

**Resolution of comments on DS485 - DPP “Ageing management and programme for long term operation for NPP”**

COMMENTS BY REVIEWER				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Page4/chapter 5/chapter 6	<p>5. MANAGEMENT OF CONCEPTUAL OBSOLESCENCE</p> <p>6. MANAGEMENT OF TECHNOLOGICAL OBSOLESCENCE</p> <p>5. MANAGEMENT OF OBSOLESCENCE Add an item “Obsolescence management programme”</p>	<p>It should be added an item related to obsolescence management programme. It is not necessary to split in different chapters the conceptual and technological obsolescence. The operating organization should establish an obsolescence management programme in order to ensure that obsolescence will be systematically managed</p>	X			
2	Page 4/chapter 5	The content of management of conceptual obsolescence should be clarified through different items.	<p>It is not clearly understood the item “other plant activities” in relation to management of conceptual obsolescence. Same comment with “periodic safety review”.</p>	X			

3	Page 4/chapter 10	<p>The chapter ‘Time limited ageing analysis’ should be allocated following chapter 8 (previous to the Programme for long term operation chapter).</p> <p><del>9. PROGRAMME FOR LONG TERM OPERATION</del></p> <p><del>10. TIME LIMITED AGEING ANALYSIS</del></p> <p>9. TIME LIMITED AGEING ANALYSIS</p> <p>10. PROGRAMME FOR LONG TERM OPERATION</p>	<p>Time limited analysis is part of the feasibility studies, as well as ageing management.</p>		<p>Original chapter on TLAAs was merged with chapter on Programme for LTO because revalidation of TLAAs are defined as an important part of programme for LTO (e.g. SSR 2/2, Req. 16, NS-G-2.12, SRS 57 etc.)</p>		
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COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: ENISS		Page 1 of 1 Date: 22 May 2014					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	This is an important safety guide. The DPP should be more specific and precise.	X				

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COMMENTS BY REVIEWER				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
	General	Aging management and long term operation are important topic for safety of nuclear power plants. The idea of drawing up the overall view of aging management its relation to other processes is good.		X			

		<p>The TOC of the document seem to contain a lot of high level concepts related to ageing managements. There seems to be overlap and repetition in the content of the sections. The concept of conceptual obsolesce is new and not commonly known.</p> <p>It is proposed that the plan is updated and the content of the safety guide to be developed would be reconsidered so that there is balance in between the conceptual and strategic aspects and the program, actual means to carry out the program such as "Condition monitoring" and "Maintenance" and the interface with other processes such as licensing, PSR or LTO.</p>				

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Reviewer: Country/Organization:		Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
Comment No.	Para/Line No.						

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Country/Organization: ASN/France			Page Date: 23 May 2014				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	DS title	Ageing management <del>and long term operation</del> for NPP	Ageing management is only one part of LTO. It is preferred to separate LTO. Keep current scope of NS-G-2.12. As expressed in the DPP, LTO has a strong link with PSR (SSG-25) which addresses aspects of LTO. From a regulator point of view, the Safety Guide on licensing nuclear installation would be a more appropriate place to address this topic.			X	New Safety Guide should address mainly SSR-2/2 “Requirement 14: Ageing management” and “Requirement 16: Programme for long term operation” to support NPPs in their preparation for LTO, so the title was changed accordingly. Note - SSG-25, para 3.3 - The intent of this Safety Guide is not to provide recommendations for the activities performed during long term operation of a nuclear power plant. However, a PSR and its findings can be used to support the decision making process for long term operation or licence renewal.

