

TITLE

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Nikolaus Müllner		Page..2/5.. of 6					
Country/Organization: Austria, BOKU-ISR		Date: 8 th of Nov. 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Section 7, Overview	<p>Instead of</p> <p>“Assessment of DiD Implementation DiD implementation strategy for new NPPs (general part)”</p> <p>It is proposed</p> <p>“Assessment of DiD Implementation DiD implementation strategy for NPPs (general part)</p>	<p>Parts of the concepts of PE and DEC will be applicable to existing NPPs as well. In view of the Vienna Declaration on Nuclear Safety it is proposed to keep the guide general.</p> <p>The impression that there are two DiD concepts, one for existing NPPs and one for new NPPs, should be avoided.</p>	NO	<p>Comment: The concept of DiD is not different. However, the application would be different. This will be then explained in the text of the SG.</p> <p>For many existing plants, safety features for DEC, in particular for DEC with core damage, would not exist or be very limited.</p> <p>It is noted also that the VDNS speaks of avoiding early or large releases. It doesn't speak of practical elimination.</p> <p>The SG will provide recommendations for meeting the safety requirements, not the principles of the Vienna Declaration, even if they are oriented to meet similar objectives.</p>		
2	Section 5, Scope	It is proposed to insert a reference to the Vienna Declaration on Nuclear Safety and indicate that parts of the concepts of PE and DEC can be applied to existing NPP as well		NO	<p>As with other safety guides it will be primarily intended for new NPPs for which these concepts of DEC and PE have been introduced in SSR 2/1. It could be applied with some judgement in those areas for the existing NPPs as far as the Member State includes DEC in the design envelope of existing NPPs and the demonstration of PE is required. It is not a current practice to require “practical elimination” for existing NPPs as it may not be reasonably achievable.</p> <p>Such terms however are not used in the VDNS and it</p>		

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Country/Organization: Austria, BOKU-ISR		Date: 8 th of Nov. 2017			
				is not appropriate to use them here. See previous comment	

COMMENTS BY REVIEWER				RESOLUTION			
Country/Organization: FRANCE			Date: 25/10/2017				
pages							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	Title	Assessment of the Application of General Requirements for Design of Nuclear Power Plants; <u>design extension conditions and concept of practical elimination</u>	The scope of the document should be made clearer in the title	NO	We can discuss the title. The scope is discussed in the DPP where changes have been introduced to clarify it further. The new title proposed would introduce sharp limitations to the scope of the guide and would prevent from formulating recommendations on DEC and PE in the right context.		
2.	General		To ensure consistency with SSR-2/1 (para 2.11 para 2.13 (4), para 5.31...), the wording “of event sequences that would lead to an early radioactive release or a large radioactive release” should be systematically used throughout the document. There are currently several inconsistencies (see following comments)	Yes	Please note that the request of Korea to add “of radioactive materials”		
3.	Chapter 2/last paragraph	and the practical elimination of <u>event sequences that would lead to an early radioactive release or a large radioactive release</u> large or early releases	See comment #2	Yes			
4.	Chapter 3/1 st paragraph	...as well as the need to demonstrate that event sequences demonstrate that event sequences <u>that would lead an early radioactive release or a large radioactive release</u> leading to large or early releases have to be practically eliminated	See comment #2	Yes			

