fissile Materials

This SG had been posted for approval for submission to CSS at Step 11 on 30 August 2019 with a deadline for comments of 4 October.

A request was made to speak of ‘nuclide concentration’ versus ‘nuclide enrichment’, which was accepted.

UK asked if the approach had changed from Defence-in-Depth to double contingency. Response was that it had not but the topic had been concentrated in one place rather than many, which reduced the amount of text. A table had been removed because not all levels of DiD apply to criticality safety, where the focus must be on prevention since if a criticality event occurs, it is beyond the design basis.

→ NUSSC approved DS516 for submission to MS.

3. DOCUMENTS FOR INFORMATION

3.1 DS508 – SG Assessment of the Application of General Requirements for Design of Nuclear Power Plants – Way forward

The publication of this SG was one of the ‘Achievable Short-Term Priorities for NUSSC 8th Term’. Mr Javier Yllera, Technical Officer, had been invited to NUSSC 47 to explain why the draft was behind schedule, where he described that two consultancies had prepared the draft, though consensus had not been achieved. A third consultancy planned for July 2019 had the goal of finalizing the draft, so that approval could be sought for Step 7 at NUSSC 48, which would be one year behind schedule. However, the draft was still not at Step 7 so Mr Yllera had been invited again to explain why.
He described that it had not been possible to achieve consensus among the consultants who had been invited to the meeting in July. He noted that difficulties had been encountered when the Safety Requirements document which this is intended to interpret (SSR-2/1) had been revised post-Fukushima. However, consensus had been achieved then, so it should be possible to achieve consensus now on this Safety Guide, since it is must not exceed (or diminish) the requirements document.

The title is considered to be preliminary and subject to change. Although the primary goal of the Safety Guide is to frame the topics of design extension conditions and practical elimination, as currently structured it also explains the overall safety approach, involving Defence-in-Depth and the fundamental safety functions, in order to explain why the safety requirements exist. In Chair’s view, this is beyond what the DPP anticipated. However, Mr Yllera’s view is that an understanding of Defence-in-Depth is needed in order to be able to understand what is meant by ‘practical elimination’.

Some of the different views expressed by the Consultants or in comments made by some MS prior to the meeting were:
- Provide overall perspective on safety of the design
- Was not explicitly stated in the DPP
- Inclusion of mobile equipment (2 pages)
- DiD and relation to PE needs more elaboration
- Different interpretations of PE in different MS (or even use of the term)
- Interface and consistency with SSG-2

Mr Yllera noted that sometimes the views of the experts were not those of the MS which they represented.

UK sought clarification as to what practical elimination actually means; is it added after the design is done or is it a recognition of what Defence-in-Depth is intended to achieve? Response was that the concept originated in France, where the intent was to eliminate large releases that did not allow time to evacuate. Practical elimination should be seen as an objective rather than a process.

WANO noted that the concept arose in the 1990s between France and Germany. The idea was eliminate severe accidents so that there would be no impact off-site; this involves distinguishing between phenomena that can be mitigated and those that cannot (such as those that would lead to rapid failure of the containment) and hence which must be eliminated by practical means. Mr Yllera responded that the definition of practical elimination exists as a footnote in SSR-2/1 and is not very clear. SSR-2/1 requires melting of the core to be considered; however only a few MS use the term in their regulatory framework; others use the concept but not the term.

Finland noted that the basic assumptions in the plant design envelope should be built-on. It should be possible to overcome differences, as has been done in the past. The title of the SG is ‘assessment’ whereas the content is implementation in the design; asked if it intended to fit under GSR Part 4 or SSR-2/1. The document should focus on the technical content and not the higher-level concepts. Technical Officer responded that the document is intended to explain the background to the design and then move on to the assessment. It starts at the top-level requirements but the main text describes the plant states that have the main impact on the public.

USA noted that the concept of practical elimination has been around for some time and that an October Workshop on SSR-2/1 that had a breakout session on DS508 had been useful; asked how its outcome had been taken into account? Response was that the document does not capture all the comments made from various routes and that it must not disagree with existing Safety Standards.
France noted that comments made after the consultancy had been in line with those made at it. Practical Elimination involves two kinds of scenarios. In Europe, it refers to a set of scenarios of plant condition and not on the releases, as is captured in the WENRA report. Proposed that the document not deviate from the DPP; does not understand the need for Chapter 2, in particular section 2.2.

