

## DS462

### TABLE OF COMMENTS RESOLUTION

Comments from Argentina, Germany NUSSC,  
Germany WASSC, France, Finland, Poland, Japan  
NUSSC, Japan WASSC, USA, Switzerland, Canada,  
ENISS and WNA

#### Addenda to the IAEA Safety Requirements:

- GSR Part-1 on Governmental, Legal and Regulatory Framework for Safety
- NS-R-3 on Site Evaluation for Nuclear Installations
- SSR-2/1 on Safety of Nuclear Power plants: Design
- SSR-2/2 on Safety of Nuclear Power plants: Commissioning and Operation
- GSR Part 4 on Safety Assessment for Facilities and Activities

**Status**

STEP 7: first review by the Review  
Committees (NUSSC, RASSC,  
TRANSSC, WASSC)  
Information of NSGC

**Addendum to GSR Part 4**

LL	Current text	Proposal for NUSSC Meeting				Proposed Resolution for the Committees meetings
50.1 50.2	<p><b>Requirement 2: Scope of the safety assessment</b></p> <p>A safety assessment shall be carried out for all applications of technology that give rise to radiation risks; that is, for all types of facilities and activities.</p> <p><b>Requirement 14: Scope of the safety analysis</b></p> <p>The performance of a facility or activity in all operational states and, as necessary, in the post-operational phase shall be assessed in the safety analysis.</p>	<p>4.36a The safety assessment has to consider the site as a whole to establish that hazards from interactions between different facilities or activities have been taken into account.</p> <p>4.36.b For sites with multiple facilities or activities, account has to be taken in the safety assessment of the effect of external hazards on all facilities and activities, including the possibility of concurrent events in different facilities and activities, and of the potential hazards presented by each facility or activity to the others.</p> <p>4.36.c A systematic process shall be used to review multiple facility sites for the potential for common cause failures due to the possibility of using the same safety systems for more than one unit in accident conditions.</p> <p>4.36.d If facilities share resources in accident conditions the safety assessment shall demonstrate that the required safety functions for each facility can be fulfilled.</p>				<p><del>4.36a</del> <del>The safety assessment has to consider the site as a whole to establish that hazards from interactions between different facilities or activities have been taken into account.</del></p> <p>4.36.<del>a</del><u>b</u> For sites with multiple facilities or activities, account <del>shall</del><del>has to</del> be taken in the safety assessment of the effect of external hazards on all facilities and activities, including the possibility of concurrent events in different facilities and activities, and of the potential hazards presented by each facility or activity to the others.</p> <p>4.36.<del>b</del><u>e</u> A systematic <u>assessment</u> process shall be used to review multiple facility sites for the potential for common cause failures due to the possibility of using the same safety systems for more than one unit in accident conditions.</p> <p>4.36.<del>c</del><u>d</u> If facilities share resources <u>(whether human or material)</u> in accident conditions the safety assessment shall demonstrate that the required safety functions <del>for each facility</del> can <u>nevertheless</u> be fulfilled <u>at each facility during such conditions</u>.</p>
USA 2	<p>4.36 a and b</p> <p><del>4.36a The safety assessment has to consider the site as a whole to establish that hazards from interactions between different facilities or activities have been taken into account.</del></p> <p>4.36<del>a</del><u>ba</u> For sites with multiple facilities or activities, account has to be taken in the safety assessment of the effect of external hazards on all facilities and</p>	<p>The phrasing of 4.36b appears to make 4.36a unnecessary.</p>	x			

		activities, including the possibility of concurrent events in different facilities and activities, and of the potential hazards presented by each facility or activity to the others.					
Argentina	4.36a	The safety assessment has to consider the site as a whole to establish that hazards from interactions between co-located different facilities or activities have been taken into account.			X 4.36 a removed		
	4.36b	This para and the previous one could be merged.		X			
Finland WASSC 1	4.36a	The safety assessment has to consider the site as a whole to establish that hazards from interactions between different facilities or activities have <u>also</u> been taken account.	Clarification		X 4.36 a removed		
Japan	4.36a and b	4.36a The safety assessment <del>has to</del> shall consider the site as a whole to establish that hazards from interactions between different facilities or activities have been taken into account.  4.36.b For sites with multiple facilities or activities, account <del>has to</del> shall be taken in the safety assessment of the effect of external hazards on all facilities and activities, including the possibility of concurrent events in different facilities and activities, and of the potential hazards presented by each facility or activity to the others.	<b>Editorial.</b> “Have to” and “shall” are used in a mixed manner.  The same things are found other paragraphs a lot.		X 4.36 a removed		
				X			
Canada	4.36b	For sites with multiple facilities <del>or activities</del> , account has to be taken in the safety assessment of the effect of external hazards on all facilities and <del>activities on-site activities</del> , including the possibility of concurrent events in different facilities and activities, and of the potential hazards presented by each facility or activity to the others.	There will never be a site that has only one activity.  Suggest deleting “or activities”  Suggest replacing with “on-site activities” for clarity.			The use of “or” covers all types of situations	

