

**DS503 - “Protection against Internal and External Hazards in the Operation of Nuclear Power Plants”  
- Document Preparation Profile (DPP) Version 1.0 dated 8 November 2016**

**COMMENT RESOLUTION TABLE**

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: <b>Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)</b> (with comments of GRS)  Country/Organization: <b>GERMANY</b> Date: 5 May 2017							
Comment No.	Para or Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	page 4, para. 2	<ul style="list-style-type: none"> <li>- Earthquake</li> <li>- Volcanism</li> <li>- External floods including Tsunami</li> <li>- Other meteorological hazards</li> <li>- Biological phenomena</li> <li>- Collisions of floating bodies with water intakes and ultimate heat sink (UHS) components</li> <li>- Electromagnetic interference</li> <li>- External fire</li> <li>- External explosion including Missiles and Shockwaves</li> </ul>	It is recognized that the list of external hazards in the DPP follows the order in the existing Safety Standards (e.g. NS-G-1.5). Nevertheless, this order has no logical basis as natural and human-induced hazards are mixed. The current revision process should be used to introduce a more logical order, e.g. starting with natural hazards (geological, hydrological, meteorological, biological), continuing with hazards that might have a natural or human-induced origin (floating objects, electromagnetic interference,	Comment reflected in revised DPP			

		<ul style="list-style-type: none"> <li>- Accidental aircraft crash</li> <li>- Release of hazardous substances (Asphyxiant and toxic gases, corrosive and radioactive fluids)</li> </ul>	external fires), and ending with human-induced hazards (explosions, hazardous materials, aircraft crash).				
2	page 4, para. 2, line 10	<ul style="list-style-type: none"> <li>- <u>Extreme winds</u></li> <li>- Other meteorological hazards</li> </ul>	Although extreme winds are a meteorological hazard, it might be a good idea to separate them from the other meteorological hazards. There are two main reasons for that: (i) The topic of extreme winds is quite broad including tornadoes and ‘linear’ winds with distinct safety implications. (ii) Extreme winds might merit a separate section (as in NS-G-1.5) as they can be considered the leading meteorological hazard from a safety point of view.	Comment reflected in revised DPP			
3	page 5, last two lines	<p>Staff: <del>20</del> ?? staff weeks</p> <p>Consultants: <del>40</del> ?? consultant weeks</p>	For the revision of SSG-9 (DS507) which requires only some minor updating, the same amount of staff (20) and consultant (10) weeks has been proposed. Given the fact that the planned changes to this Safety Standard are much more extensive, there is an	Comment reflected by increasing the resource			

			imbalance between the two resource estimates that should be resolved by either increasing the resources for this revision or by reducing them for DS507 according to the experience with similar projects.				
COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Geraint Williams/Tim Allmark Page.... of....  Country/Organization: ONR/UK Date:16 May 2017							
Comment No.	Para or Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	<p>The UK consider it may be worth pausing to see how the new SSG from DS494 is received by NUSSC noting:</p> <ul style="list-style-type: none"> <li>There was some difficulty because the guide for fire NS-G-2.1.7 was pretty well developed and had quite a lot of content on fire-specific issues, such as design of fire detection systems, design of fire suppression systems.</li> </ul> <p>Just doing a cut and paste of NS-G-1.7 and NS-G-1.11 would have led to a very unbalanced SSG – lots of information about fire, not much</p>		Accepted:			
				We will take due account of the discussion on DS 494 during the revision process for DS503 and avoid unnecessary duplication.			

		<p>about the other internal hazards. There is a danger that extending NS-G-2.1 to cover all internal hazards (indeed all internal and extern hazards) would be equally difficult. There are some good things that have been put into the new SSG (DS494), such as more guidance on hazard combinations and on some shared issues such as the importance of layout (barriers), etc., which will obviously be relevant to the proposed SSG for this DPP. On hazard combination, DS494 necessarily covered external hazards leading to internal failures and resulting internal fires/floods, etc., as well as combinations of internal hazards.</p> <ul style="list-style-type: none"> <li>• Some things which were taken out of the SSG from DS494 that are now looking for a new home. The UK considers that the revision of NS-G-2.1 may be an opportunity.</li> <li>• In some ways the SSG arising from DS494 was more straightforward because it is for new NPP. The document could say how things could/should be done, not start with plant of various vintages as for the operational guidance.</li> </ul>		<p>We welcome ideas on anything removed from DS494 that should be considered for DS503</p>			
2	General	<p>It may be interesting putting together a SSG which was about protection against the effects of hazards for operational plants, but some of the stuff in the contents list should be covered</p>			<p>Some hazards such as fire may be influenced by operational modifications (management of</p>		