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Reviewer: Country/Organization:	ASN/France	Page Date: 23 May 2014					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
2.	§3	With continuous ageing of fleet of nuclear power plants, long term operation <u>of NPP is contemplated by numerous operating organizations has become a major topic for majority of operating units.</u>	Clarification	X			
3.	§3	<del>Member States repeatedly request the IAEA to provide Safety Standards for a process of preparation for safe long term operation.</del>	Keep current NS-G-2.12 scope	X			
4.	§6	<del>Section 2 “Basic concepts” presents basic concepts of ageing management, obsolescence management <u>and long term operation and periodic safety review</u></del>	Keep current NS-G-2.12 scope		Long term operation is already in current Section 2. Connection with PSR will be clarified.		
5.	§6	<del>Section 5 “Management of conceptual obsolescence” provides detail information on management of conceptual obsolescence in operational phase of nuclear power plant life cycle.</del>	Unclear. If it is relating to new designs or new design basis/DEC requirements, this is within the scope of SSG-25	X			

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Reviewer: Country/Organization: ASN/France			Page Date: 23 May 2014	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
Comment No.	Para/Line No.	Proposed new text	Reason				
6.	§6	<b>Section 7</b> “Ageing management in operation <u>before and during LTO</u> ” provides more detail information on ageing management in operational phase of nuclear power plant life cycle.	LTO is part of the operational phase of a NPP		Differences between operation and LTO will be clarified in a new Section on “Ageing management strategy over the lifetime”.		
7.	§6	<b>Section 8</b> “Plant activities relevant to ageing management and long term operation” provides overview of plant reports and programmes relevant to ageing management and safe long term operation of nuclear power plant life cycle.	Not needed anymore			X	One of the main reasons of NS-G-2.12 revision is addressing of a new SSR-2/2 Requirement 16: Programme for long term operation, which is not reflected in any safety guide. Also „Long term structure of the IAEA Safety Standards“ requires that a new revision of NS-G-2.12 „...will also address the issues related to long term operation ...“

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Reviewer: Country/Organization:	ASN/France	Page Date: 23 May 2014					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
8.	§6	<b>Section 9</b> “Programme for long term operation” provides overview of activities important for safe long term operation of nuclear power plant life cycle.	Not needed anymore			X	One of the main reasons of NS-G-2.12 revision is addressing of a new SSR-2/2 Requirement 16: Programme for long term operation, which is not reflected in any safety guide. Also „Long term structure of the IAEA Safety Standards“ requires that a new revision of NS-G-2.12 „...will also address the issues related to long term operation ...“

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Reviewer: Country/Organization:	ASN/France	Page Date: 23 May 2014		Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
Comment No.	Para/Line No.	Proposed new text	Reason				
9.	§6	<b>Annex IV.</b> “Examples of ageing management programmes” provides examples of ageing management programmes implemented and proven in some Member States. <b>Annex V.</b> “Examples of typical time limited ageing analysis” provides examples of typical time limited ageing analyses which are the matter of revalidation for safe long term operation in some Member States.	This would be more appropriate in TecDoc or safety report...		This information was requested by other Member States like Ukraine, USA, Korea. Annexes will contain only titles of AMPs and TLAAs. Their complete description is provided in Safety Report IGALL.		
10.	Tentative table of content	2. BASIC CONCEPTS Ageing management Obsolescence management <u>Periodic safety review</u> Long term operation	See previous comment		PSR will be added to this section as useful tool for management of conceptual obsolescence.		
11.	Tentative table of content	<b>5. MANAGEMENT OF CONCEPTUAL OBSOLESCENCE</b> <u>Periodic safety review</u> Other plant activities	See previous comment	X			

COMMENTS BY REVIEWER			Page Date: 23 May 2014	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
12.	Tentative table of content	<p>7. AGEING MANAGEMENT IN OPERATION <u>(before and during LTO)</u></p> <p>Organizational arrangements</p> <p>Data collection and record keeping</p> <p><del>8. PLANT ACTIVITIES RELEVANT TO AGEING MANAGEMENT AND LTO</del></p> <p><del>Safety reports relevant to ageing management and LTO</del></p> <p><del>Plant programmes relevant to ageing management and LTO</del></p> <p>Review of plant programmes for LTO</p> <p>Demonstration that ageing effects are managed</p> <p>Documentation of the evaluation</p>	See previous comment			X	<p>One of the main reasons of NS-G-2.12 revision is addressing of a new SSR-2/2 Requirement 16: Programme for long term operation, which is not reflected in any safety guide. Also „Long term structure of the IAEA Safety Standards“ requires that a new revision of NS-G-2.12 „...will also address the issues related to long term operation ...“</p>