5.	Chapter 3/last paragraph	...further guidance on it also related to the achievement and demonstration of the practical elimination of <u>event sequences that would lead an early radioactive release or a large radioactive release</u> early or large radioactive releases	See comment #2	Yes			
6.	Chapter 4	relating to defence in depth and practical elimination of <u>event sequences that would lead an early radioactive release or a large radioactive release</u> leading to early or large releases	See comment #2	Yes			
7.	Chapter 5/1st paragraph	of the defence in depth implementation and the practical elimination of <u>event sequences that would lead an early radioactive release or a large radioactive release</u> leading to early or large releases	See comment #2	Yes			
8.	Chapter 5/second bullet list	<p>which are related to several requirements in SSR 2/1, rev. 1, such as:</p> <ul style="list-style-type: none"> - 4: Fundamental safety functions - 7: Application of defence in depth - 13: Categories of plant states - 16: Postulated initiating events - 19: Design basis accidents - 20: Design extension conditions and - 21: Physical separation and independence of safety systems <p><u>To address the interface with the postulated initiating events, design basis accident and safety systems, as well as to stress commonalities or differences in the safety demonstration, background information related to requirements 16 (postulated initiating events), 19 (design basis accidents) and 21 (Physical separation and independence of safety systems) will also be provided.</u></p>	According to NUSSC 43, the guidance should be related to DEC, so requirement 16 (PIE), 19 (DBA) and 21 (safety systems, thus not DEC) are not really within the scope although background information will have to be provided on these topics to address the interfaces or stress commonalities/differences with DEC and demonstration of practical elimination.	Yes	The adequate implementation and assessment of defence in depth is related to fulfilling a number of design requirements. It is not the intention of the safety guide to provide recommendations for instance on the analysis of initiating events, but to consider these requirements under the perspective of the assessment of defence in depth and the practical elimination of early radioactive releases or large radioactive releases.	The new text is less explicit in the enumeration of related requirements in SSR 2/1 See also answer to comment 11	
9.	Chapter 6	Relevant Nuclear Security Series publications should be included	Defence in depth should also account for malevolent acts (as man-made hazards) and some DEC may actually be initiated by such act (e.g. commercial airplane crash...)	Yes	Publications added.		

10.	Chapter 6/last paragraph	In addition, the IAEA TECDOC-1791 (2016): “Considerations on the Application of the IAEA Safety Requirements for the Design of Nuclear Power Plants” is a relevant publication that provides insights on the topics that will be included in the safety guide and will be used for its development	It is relevant to use TECDOC for the guidance but not to consider <i>a priori</i> that its insights will be included.	Yes	The sentence indicated that TECDOC 1791 deals with some topics (DEC, PE) that will be also the subject of the future safety guide, not that insights from the TECDOC will be necessarily adopted in the safety guide. Nevertheless, the following sentence proposed is hopefully more clear: ' ... is a relevant publication that provides insights on some topics that are also within the scope of the safety guide and will be taken into account for its development.'
11.	Chapter 7	4. ASSESSMENT OF DEC WITHIN DiD IMPLEMENTATION ·DiD implementation strategy for new NPPs (general part) ·Objective of levels of DiD and plant states DEC assessment ·Assessment of effectiveness and reliability of the design DEC provisions: – ·Identification of safety functions and challenging mechanisms (e.g. PIEs, sequences, hazards and phenomena) – ·Identification of safety provisions for the applicable plant state DEC – ·Deterministic assessment (demonstration of compliance with applicable requirements supported by the complete safety analysis) – ·PSA (assessment of reliability of the design provisions) – ·Integration of deterministic and probabilistic assessment	According to NUSC 43, the guidance should be related to DEC	No	It has been emphasized even more in the text of the DPP that special focus is placed on the assessment of DEC, and on PE. However, the assessment is carried out in the frame of the assessment of DiD and fundamental safety functions, which are the pillars of nuclear safety. Therefore, it is not appropriate to eliminate the assessment of NO, AOO and DBAs. According to the SSR 2/1, The design shall be such as to ensure, as far as is practicable, that the first, or at most the second, level of defence is challenged. The assessment of these levels cannot be ignored if an assessment of the independence between provisions for various levels is required, which is also crucial to demonstrate that early radioactive releases or large radioactive releases are very unlikely. We know that the novelty resides in the assessment of DEC and that this is a special focus of attention.

12.	Chapter 7	<p>Assessment of safety provisions for different plant states</p> <ul style="list-style-type: none"> — Assessment of safety provisions for normal operation (all modes) — Assessment of safety provisions for abnormal operation – Assessment of provision for DBA <u>(selected topics of interest with regard to assessment of provisions for DEC)</u> – Assessment of provisions for DEC without significant fuel degradation – Assessment of provisions for DEC with core melt 	<p>According to NUSCC 43, the guidance should be related to DEC.</p> <p>There is no need to specifically identify in the summary normal operation and AOO.</p> <p>Concerning the assessment of provision for DBA, this should be focused at showing commonalities/differences with the assessment of provisions for DBA</p>	No	See previous comment. Also note that differences/commonalities in the assessment of DBA/DEC are treated, at least to some extent, in SSG-2		
13.	Chapter 7	<p>·Assessment of independence between safety DEC provisions for and <u>other different</u> plant states</p> <ul style="list-style-type: none"> – ·Functional independence between different plant states – ·Assessment of common cause failures and defensive mechanisms, including use of PSA for identification and assessment of dependencies 	<p>According to NUSCC 43, the guidance should be related to DEC</p> <p>Consider complementary explanations for “defensive mechanisms” or consider deletion</p>	No	See previous comment 11.		
14.	Chapter 7	5. <u>PRACTICAL ELIMINATION OF EVENT SEQUENCES THAT WOULD LEAD TO AN EARLY RELEASE OR A LARGE RELEASE</u> EARLY OR LARGE RELEASES	See comment #2	YES			
15.	Chapter 7	7. APPENDIX ANNEX I: Assessment of practical elimination of specific common cases	Experience feedback showed that it is difficult to achieve a consensus when providing detail on each case. Thus it is better to consider it as an annex and not an appendix	YES	A key aspect in this regard is the level of detail. We hope that still consensus can be reached on some aspects and that therefore common some recommendations can be placed in the safety guide Perhaps this could be decided later on, depending on how we progress with the safety guide		