Japan	4.36c	A systematic <u>assessment</u> process shall be used to ...	<b>Completeness.</b> Meaning becomes clear by changing “A systematic assessment process”.	X				
Japan	4.36d	If facilities share <u>organizational and equipment</u> resources in accident conditions ...	<b>Completeness.</b> Meaning becomes clear by changing “ <u>organizational resources and equipment</u> ”.		Human and material			
Japan	4.36d	If facilities share <u>organizational and equipment</u> resources in accident conditions the safety assessment shall demonstrate that the required safety functions for each facility can be fulfilled <u>during that time.</u>	<b>Completeness.</b>		Human and material			
France 17	4.36d	<del>4.36.d If facilities share resources (whether material or human) in accident conditions the safety assessment shall demonstrate that the required safety functions for each facility can be fulfilled.</del>	Clarification, to emphasize the issue of human resources	X				
50.1	4.31. The external events that could arise for a facility or activity have to be addressed in the safety assessment, and it has to be determined whether an adequate level of protection against their consequences is provided. This could include natural external events, such as extreme weather conditions, and human induced events, such as aircraft crashes, depending on the possible radiation risks associated with the facility or activity. Where applicable, the magnitude of the external events that the facility is required to be able to withstand (sometimes referred to as design basis external events) has to be established for each type of external event on the basis of historical data for the site for natural	4.31 The external events that could arise .... <del>Where there is more than one facility or activity at the same location, account has to be taken in the safety assessment of the effect of external on all of the facilities and activities, and of the potential hazards presented by each facility or activity to the others.</del> <del>In case of extreme external hazards, the safety assessment shall demonstrate that only off-site protective measures limited in time and areas might be sufficient to protect the public and the environment.</del>	4.31 The external events that could arise .... Where there is more than one facility or activity at the same location, account has to be taken in the safety assessment of the effect of external on all of the facilities and activities, and of the potential hazards presented by each facility or activity to the others. <del>For</del> <del>In case of extreme external hazards</del> <u>considered in the design</u> , The safety assessment shall demonstrate that the design provides significant margins to cope with external hazards of a severity or duration exceeding those considered in the design for ensuring that <del>only</del> off-site protective measures limited in time and areas <u>are</u> sufficient <del>necessary</del> <del>might be sufficient</del> to protect the public and the environment.					

		external events and a survey of the site and the surrounding area for human induced events.  Where there is more than one facility or activity at the same location, account has to be taken in the safety assessment of the effect of a single external event, such as an earthquake or a flood, on all of the facilities and activities, and of the potential hazards presented by each facility or activity to the others.						
Argentina	4.31	What about occupational protection?				X	Here we are dealing with the overall safety objective for off-site protection of people and the environment	
France 18	4.31	OK but ambitious at it extends an expectation set out in SSR-2/1 to all nuclear installations		X				
Finland	4.31	... In case of extreme external hazards, the safety assessment shall demonstrate that only off-site protective measures limited in time and areas <u>are</u> sufficient to protect the public and the environment. .	clarification of the sentence,  The term <u>extreme hazards</u> should be defined and added to the definitions		X	Extreme hazard removed		
Japan WASSC 2	4.31	In case of extreme external hazards, the safety assessment shall demonstrate that only off-site protective measure <u>are</u> limited <u>to be taken</u> in time and <u>the reserved</u> areas might be sufficient to protect the public and the environment.	Clarification		X			
Japan	4.31	In case of <u>extreme external hazards</u> , the safety assessment shall demonstrate that only <u>off-site protective measures limited in time and areas</u> might be sufficient to protect the public and the environment.	It is hard to have a clear understanding on the new proposal especially about “extreme external hazards”, “off-site protective measures” and “limited time and areas. Many questions come to us, for example, as follows;  -What are off-site protective		X			