UK noted that practical elimination is achieved by the plant design envelope, whereas the figure in the presentation shows it as being beyond the plant design envelope.

USA noted that the other figure in the presentation shows that unacceptable risk (or residual risk) is what must be practically eliminated. It should be clarified that the document is intended to apply to new large LWRs. Although the document makes use of safety goals, which are valuable in assessing how safe is safe enough; this needs more refinement. Operational requirements complement the design requirements; the document should not look at design in isolation. Response was that the main goal is new NPPs but it may also be applied to the existing fleet; there is a statement in the document to this effect. Whether the goal is to practically eliminate sequences or large release has long been discussed. An alternative title considered by Consultancy was ‘Application of the safety approach to the design of NPPs.’

Mr Rzentkowski proposed the title ‘Safety approach to the design of NPPs’, with the possible addition of ‘in order to achieve Practical Elimination’. UK proposed ‘Design of NPPs to meet the General Safety Requirements’

Finland noted that the document that had been replaced with GSR Part 4 spoke of ‘engineering assessment’ in addition to probabilistic and deterministic assessment. Response was that the requirements for design mirror those for safety assessment. This was conceived as a Safety Guide on safety assessment. No requirements exist for practical elimination on facilities and activities, so cannot focus on safety assessment. Implementation of defence-in-depth is followed by assessment of defence-in-depth.

USA proposed that another Consultancy be held to produce an updated version incorporating the various comments that had been made, for NUSSC to consider and decide the way forward. This option was put to the meeting, along with a proposal from the Chair to hold a Working Group of NUSSC Members and Observers, some combination of the two or a request that the Secretariat carry on in a manner of their choice, to return to NUSSC 49 with another version for a broad discussion.

Following discussion, the meeting concluded that a Working Group of interested parties, open to all Members and Observers, would be held in early 2020. The current version of the Safety Guide is to be circulated beforehand and comments from potential participants sought prior to the Working Group. The goal is to seek consensus among the attendees on a revised draft which could be brought to NUSSC 49 for discussion and hopefully approval to submit to MS for review.

3.2 NST060 – Technical Guide: Regulatory Authorization for Nuclear Security during the Lifetime of a Nuclear Facility

The Secretariat had proposed to add this item to the agenda because it was felt that NUSSC would be interested in the Technical Guide, despite its not having been identified as an interface document (because a Technical Guide is the fourth and lowest level of Nuclear Security Guidance and as such is not subject to clearance).
3.3 DS497 – SG Revision of seven closely interrelated Safety Guides for Nuclear Power Plants Operation – Status report

NUSSC Chair made an introductory presentation on the background to DS497, noting that NUSSC 41 had approved the DPP to revise seven Safety Guides by focussed amendment, to revise and extend NS-G-2.1 and to prepare a new Safety Guide under DS502 on Continuous Improvement of Operational Safety Performance. About fifteen Safety Guides cover NPP operation; the others having been either newly published or recently revised. NUSSC 43 concluded that one of the seven Safety Guides did not need to be revised and withdrew DS 502, leaving seven under revision.

According to the Status Report tabled by M. Svab at NUSSC 47, this SG was supposed to come to this meeting at Step11 but this had not been achieved. This was to be a focussed revision of the Safety Guides (not a wholesale revision) following the revision of SSR-2/2, which had resulted in approximately 20% of their text being revised. Comments have been received from various Members about the difficulty of reviewing so many documents at once, though in many cases the MS had reviewed the whole document and not just the revised text.

Seven Consultants had reviewed the comments (one per Safety Guide), whose resolution had then been reviewed by a second Consultant, then in a meeting in June 2019 all experts had challenged each other and agreed the revised drafts. The percentage of comments rejected was quite high by customary standards because of the large number of comments that requested revisions to text that had not been revised, so being beyond the DPP (about 70% of the rejections).

Peter Shaw, Technical Editor, explained that the technical editorial review which is currently underway does not change the content but revises the text for quality and consistency with other Safety Standards. This typically takes 4-6 weeks per document and is done by the Standards Specialists. It may take nine months to complete the extended technical editorial review of the seven documents because the Standards Specialists will check the whole text of the documents for consistency. The goal is to submit DS497 to NUSSC 50 in late-2020.