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Reviewer: Country/Organization: ASN/France			Page Date: 23 May 2014				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
13.	Tentative table of content	<p><b>9. PROGRAMME FOR LONG TERM OPERATION</b></p> <p><del>Principles and approach to long term operation</del></p> <p><del>Regulatory requirements and oversight</del></p> <p><del>Organizational structure for LTO</del></p> <p><del>Plant policy for LTO</del></p> <p><del>Long term operation implementation programme</del></p> <p><del>Feasibility studies</del></p> <p><del>Documentation</del></p>	See previous comment			X	<p>One of the main reasons of NS-G-2.12 revision is addressing of a new SSR-2/2</p> <p>Requirement 16: Programme for long term operation, which is not reflected in any safety guide. Also „Long term structure of the IAEA Safety Standards“ requires that a new revision of NS-G-2.12 „...will also address the issues related to long term operation ...“</p>
14.							

COMMENTS BY REVIEWER						RESOLUTION			
Reviewer: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Country/Organization: Germany									
Relevance	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection	
1	1	Chapter 2	Please add a new 1 <sup>st</sup> paragraph with the	In our opinion, a brief	X				

			<p>following text:</p> <p><a href="#"><u>“Managing the ageing of nuclear power plants (NPPs) means ensuring that the required safety functions are available throughout the service life of the plant, taking into account changes that occur with time and use. This requires addressing both the physical ageing of structures, systems and components (SSCs), resulting in a degradation of their performance characteristics, and the gradual obsolescence of SSCs, i.e. their becoming out of date in the light of current knowledge, technology, standards, and regulations.”</u></a></p>	<p>introductory statement is desirable to hold the attention of the reader of the DPP.</p>				
2	2	Chapter 2	<p>2<sup>nd</sup> paragraph:</p> <p>“The IAEA Safety Guide NS-G 2.12 “Ageing Management for Nuclear Power Plants” is dedicated to ageing management activities. It was published in 2009. Since this time, many important changes occurred in IAEA <a href="#"><u>Safety Standards documents</u></a> relevant to this safety guide and they are not reflected <a href="#"><u>in the its</u></a> current version <a href="#"><u>of safety guide</u></a>:</p> <ul style="list-style-type: none"> <li>• SSR-2/1 “Safety of Nuclear Power Plants: Design” <a href="#"><u>(published in 2012)</u></a>;</li> <li>• SSR-2/2 “Safety of Nuclear Power Plants: Commissioning and Operation” <a href="#"><u>(published in 2011)</u></a> with a new <del>r</del>Requirement 16: Programme for long term operation <a href="#"><u>in 2014</u></a> which is not reflected in any safety guide;</li> <li>• SSG-25 “Periodic Safety Review <del>of for</del> Nuclear Power Plants” <a href="#"><u>(published in 2013)</u></a> with a new Section 3 “Input from the periodic safety review in assessing long term operation or licence renewal” <a href="#"><u>in 2013</u></a>;</li> <li>• <a href="#"><u>Safety Reports Series No. DD1085</u></a></li> </ul>	<p>1.) Please delete DD1085 from this list and provide substantial background information about the IGALL programme in a separate paragraph (see our proposal in the next comment).</p> <p>2.) Citation of the correct publication title of SSG-25.</p>	X			