			<p>measures?</p> <p>-Does it include rescue/help activities by other organizations, e.g. army?</p> <p>-Does it include just an evacuation as a protective measure?</p> <p>-What are extreme external hazards?</p> <p>-What dose “extreme” mean?</p> <p>-Does it mean beyond design base hazards?</p> <p>Therefore, a clear explanation/definition and examples for them need to be added. Otherwise, it is difficult to provide common understandings about this paragraph for readers of GSR Part 4.</p>				
Japan	4.31	... the safety assessment shall demonstrate that <del>both on-site and off-site</del> <del>only off-site</del> protective measures ...	<p>According to SSR-2/1 and NS-R-5, Level 5 of DiD means essentially <u>on-site</u> and off-site emergency response.</p> <p>Protective measures should therefore be carried out both <u>on-site</u> and off-site.</p>			X Here we are dealing with the Overall objective for off-site protection	
USA 1	4.31	In case of <b>extreme</b> external hazards, the safety assessment shall demonstrate that only off-site protective measures limited in time and areas <u>are</u> <del>might be</del> sufficient to protect the public and the environment.	<p>The meaning of this sentence is somewhat unclear. In the US system there is not a separate set of “extreme external hazards”. They are either directly addressed or accommodated in the margin.</p>	X	X are necessary		
Canada	4.31	<p>4.31</p> <p>The external events that could arise ....</p> <p><del>Where there is more than one facility or</del></p>	<p>Extreme external hazards of exceedingly low probability will not be considered in the assessment</p>				

		<p>activity at the same location, account has to be taken in the safety assessment of the effect of external on all of the facilities and activities, and of the potential hazards presented by each facility or activity to the others.</p> <p>In case of external hazards leading to design basis accident conditions or design extension conditions, the safety assessment shall demonstrate that only off-site protective measures limited in time and areas <del>might be sufficient</del> are necessary to protect the public and the environment.</p>	<p>Also, suggest “only off-site protective measures limited in time and area are necessary to protect the public and the environment”</p>		<p>X but with a wording that is applicable to all facilities and activities</p>		
<p>WNA</p>	<p>4.31</p>	<p>The external events that could arise ....</p> <p>In case of extreme external hazards, the safety assessment shall demonstrate that only off-site (do you mean on-site ???) protective measures limited in time and areas might be sufficient to protect the public and the environment.</p> <p>NUSSC Workgroup Meeting March 2013 result for SSR 2-1 Nr. 5.21a was:</p> <p><i>“In case of a rare yet credible severe external hazard, the plant design shall be such that only off-site protective measures limited in time and areas might be necessary to protect the public and the environment.”</i></p> <p>A new proposal for re-formulation of the paragraph assuming what could be meant:</p> <p><u>Extreme rare yet credible severe external hazards shall be determined and</u></p>	<p>This paragraph is completely unclear as to the meaning and intent. It is suggested that this requirement be rewritten to clarify.</p> <p>Otherwise this paragraph should be deleted or the Meeting result (see left) should be adequate implemented and further clarification is needed.</p> <p>The blue paragraph is alternatively proposed for clarification.</p> <p>It should be reconsidered whether this paragraph is correct placed in GSR Part 4, as it is mainly valid for NPP’s</p>		<p>X</p>		

		<a href="#">considered. Assessments using probabilistic and or best-estimate analysis shall be performed to show that only off-site protective measures which would remain limited in terms of implementation, time and area, might be necessary to protect the public and the environment.</a>	and eventually for some facilities but it does not seem to be appropriate for “Activities”.					
35.1, 46.16, 46.17	4.47.To determine whether defence in depth has been adequately implemented, it has to be determined in the safety assessment whether: (a)Priority has been given to: reducing the number of challenges to the integrity of layers of protection and physical barriers; preventing the failure or bypass of a barrier when challenged; preventing the failure of one barrier leading to the failure of another barrier; and preventing significant releases of radioactive material if failure of a barrier does occur; (b)The layers of protection and physical barriers are independent of each other as far as practicable; (c)Special attention has been paid to internal and external events that have the potential to adversely affect more than one barrier at once or to cause simultaneous failures of safety systems; (d)Specific measures have been implemented to ensure reliability and effectiveness of the required levels of defence.	4.47.To determine whether defence in depth has been adequately implemented, it has to be determined in the safety assessment whether: (a)Priority has been given to: reducing the number of challenges to the integrity of layers of protection and physical barriers; preventing the failure or bypass of a barrier when challenged; preventing the failure of one barrier leading to the failure of another barrier; and preventing significant releases of radioactive material if failure of a barrier does occur; (b)The layers of protection and physical barriers are independent of each other as far as practicable; (c)Special attention has been paid to internal and external events that have the potential to adversely affect more than one barrier at once or to cause simultaneous failures of safety systems <b>and in particular the response of the facility in case of total loss of power supply;</b> (d)Specific measures have been implemented to ensure reliability and effectiveness of the required levels of defence.					<b>THE PROPOSED MODIFICATION IS REMOVED.</b> ITS CONTENT IS ACTUALLY COVER BY THE MODIFICATION OF SSR-2/1	
Argentina	4.47 (c)	I don't see the link between the para in black and the phrase in red; does the phrase refers to a simultaneous and independent event, or not?		X				
France 19	4.47 (c)	(c)Special attention has been paid to internal	4.47 is very general and pointing to SBO in	X				