Chair noted that this explains why Step 11 has gone back one year from the expected meeting 48 to 50. In later discussion with the Standards Specialists, Chair asked that they make a presentation to NUSSC 49 on their role, so that NUSSC better understands what they achieve and why it is worth taking the time.

Finland noted that DS509 had four TOs, whereas this only has one; proposed that there is a need to look at the pros and cons of each approach.

3.4 DPP DS513 – Action 3.1 from the 47th NUSSC Meeting

Although NUSSC 47 had approved the DPP of DS513 for submission to CSS, it also asked that the DPP be presented again at NUSSC 48 with a more comprehensive Table of Contents to clarify that it covers core concepts and to show the interfaces with the content of other documents. This was to take advantage of the fact that this NUSSC meeting would occur before the document is tabled at CSS46. Chair emphasized that this item was for information only; the meeting was not to re-visit the decision.

3.5 Template for presentations for DPPs and draft SSs

M. Svab described a revised template for presentations of draft DPPs being submitted for approval at Step 3 that had been prepared, to explain more fully issues raised during internal review by the Secretariat. This was in response to one of the ‘Achievable Short-Term Priorities’
for the 8th Term of improving descriptions of the need for a new or updated document and in
response to an action of the 47th Meeting to better communicate the resolution of comments in
all presentations.

Mr Rzentkowski noted that the Secretariat had listened to MS requests and had revised the
templates to give more information on the rationale for the DS. Each TO is supposed to make
available a detailed table of resolution of comments.

Canada asked that key relevant background documents be included as part of explaining the
rationale for the DPP, to help newcomers. Response was that these will be added to the
Background (or References) section.

Canada asked about prior steps in developing a DPP. Response was that sometimes a
Consultancy Meeting is held to develop a draft, which then goes to Coordination Committee.

UK asked how lessons are learned from projects that don’t go well (such as DS508) and whether
it may be possible to indicate whether a project is expected to be straightforward or complicated,
which could allow it to be rated as low or high risk. Dir NSNI responded that he will think
about how to do it.

Chair noted that the SPESS process requires that a Gap Analysis be done, which the DPP should
describe. M. Svab responded that this can be covered in the Background.

Finland supported use of a risk matrix. G. Rzentkowski responded that the Secretariat will
examine ways to do this without complicating the presentation.

WNA asked how to define what is a ‘key’ comment. Mr Rzentkowski responded that a detailed
comment resolution table is available, so discussion can be held on any comment if needed.

Canada asked if the presentations could be posted ahead of the meeting? Mr Rzentkowski
responded that there is no such policy and it is very difficult to make them available much ahead
of time because TOs are working on resolving comments.

Chair requested the Secretariat to revise the DPP template taking into account the comments
made and re-submit it at NUSSC 49 as input to review of the draft end-of-term report. Mr Svab
responded that the Secretariat will update the templates and use them in the future.

4. MISCELLANEOUS

4.1 Feedback on Regulatory Arrangements and Current Developments in NUSSC
Member States (India)

Mr Harikumar described that twenty-two NPPs are in operation in India with a further seventeen
under site evaluation/construction/commissioning. Designs under consideration include
PHWRs, EPR, AP-1000, IPWR, AHWR, FBR-1&2. Facilities in India cover the full fuel-cycle.

The Chair of AERB is also the Chief Executive and supervises 340 staff, mostly technical. 160
regulatory documents have been issued so far; all are available on the website. In areas where
no Indian standards exist, AERB relies on IAEA Safety Standards.

The Safety Code on Site Evaluation was revised following the TEPCO Fukushima-Daiichi NPP
accident and published in 2014 to include considerations for multi-unit, multi-facility sites. The
items for consideration are in line with SSR-1 and the Vienna Declaration on Nuclear Safety (VDNS).

The Safety Code on Design of LWR-based NPPs covers Practical Elimination, consistent with the VDNS; designers/operators know what they have to achieve but it has proved difficult to demonstrate this to the regulator. The Safety Codes on other designs are being revised accordingly.

On emergency preparedness, since it is not necessarily possible to know what hazards may be faced in the future, the approach is to build in flexibility for the operators to deal with situations that had not been anticipated.

Finland asked about requirements for multi-unit sites. Response was that there is a dose-specific requirement in the site evaluation document.