		elsewhere. For example, the section about Plant Modifications – would you look for this here, or should there be general guidance on plant modifications and effects on safety cases, which includes advice on hazards? Similarly, the section on Periodic Updating of Hazard Analysis seems like it should be generic part of PSR guidance.			combustible material, flood prevention etc.)  The intention is not to cover aspects already the subject of other safety guides as far as reasonably practicable.		
3	General	There is a danger this report could become a monster. For example, it is likely the seismic specialists will want seismic walk down guidance embedded in the proposed section 10. Will the document end up with lots of walk down advice for all hazards?		Accepted:  The eventual content is yet to be decided in detail but our judgement is that not all hazards will require the same approach as seismic ones.			
4	General	In summary, this DPP provides an ambitious and all-encompassing scope. Nevertheless if there is an appetite for the project the UK would be keen to		Accepted  We welcome UK expert			

		participate in the drafting stage.		participation			
5	7.1	The list of Internal hazards should be reviewed to ensure completeness, for example it should include steam release	To complete the coverage	Comment reflected			
6	7.2	The list of external hazards should be reviewed to ensure completeness, for example it should include solar storms	To complete the coverage	Comment reflected			
7	7	For external hazards there should be some discussion over organizational measures to provide forewarning of the hazard occurring for example weather forecasts etc.	To enhance completeness of guidance	Accepted  We anticipate this being included in Section 2: Organization and Responsibilities			
COMMENTS BY REVIEWER				RESOLUTION			
Country/Organization: FRANCE/ASN April 2017				Date: 18			
pages							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection

1.	General		The DPP is very ambitious but also unclear on the future content of the guide.	<b>Accepted</b>  This will be the addressed in accordance with DPP wording on general treatment of each hazard, any specific issue that requires further guidance will also be included, but it is not feasible to predict this in detail at this stage			
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2.	§4 §5	(Malicious acts are out of the scope <u>but mitigation consequences of malicious acts similar to those of non-malicious acts are addressed</u> ).	The DPP states that “The objective of the revision of the Safety Guide NS-G-2.1 is to improve its applicability by widening the scope to include all internal and external hazards (malicious acts are out of the scope), including their possible combinations.” Although malicious acts may have consequences that are different from those of a non-malicious act, there are still some very similar consequences and the measures implemented for non-malicious acts may still be applicable...		Malicious acts are out of the scope <u>although mitigation consequences of malicious acts similar to those of non-malicious acts are addressed</u>		
3.	§4	Delete step 2 detailed information from the DPP or transfer it into an annex of the DPP.	DPP is only for performing step 1 and this should not be ambiguous.	Comment reflected  (step 2 deleted)			



4.	§5		<p>The DPP states that “The Safety Guide will propose a common approach to address operational aspects for the hazards and address applicable combination of hazards.”</p> <p>Is it already sure that such common approach is achievable are could this be too challenging, therefore not established in the safety guide?</p>	<p>Accepted</p> <p>This is the current expectation: use a common approach where practicable and specific approach where necessary</p>			
5.	§6	GSR Part 2 should also be referenced	Organisational aspects are also to be addressed through the licensee’s management system	Comment reflected in revised DPP			
6.	§7 2.	<p><del>Other</del> meteorological events (<u>including lightning,</u> <u>tornadoes, high wind, heat wave, cold wave,...)</u></p> <p><u>Chemical explosion</u></p> <p>....</p>	Enhance consistency with external hazard type list in NS-R-3		<p>Accepted:</p> <p>We added some of these without over-complicating the DPP but will not exclude any ‘reasonable’ suggestion.</p>		

7.	§7		The structure should stress that the guide will suggest preventive measures and mitigating measures		Changing titles of chapter 5.&6. to follow the next comment (8).		
8.	§7	<p>5. <u>ENSURING SAFETY AGAINST INTERNAL HAZARDS TO BE CONSIDERED IN DURING THE OPERATION OF THE NPP</u></p> <p>6. <u>ENSURING SAFETY AGAINST EXTERNAL HAZARDS TO BE CONSIDERED IN DURING THE OPERATION OF THE NPP</u></p>	Chapters 5 and 6 title is not really adequate as hazards to be considered are known.		<p><b>Comment reflected</b></p> <p>5. ENSURING SAFETY AGAINST INTERNAL HAZARDS IN THE OPERATION OF NPPs</p> <p>6. ENSURING SAFETY AGAINST EXTERNAL HAZARDS IN THE OPERATION OF NPPs</p>		

9.	§7		Interface with EOP and SAMGs should also be addressed	Accept; We anticipate this will be addressed in chapter 5, 6, 7 or 11, to be confirmed when the final structure of the TECDOC starts to emerge			
10.							
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