		and external events that have the potential to adversely affect more than one barrier at once or to cause simultaneous failures of safety systems <u>and in particular the response of the facility in case of total loss of power supply;</u>	(c) is not appropriate. A better location for such concern should be found			
Japan	4.47 c and d	c) Special attention has been paid to internal and external events that have the potential to adversely affect more than one barrier at once or to cause simultaneous failures of safety systems;  d) Special attention has been paid to in particular the response of the facility in case of total loss of power supply;	<b>Clarification.</b> It is difficult to understand how the additional part works in the original paragraph from a grammatical viewpoint because the sentence is a quite along.  Therefore, it is recommended to divide the paragraph into two as shown in the left column to avoid misunderstanding.	X		
USA 3	4.47 (c)	...in particular the response of the facility in case of total loss of <b>AC</b> power supply...	The revision is not fully consistent with the U.S. approach if total loss of power includes DC power.	X		
WNA	4.47 (c)	(c) Special attention has been paid to internal and external events that have the potential to adversely affect more than one barrier at once or to cause simultaneous failures of safety systems and in particular <b>whether</b> the response of the facility in case of total loss of power supply <u>resulting from such events is acceptable (margins and time available before the occurrence of a cliff edge effect);</u>	The <b>words in red</b> are necessary, otherwise the last part of bullet (c) that was added (" <i>and in particular the response of the facility in case of total loss of power supply</i> ") does not make sense (not proper English).  The <b>words in pink</b> are necessary to make the link with the beginning of the bullet, because the sentence is long. Without such reminder, one could be misled, and could understand that total loss of power supply should be considered in a deterministic manner, regardless of the architecture and characteristics (redundancy, diversity, independence and robustness) of such system.	X		
5.1  <b><u>22.1</u></b>	4.48  It has to be determined in the safety assessment whether there are adequate safety margins in the design and operation of the facility, or in the conduct of the activity in normal operation and in anticipated operational occurrences or accident conditions, such that there is a wide margin to failure of any structures, systems and components for any of	New paragraph after 4.48  <b>4.48 a</b>  <b>The safety assessment shall include investigations to identify potential cliff-edge effects in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or grace period are available.</b>	New paragraph after 4.48  4.48 a  The safety assessment shall include an <u>in-depth evaluation</u> <del>investigations</del> to identify potential cliff-edge effects in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment shall confirm that <u>there are</u> adequate margins <u>to avoid the cliff-edge effect</u> or <u>a sufficient</u> grace period <del>is</del> <u>are</u> available <u>for taking mitigating actions</u> .			

		the anticipated operational occurrences or any possible accident conditions. Safety margins are typically specified in codes and standards as well as by the regulatory body. It has to be determined in the safety assessment whether acceptance criteria for each aspect of the safety analysis are such that an adequate safety margin is ensured.					
Poland 8.	<b>Addendum to GSR Part 4</b> Paragraph 4.48a (new)	<b>4.48 a</b> ... For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or a grace period are available.	Editorial correction ("a" was added).	X			
Argentina	<b>4.48a</b>	The safety assessment shall include in depth evaluations investigation to identify potential cliff-edge effects in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or a sufficient grace period are available.		X			
Finland	<b>4.48a</b>	The safety assessment shall include investigations to identify potential cliff-edge effects in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment shall demonstrate that the safety margins is sufficient to avoid cliff edge effects or the grace period is available.	Clarity		X		
Germany WASSC	<b>4.48a</b>	1 <sup>st</sup> sentence: Assign a new footnote No. 10 to the term 'cliff-edge effects' with the	At present, the IAEA Safety Glossary (2007 Edition) does not provide a proper definition of the term 'cliff-edge effect' for facilities other than nuclear power plants.				This definition is too complex and would not work for all