4.2 Holistic review of Safety Standards

A discussion of this topic at NUSSC 47 had concluded that it should be re-visited at NUSSC 48, beginning with a presentation from the Secretariat on how they had progressed against the recommendations of the ‘volunteers’ meeting held after NUSSC 43. M. Svab had distributed a table on 6 November which described the current status of those Safety Standards in which NUSSC has an interest, being primarily those on which it is the lead Committee. Almost all of them had either been published quite recently or were currently under revision; and some of the remainder had been identified by the Coordination Committee for review for revision in the near future.

Finland noted that the table is good material for use when considering the need for new documents.

UK noted that the goal of the original meeting had been to reduce the number of documents, such as by moving away from facility-specific guidance to more generic. Wonders if sometimes Safety Guides go too far into the detail. The UK Safety Assessment Principles are deliberately set at a high level so that they can apply to any facility type; perhaps consider the same approach for Safety Standards. Response was that in the case of research reactors, operators are requesting more detail.

D. Delattre noted that the CSS webpage contains a similar file. CSS is now in the final stages of deciding the future structure of the Safety Standards. Many Safety Guides are currently under revision, at the end of the third phase of the Safety Standards. For the fourth phase, we should start at the top; asked if NUSSC sees a gap in the long-term structure?

Germany noted that we should first finish the work towards the long-term structure that has been defined; maybe then look to see if we can reduce the number. The need for a gap analysis is there. Periodic review can come eventually.

Finland asked about the interface between General Safety Guides and Specific Safety Guides. Response was that they are complementary; there is no need to repeat in an Specific Safety Guide what exists in a General Safety Guide that applies to all facilities and activities.

4.3 Debrief on DDG-MT meeting

Chair described a meeting he had with the Deputy Director General of the Department of Management regarding staffing of the section which performs the final editing of Safety Standards prior to their publication. Although this is supposed to happen before submission to
CSS for endorsement to publish, it has recently been happening as late as one year after CSS. This was the second such meeting and, although the DDG made positive noises about having recognized the problem and considering steps to improve the situation, there was no concrete progress to report.

5. CLOSURE OF THE MEETING

5.1 Actions following the 48th NUSSC Meeting
Actions were discussed and approved.

5.2 Conclusions
The main activity of the remaining two meetings in the eighth term will be the drafting, review and approval of the Term Report
ANNEX I - AGENDA

48th Meeting of the Nuclear Safety Standards Committee (NUSSC)
26 to 28 November 2019, Vienna
VIC, C Building, C3 (7th floor)

Tuesday, 26 November 2019 from 14:00 – Thursday, 28 November 2019 till 17:00

1. GENERAL ISSUES

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<tr>
<td>1.4</td>
<td>Approval of the Report of the 47th NUSSC Meeting</td>
<td>For approval &lt;br&gt; NUSSC Members</td>
</tr>
<tr>
<td>1.5</td>
<td>Actions of NUSSC Meetings</td>
<td>For information &lt;br&gt; Mr M. Svab</td>
</tr>
<tr>
<td>1.6</td>
<td>Dates of the next meetings: &lt;br&gt; 49th NUSSC: 15 – 19 June 2020 &lt;br&gt; 50th NUSSC: 23 – 27 November 2020</td>
<td>For approval &lt;br&gt; NUSSC Members</td>
</tr>
<tr>
<td>1.7</td>
<td>Status of a Safety Report on Attributability of Radiation Health Effects and Inferring Risks</td>
<td>For information and discussion &lt;br&gt; Ms K. Asfaw/ Mr D. Delattre</td>
</tr>
<tr>
<td>1.8</td>
<td>Status of Safety Standards to be reviewed by NUSSC</td>
<td>For information &lt;br&gt; Mr M. Svab</td>
</tr>
<tr>
<td>1.9</td>
<td>TECDOC: Hierarchical Structure of Safety Goals for Nuclear Installations</td>
<td>For information &lt;br&gt; Mr J. Yllera</td>
</tr>
<tr>
<td>1.10</td>
<td>Question from NUSSC 47</td>
<td>For information &lt;br&gt; Secretariat</td>
</tr>
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2. REVIEW OF IAEA SAFETY STANDARDS