			<p style="color: red;"><del>“International Generic Ageing Lessons Learned for Nuclear Power Plants (Proven Ageing Management Programmes and Typical Time Limited Ageing Analysis)” in 2013.”</del></p>				
1	3	Chapter 2	<p>Subsequent to the above-mentioned list of IAEA documents, please add a new 3<sup>rd</sup> paragraph with the following text:</p> <p><a href="#"><u>In 2010, the IAEA established an extrabudgetary programme on International Generic Ageing Lessons Learned (IGALL) for NPPs with the objective to provide a technical basis and a practical guidance on managing ageing of mechanical, electrical and I&amp;C components and civil structures important to safety. The programme has been facilitating the exchange of experience accumulated by States that operate NPPs with regard to the identification, establishment, and implementation of ageing management programmes. It covers pressurized water reactors, boiling water reactors, water cooled water moderated power reactors, and CANDU reactors. The outcome of the IGALL programme was consolidated in the following publications:</u></a></p> <ul style="list-style-type: none"> <li>• <a href="#"><u>Safety Reports Series No. DD1085 “International Generic Ageing Lessons Learned for Nuclear Power Plants (Proven Ageing Management Programmes and Typical Time Limited Ageing Analysis)” (published in 2013) supplemented by an IAEA web-based database;</u></a></li> <li>• <a href="#"><u>IAEA-TECDOC-1736 “Approaches to Ageing Management for Nuclear Power Plants – International Generic Ageing Lessons Learned (IGALL) Final Report” (published in 2014);</u></a></li> </ul>	<p>IAEA’s IGALL programme has recently been concluded. It reflects the state-of-the-art of industry practices and national regulatory approaches to ageing management and long-term operation. Considering that the results of this programme will provide an essential technical input for the revision of NS-G-2.12, some background information on the objective and scope of this programme is highly desirable. Our proposal is provided at the left.</p>	X		

3	4	Chapter 3	General note: The information provided in the 2 <sup>nd</sup> para (beginning with “IAEA Safety Guide NS-G 2.12 …”) and in the 3 <sup>rd</sup> para (beginning with “Current safety guide is also not reflecting …”) is more or less a repetition of what is already expressed in Chapter 2.	Redrafting or streamlining of the text is recommended in order to avoid unnecessary doubling of information in the DPP.	X			
3	5	Chapter 5	1 <sup>st</sup> para, 2 <sup>nd</sup> sentence: “Requirement 31: Ageing management is the most relevant <u>one for to</u> this safety guide.”	Grammar.	X			
3	6	Chapter 5	4 <sup>th</sup> para, 1 <sup>st</sup> sentence: “SSG-25 ‘Periodic Safety Review <del>of</del> <ins>for</ins> Nuclear Power Plants’ provides recommendations and guidance on …”	Citation of the correct publication title of SSG-25.	X			
3	7	Chapter 7	“STEP 9: Addressing comments by Member States – February 2016 <sup>5</sup> ”	Typo.	X			
3	8	Chapter 8	“ <u>The</u> Safety Guide on Ageing Management for Nuclear Power Plants <del>are</del> <ins>is</ins> reviewed by the IAEA technical officer with support of a group of external experts.”	Editorial.	X			

COMMENTS BY REVIEWER				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Page 2, Line 30	... guidance on the conduct of a PSR for an <del>existing</del> <ins>operating</ins> nuclear power plant. ...	The term ‘operating’ rather than ‘existing’ seems to be more appropriate in this sentence and it is consistent with the description in para. 1.4 of SSG-25.	X			
2	Page 3, Line 25	...Section 10 “Time limited ageing analysis” ... <u>Section 11 “Interfaces with other technical areas” provides overview and explains equipment qualification and</u>	The section for interfaces with other technical areas is missing in the overview.		Those interfaces will be described in a new Safety Guide in Section 4 (equipment qualification and		