		<p>following text of the footnote:</p> <p><a href="#">“<sup>10</sup> A cliff-edge effect in a nuclear installation is an instance of severely abnormal system behaviour caused by an abrupt transition from one system status to another following a small deviation in a system parameter, and thus a sudden large variation in system conditions in response to a small variation in an input.”</a></p>	<p>Although GSR Part 4 applies to e.g. research reactors, nuclear fuel cycle facilities and radioactive waste management facilities, the respective IAEA Safety Requirements NS-R-4, NS-R-5, GSR Part 5 and SSR-5 do not mention cliff-edge effects at all.</p> <p>The proposed definition of the term ‘cliff-edge effect’ is taken from the Draft Safety Guide DS433 “Safety Aspects in Siting for Nuclear Installations” (revision of SG-S9, draft version 00.17 dated 6 May 2013).</p> <p>The German Nuclear Waste Management Commission (ESK) defines the term ‘cliff-edge effect’ as follows: “A cliff-edge effect occurs if a sudden rise in the radiological effects outside the facility is registered that is due to the failure of components or measures caused by a load that exceeds the design basis load.” (Reference: ESK list of questions regarding the stress test for nuclear fuel supply facilities, dry storage facilities for spent fuel and heat-generating radioactive waste, and facilities for the treatment of spent fuel; see <a href="http://www.entsorgungskommission.de/englisch/downloads/eskfragenstresstest29052012homepagejafe.pdf">http://www.entsorgungskommission.de/englisch/downloads/eskfragenstresstest29052012homepagejafe.pdf</a>)</p>			<p>facilities and activities. Cliff-edge effect is also not limited to systems behavior</p>
Germany WASSC	4.48a	<p>2<sup>nd</sup> sentence:</p> <p>“For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or grace periods <a href="#">for taking preventive or protective actions</a> are available.”</p>	<p>Completion.</p> <p>Protective actions could include mitigatory actions (see Section “Definitions” in the General Safety Requirements No. GSR Part 7 “Preparedness and Response for a Nuclear or Radiological Emergency”).</p>	X	use of the term “mitigation”	
Japan	4.48a and 4.54	<p>4.48a The safety assessment shall include investigations to identify potential <b>cliff-edge effects</b> in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment</p>	<p>First, it should be pointed out that the IAEA safety glossary does not provide a definition of “cliff edge effect” for other installations other than NPPs.</p> <p>Second, it should be pointed out that IAEA has not discussed about cliff edge effects for</p>	X		

		<p>shall confirm that adequate margins or grace period are available.</p> <p>4.54. The aim of ... safety margin. It shall be demonstrated that this margin is sufficient to avoid cliff edge effects.</p>	<p>nuclear installations other than NPP (hereinafter referred to as "other installations") in a careful and serious manner. For example, the NS-R-5 (Safety of Nuclear Fuel Cycle Facilities) does not have the term "cliff edge effects", i.e. NS-R-5 does not discuss about cliff edge effects at all.</p> <p>Under such condition it can be said that at present there is no common understanding about a concept/definition of cliff edge effects which can apply appropriately to other installations.</p> <p>In addition, it does not seem to be easy to establish such common understanding because the big diversity of facilities among of other installations results in a very broad range and a variety of potential hazards, hazardous conditions and possible events to be considered.</p> <p>Therefore, it is necessary to establish common understanding about a concept/definition of cliff edge effects for other installations before applying the concept of "cliff edge effects" to other installations. Otherwise, the proposed sentences do not work in a practical manner for other installations.</p> <p>If IAEA has already discussed on cliff edge effects for other installations seriously when these two paragraphs were proposed, its results has to be shown for our discussion and review.</p> <p>Note: The definition of cliff edge effects in the IAEA safety glossary is as follows;</p> <p>'In a nuclear power plant, an instance of severely abnormal plant behavior caused by an abrupt transition from one plant status to another following a small deviation in a plant parameter, and thus a sudden large variation in plant conditions in response to a small variation in an input.'</p> <p>As shown above, the IAEA safety glossary does not provide a definition of 'cliff edge effect' for other installations but just for an NPP. Applying this definition directly for other installations without carefully consideration has a high risk because of the big diversity among of other installations.</p>	<p>X</p>			
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Japan	4.48a	The safety assessment shall include investigations to identify potential cliff-edge effects in the facility response to postulated initiating events. For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or grace period <b>for the preventive /mitigative actions</b> are available.	<b>Completeness</b> taking account into accident conditions the same as operational states. The same comment is in SSR-2/1 para. 5.55.	X			
USA 4	4.48a	The safety assessment shall include investigations to identify(delete) <b>consider</b> potential cliff-edge effects in the facility response to postulated initiating events. <b>For each cliff-edge effect identified</b> (delete), the safety assessment shall <b>confirm demonstrate</b> that adequate margins <b>or-grace-period</b> are available.	The requirement is a bit too specific. Cliff edge effects are an important consideration in the assessment of system design. From our experience, there is not a free standing list and individual accounting of every cliff edge effect in a design or assessment. The safety margin is the key assessment concept of which cliff edge effects is one component.	X	X we need to keep the identification part. The first sentence is about identification and the second is about consideration		
Canada	4.48a	Existing text in GSR Part 4 to be modified to:  The safety assessment shall include investigations to identify potential cliff-edge effects in the facility response to postulated initiating events <b>that result in design extension conditions</b> . For each cliff-edge effect identified, the safety assessment shall confirm that adequate margins or grace period are available.	The focus for consideration of cliff-edge effects needs to be for the purpose of determining whether design extension conditions have been adequately addressed.  It should only be necessary to consider the sensitivity of parameters near the limiting values considered in the DBA/DEC.  Also, there is no definition of “cliff-edge effects”. (The IAEA Safety Glossary has a definition, but it is restricted to changes in a plant parameter).	X	X GSR Part 4 applies for all facilities and activities		
ENISS	4.48a	<del>The safety assessment shall include investigations to identify potential cliff edge effects in the facility response to postulated initiating events. For each cliff edge effect identified, the safety assessment shall confirm that adequate margins or grace period are available.</del>	<del>This sentence will induce additional sensitivity studies in all safety analysis. This seems excessive as 4.48 already requires adequate margins in response to normal operation, AOOs and accident conditions</del>	X			