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>2.1</td>
<td>DS490 - SG Seismic Design of Nuclear Installations (rev. of NS-G-1.6) (NUSSC, WASSC) – Step 11</td>
<td>For approval for submission to CSS &lt;br&gt; Mr O. Coman</td>
</tr>
<tr>
<td>2.2</td>
<td>DS498 - SG External Events Excluding Earthquakes in Design of Nuclear Installations (NUSSC, WASSC) – Step 11</td>
<td>For approval for submission to CSS &lt;br&gt; Mr A. Altinyollar</td>
</tr>
<tr>
<td>2.3</td>
<td>DS507 - SG Seismic Hazards in Site Evaluation for Nuclear Installations (NUSSC, WASSC) – Step 11</td>
<td>For approval for submission to CSS &lt;br&gt; Mr Y. Fukushima</td>
</tr>
<tr>
<td>2.4</td>
<td>DS509 – SG Revision by amendment NS-G-4.1-4.6, SSG-10 &amp; SSG-37 [SGs for research reactors] (All SSCs; SSG-37 also for NSGC) – Step 7</td>
<td>For approval for submission to MS &lt;br&gt; Mr D. Sears</td>
</tr>
</tbody>
</table>
2.5 **DS516** – SG Criticality Safety in the Handling of Fissile Materials (All SSCs and NSGC) – Step 7  
*For approval for submission to MS*  
Mr J. Rovny

### 3. DOCUMENTS FOR INFORMATION

#### 3.1 **DS508** – SG Assessment of the Application of General Requirements for Design of Nuclear Power Plants – Discussion on the way forward  
*For information*  
Mr J. Yllera

#### 3.2 **NST060** – Technical Guide: Regulatory Authorization for Nuclear Security during the Lifetime of a Nuclear Facility  
*For information*  
Mr R. Larsen

#### 3.3 **DS497** – SG Revision of seven closely interrelated Safety Guides for Nuclear Power Plants Operation – Status report  
(See also Action 1.12.4 from 47 NUSSC)  
*For information*  
Mr K. Maekelae

#### 3.4 **DPP DS513** – Action 3.1 from the 47th NUSSC Meeting  
*For information*  
Mr K. Maekelae

#### 3.5 Template for presentations for DPPs and draft SSs  
*For information*  
Mr M. Svab

### 4. MISCELLANEOUS

#### 4.1 Feedback on Regulatory Arrangements and Current Developments in NUSSC Member States *(India)*  
*For information*  
Mr S. Harikumar

#### 4.2 Holistic review of Safety Standards  
*(See also Action 1.12.1 from 47 NUSSC)*  
*For discussion*  
Secretariat and NUSSC Members

#### 4.3 MTCD Staffing  
*For information*  
Mr P. Webster

### 5. CLOSURE OF THE MEETING

#### 5.1 Actions following the 48th NUSSC Meeting  
*For discussion*  
Mr M. Svab/ NUSSC Members

#### 5.2 Conclusions  
Mr P. Webster
<table>
<thead>
<tr>
<th>Conference Code</th>
<th>Dates</th>
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<tbody>
<tr>
<td>CSS 46</td>
<td>16 – 20 December 2019</td>
</tr>
<tr>
<td>CSS 47</td>
<td>14 – 17 April 2020</td>
</tr>
<tr>
<td>CSS 48</td>
<td>16 – 20 November 2020</td>
</tr>
<tr>
<td>EPReSC 9</td>
<td>3 – 6 December 2019</td>
</tr>
<tr>
<td>EPReSC 10</td>
<td>8 – 10 June 2020</td>
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<td>EPReSC 11</td>
<td>10 – 12 November 2020</td>
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<tr>
<td>NSGC 17</td>
<td>15 – 19 June 2020</td>
</tr>
<tr>
<td><strong>NUSSC 49</strong></td>
<td><strong>15 – 19 June 2020</strong> (joint session with NSGC)</td>
</tr>
<tr>
<td><strong>NUSSC 50</strong></td>
<td><strong>23 – 27 November 2020</strong> (joint session with WASSC)</td>
</tr>
<tr>
<td>RASSC 48</td>
<td>22 – 24 June 2020</td>
</tr>
<tr>
<td>RASSC 49</td>
<td>2 – 6 November 2020</td>
</tr>
<tr>
<td>TRANSSC 40</td>
<td>1 – 5 June 2020</td>
</tr>
<tr>
<td>TRANSSC 41</td>
<td>2 – 6 November 2020</td>
</tr>
<tr>
<td>WASSC 49</td>
<td>24 – 26 June 2020</td>
</tr>
<tr>
<td><strong>WASSC 50</strong></td>
<td><strong>23 – 27 November 2020</strong></td>
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</table>
ANNEX II - Actions following the 48th NUSSC Meeting