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		<u>periodic safety review related to ageing management.</u>			periodic safety review).		
3	Page 5, Line 1	<p>...</p> <p><u>11. INTERFACES WITH OTHER TECHNICAL AREAS</u></p> <p><u>Equipment qualification</u></p> <p><u>Periodic safety review</u></p> <p><u>REFERENCE</u></p>	The section for interfaces with other technical areas is missing in the general content of revised safety guide.		Those interfaces will be described in a new Safety Guide in Section 4 (equipment qualification and periodic safety review).		
4	Page 5, Line 6	<p><u>ANNEX III: EXAMPLES OF SIGNIFICANT AGEING MECHANISMS AND SUSCEPTIBLE MATERIALS AND COMPONENTS</u></p> <p><u>ANNEX IV: EXAMPLES OF AGEING MANAGEMENT PROGRAMMES</u></p> <p><u>ANNEX V: EXAMPLES OF TYPICAL TIME LIMITED AGEING ANALYSIS</u></p>	Annex IV and V did not include in the general content.	X			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Page 4/Chapter 3	The chapter 3 should not be devided in “Operation” and “Long term operation”.	Ageing management is the same under “operation” and “long term operation”. Things that are important during		Subsection “long term operation” will deal only with things important for transition to long		

2	General	The DPP should mention if there are any plans to update "Safety report 57" or if or if it will be replaced by NS-G-2.12	the transition to long term operation can be dealt with in chapter.	X	term operation.		
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COMMENTS BY REVIEWER				RESOLUTION			
Reviewer:		Page 1 of 1					
Country/Organization: Ukraine/SSTC NRS				Date: 20 May 2014			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection

1	General	Annex IV. Example of Time Limited Ageing Analysis for Mechanical Equipment, Piping and Structures.	It is reasonable to add an annex to the document structure to show examples of TLAA implementation for different components.	X			
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COMMENTS BY REVIEWER					RESOLUTION		
Comment No. / Reviewer	Para/Line No.	Proposed new text/Comment	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/ rejection
1	General	The document stated [Page 2 under Section 4] “The objective of this revision is to provide sufficient guidance to implement requirements SSR-2/1 and SSR-2/2 on ageing management and long term operation,..” The document mentioned new SSR-2/2 Requirement 16. We suggest adding additional key requirement for SSR-2/1 (e.g.; Requirement 31) in the justification Section as well.	Completeness and consistency	X			
2	Page 1, Background	Modify sentence under bullet 3 to read:	Clarification: IGALL abbreviated term was used		IAEA Publication		

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: U. S. Nuclear Regulatory Commission Country/Organization: United States of America/US NRC Date: May 23, 2014							
Comment No. / Reviewer	Para/Line No.	Proposed new text/Comment	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/ rejection
	Line 11 9	“International Generic Ageing Lessons Learned ( <b>IGALL</b> ) for Nuclear Power Plants (Proven Ageing Management Programmes and Typical Time Limited Ageing Analysis)” in 2013.	on page 2; it needs to be inserted at this point.		Committee decided to change the title of this document. Approved title is added.		
3	General	We recommend adding a Special Section in the Table of content on “ <b>instrumentation, control, and operational software aging management.</b> ”	Completeness: We believe this is an important topic which warrants a special Section.			X	Specific issues connected with ageing management of software will be covered by a new SG DS-431 on Design of I&C (currently in preparation). New NS-G-2.12 will describe AM of all safety SSCs in one section. We will put reference to DS-431.
4	General	The schedule for developing DS485	Harmonization and	X			

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: U. S. Nuclear Regulatory Commission Country/Organization: United States of America/US NRC Date: May 23, 2014							
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		should be harmonized with the schedules for development of SSR-2/1, SSR-2/1 and other relevant key documents.	consistency.				
5	Pg 5 (top)	Add:  <b>ANNEX IV: "EXAMPLES OF AGEING MANAGEMENT PROGRAMMES"</b>  <b>ANNEX V: "EXAMPLES OF TYPICAL TIME LIMITED AGEING ANALYSIS"</b>	To achieve consistency with prior part of DPP DS485.	X			