16.	Chapter 7	<ul style="list-style-type: none"> ·Catastrophic break of major RCS equipment ·Prompt reactivity accidents ·Direct containment heating ·Hydrogen explosions ·Steam explosions ·Severe accidents with containment by-pass, including open containment ·Containment boundary melt through ·Practical elimination of severe accidents at the spent fuel pool <p><u>It is essential to complement this list with non-LWRs cases and to present each case non only for LWRs</u></p>	This list is not sufficient to understand the practical elimination concept. It should be clearly complemented with illustration related to non-LWRs reactor (CANDU, AGR...)	YES	<p>The concept and the general parts of the demonstration will be in chapter 5.</p> <p>This list of cases for the annex is tentative and certainly will be adjusted as necessary. Additional cases for PHWRs would be included as appropriate.</p> <p>SSR 2/1 doesn't cover AGRs and other non water cooled reactors. Current AGR designs don't have a containment structure other than the primary circuit itself.</p>
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TITLE Japan NUSSC Comments for DPP-DS508, rev.1 “Assessment of the Application of General Requirements for Design of NPPs”

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Japan NUSSC Member		Page 1 of 1					
Country/Organization: Japan/NRA		Date: 31 Oct., 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	7. OVERVIEW	5. PRACTICAL ELIMINATION OF EARLY OR LARGE RELEASES - Introduction, general aspects and interpretation of the concept <u>for new NPPs</u>	Clarification for the plants to be applied for new NPPs as the same as DiD implementation strategy.	Yes			

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer:		Page.... of....					
Country/Organization: Korea, Republic of / KINS							
Date: 3/11/2017							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	§ 1 / line 3	(Current) Proposed Title : <u>Application of Safety Principles and General Design Requirements</u> for Nuclear Power Plants (Proposed) Proposed Title : <u>Design of Safety Features</u> for Nuclear Power Plants	It is need to modify the title of the safety guide to match the contents. Contents of the document are not for a general description of design principles of NPPs, but it consists of the safety function, engineering aspects, and Defence in Depth of the safety features to practically eliminate the early and	NO	We are open to discuss the title based also on other comment by France. However, this is not a guide on design of plant safety features, but rather on safety assessment and demonstration of the design. Design of safety features for DEC are to be found in the safety guides for the design of the containment, cooling systems, electrical systems, etc.		

			<p>large radioactive release.</p> <p>The term of ‘safety feature’ is defined in IAEA Safety Glossary.</p> <p>In the case of other safety guides, the titles take the form of ‘Design of ~ ~.’ For example, Design of I & C, Design of Reactor Containment Structure and Systems, ...</p>		
2	<p>§ 2/ line 8</p> <p>§ 3/ line 5</p> <p>§ 4/ line 4</p> <p>§ 7/ line 12</p>	<p>(current) leading to early and large releases.</p> <p>(proposed) leading to early and large releases <u>of radioactive materials</u>.</p>	<p>To keep consistency with VDNS and to make the meaning clear.</p>	Yes	<p>It will be modified as indicated in SSR 2/1 and proposed by France, i.e. “an early radioactive release or a large radioactive release”</p> <p>However, SSR 2/1 also speaks of releases without specifying radioactive in several cases. It is clearly understood that radioactive releases are those of interest for nuclear safety and sentences shouldn’t be made unnecessarily complicated.</p>