<table>
<thead>
<tr>
<th>Item</th>
<th>Action</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>DS490 – Draft Safety Guide: ‘Seismic Design of Nuclear Installations’ endorsed to proceed to CSS for approval to publish.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>2.2</td>
<td>DS498 – Draft Safety Guide: ‘External Events Excluding Earthquakes in Design of Nuclear Installations’ endorsed to proceed to CSS for approval to publish.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>2.3</td>
<td>DS507 – Draft Safety Guide: ‘Seismic Hazards in Site Evaluation for Nuclear Installations’ endorsed to proceed to CSS for approval to publish.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>2.4</td>
<td>DS509 – Draft Safety Guide: Revision by amendment of NS-G-4.1 to 4.6, SSG-10 and SSG-37 (on Research Reactors) was approved for submission to Member States for review and comment.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>2.5</td>
<td>DS516 – Draft Safety Guide: ‘Criticality Safety in the Handling of Fissile Materials’ approved for submission to Member States for review and comment.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>1.6.1</td>
<td>The 49th NUSSC Meeting will be the week of 15 – 19 June 2020; part of the meeting will be held jointly with NSGC to discuss whether it may be possible to work together on one or more joint publications.</td>
<td>All</td>
<td>ASAP</td>
</tr>
<tr>
<td>1.6.2</td>
<td>The 50th NUSSC Meeting will be the week of 23-27 November 2020, being the week after CSS 48; it is anticipated that part of the meeting will be a joint session with WASSC (to be confirmed).</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Current version of DS508 and comments made by NUSSC Members or Observers prior to or at the meeting will be circulated as soon as possible.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>3.1.2</td>
<td>A special Working Group of interested Members and Observers will be held (tentatively) from 17 – 21 February 2020 to discuss DS508 with the goal of achieving consensus on a version that can be submitted to NUSSC 49 participants for their consideration.</td>
<td>Secretariat</td>
<td>ASAP</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Eleven Members or Observers expressed interest in participating in the special Working Group. Comments from attendees on the then-current draft of DS508 will be requested in advance of the meeting in order to help structure discussion of the scope and content of the document.</td>
<td>Attendees</td>
<td>ASAP</td>
</tr>
<tr>
<td>3.5</td>
<td>Secretariat will re-submit the revised template for DPP presentations at 49th NUSSC Meeting, taking into account comments made, as input to review of the draft end-of-term report at that meeting.</td>
<td>Secretariat</td>
<td>49th NUSSC</td>
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<tr>
<td></td>
<td><strong>National Presentation</strong> at the NUSSC 49: Germany, Spain, Sweden, Iran, Japan.</td>
<td>NUSSC Members</td>
<td></td>
</tr>
</tbody>
</table>
## ANNEX III - List of Participants

<table>
<thead>
<tr>
<th>No.</th>
<th>NUSSC members</th>
<th>Country/Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ms Friederike Friess</td>
<td>Austria</td>
</tr>
<tr>
<td>2.</td>
<td>Mr Simon Coenen</td>
<td>Belgium</td>
</tr>
<tr>
<td>3.</td>
<td>Mr Fabiano Petrucceli Coelho Lima</td>
<td>Brazil</td>
</tr>
<tr>
<td>4.</td>
<td>Mr Hatem Khouaja</td>
<td>Canada</td>
</tr>
<tr>
<td>5.</td>
<td>Mr John Henry Moore</td>
<td>Canada</td>
</tr>
<tr>
<td>6.</td>
<td>Mr Philip Webster</td>
<td>Canada</td>
</tr>
<tr>
<td>7.</td>
<td>Ms Marja-Leena Järvinen</td>
<td>Finland</td>
</tr>
<tr>
<td>8.</td>
<td>Mr Thierry Lecomte</td>
<td>France</td>
</tr>
<tr>
<td>9.</td>
<td>Mr Emmanuel Wattelle</td>
<td>France</td>
</tr>
<tr>
<td>10.</td>
<td>Mr Kai-Jochen Weidenbruecke</td>
<td>Germany</td>
</tr>
<tr>
<td>11.</td>
<td>Mr Eckhard Westermeier</td>
<td>Germany</td>
</tr>
<tr>
<td>12.</td>
<td>Mr Imre Pasztor</td>
<td>Hungary</td>
</tr>
<tr>
<td>13.</td>
<td>Ms Eszter Retfalvi</td>
<td>Hungary</td>
</tr>
<tr>
<td>14.</td>
<td>Mr Harikumar S.</td>
<td>India</td>
</tr>
<tr>
<td>15.</td>
<td>Mr Huda Khoirul</td>
<td>Indonesia</td>
</tr>
<tr>
<td>16.</td>
<td>Mr Nir Hazenshprung</td>
<td>Israel</td>
</tr>
<tr>
<td>17.</td>
<td>Mr Marco Gervasi</td>
<td>Italy</td>
</tr>
<tr>
<td>18.</td>
<td>Mr Nakajima Tsuyoshi</td>
<td>Japan</td>
</tr>
<tr>
<td>19.</td>
<td>Mr Kazuhiro Tsuzuki</td>
<td>Japan</td>
</tr>
<tr>
<td>20.</td>
<td>Mr Makoto Toyama</td>
<td>Japan</td>
</tr>
<tr>
<td>21.</td>
<td>Mr Sigitas Slepavicius</td>
<td>Lithuania</td>
</tr>
<tr>
<td>22.</td>
<td>Ms Tonje Sekse</td>
<td>Norway</td>
</tr>
<tr>
<td>23.</td>
<td>Mr Pawel Domitr</td>
<td>Poland</td>
</tr>
<tr>
<td>24.</td>
<td>Mr Chang Won Joon</td>
<td>Republic of Korea</td>
</tr>
<tr>
<td>25.</td>
<td>Mr Chung Yeon-Ki</td>
<td>Republic of Korea</td>
</tr>
<tr>
<td>26.</td>
<td>Mr Sergey Krechetov</td>
<td>Russian Federation</td>
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<tr>
<td>27.</td>
<td>Mr Dmitrii Sviridov</td>
<td>Russian Federation</td>
</tr>
<tr>
<td>28.</td>
<td>Ms Elizabeth Wong Kar Yan</td>
<td>Singapore</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Organization</td>
</tr>
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<tr>
<td>29.</td>
<td>Mr Peter Uhrík</td>
<td>Slovakia</td>
</tr>
<tr>
<td>30.</td>
<td>Mr Mashita Poke</td>
<td>South Africa</td>
</tr>
<tr>
<td>31.</td>
<td>Mr Hallman Anders</td>
<td>Sweden</td>
</tr>
<tr>
<td>32.</td>
<td>Mr Tas Fatma Burcu</td>
<td>Turkey</td>
</tr>
<tr>
<td>33.</td>
<td>Ms Hanan Aljneibi</td>
<td>United Arab Emirates</td>
</tr>
<tr>
<td>34.</td>
<td>Mr Robert Moscrop</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>35.</td>
<td>Mr Mike Franovich</td>
<td>United States of America</td>
</tr>
<tr>
<td>36.</td>
<td>Ms Lauren Quinones-Navarro</td>
<td>United States of America</td>
</tr>
<tr>
<td>37.</td>
<td>Ms Vesselina Rangelova</td>
<td>EC</td>
</tr>
<tr>
<td>38.</td>
<td>Mr Gerd Bassing</td>
<td>ENISS</td>
</tr>
<tr>
<td>39.</td>
<td>Mr William Ranval</td>
<td>ENISS</td>
</tr>
<tr>
<td>40.</td>
<td>Mr Jean-Paul Bouard</td>
<td>IEC</td>
</tr>
<tr>
<td>41.</td>
<td>Mr Olivier Marchand</td>
<td>ISO</td>
</tr>
<tr>
<td>42.</td>
<td>Mr Bertrand de L’Epinois</td>
<td>WANO</td>
</tr>
<tr>
<td>43.</td>
<td>Mr Franck Lignini</td>
<td>WNA</td>
</tr>
<tr>
<td>44.</td>
<td>Mr Na Byung-Chan</td>
<td>WNA(UK)</td>
</tr>
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