		performance of personnel <del>must be quantified, if realistic models are used by providing a large safety margin.</del> It shall be demonstrated that <del>this margin is sufficient to avoid</del> cliff edge effects <del>may be ruled out under due consideration of all uncertainties.</del>				
Germany WASSC	4.54	“The aim of the deterministic approach is to specify and apply a set of conservative deterministic rules and requirements for the design and operation of facilities or for the planning and conduct of activities. When these rules and requirements are met, they are expected to provide a high degree of confidence that the level of radiation risks to workers and members of the public arising from the facility or activity will be <del>acceptably low</del> in compliance with regulatory requirements. ...”	The dose limits for occupational and public exposure established by the government or the regulatory body are based on well defined radiation risks.		X	The current requirement is not submitted for comment
USA 5	4.54	It shall be demonstrated that this margin is sufficient to <del>avoid</del> address cliff edge effects.		X		
Canada	4.54	Existing text in GSR Part 4 to be modified to:  The aim of the deterministic approach is to specify and apply a set of conservative deterministic rules and requirements for the design and operation of facilities or for the planning and conduct of activities. When these rules and requirements are met, they are expected to provide a high degree of confidence that the level of radiation risks to workers and members of the public arising from the facility or activity will be acceptably low. This conservative approach provides a way of compensating for uncertainties in the performance of equipment and the performance of personnel, by providing a large safety margin. It shall be demonstrated that the <del>safety</del> margins	The use of the conservative deterministic rules and requirements inherently encompasses the safety margins for design basis accident conditions, but does not necessarily determine the failure limit for the design basis capabilities of the items important to safety.  Assessing the margin in the design basis capabilities of the items important to safety, when they are also called upon to perform their safety functions during design extension conditions is the more appropriate place for assessing the margins to cliff-edge effects.	X		

		are sufficient to avoid cliff edge effects during design extension conditions.  (Text should be added to speak to margins to avoid cliff edge effect and this text should indicate that sufficient margin exists such that a small variation in parameters at the limit of DBA/DEC do not result in cliff-edge effects.)				
19.1	5.6. The results of the safety assessment have to be used to specify the procedures to be put in place for all operational activities significant to safety and for responding to anticipated operational occurrences and to accidents. The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management.	5.6. The results of the safety assessment have to be used to specify the procedures to be put in place for all operational activities significant to safety and for responding to anticipated operational occurrences and to accidents. The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management. <b>in particular, in case of extreme events that are not considered in the design.</b>	5.6. The results of the safety assessment have to be used to specify the procedures to be put in place for all operational activities significant to safety and for responding to anticipated operational occurrences and to accidents. The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management. <b>External, in particular, in case of extreme events of a magnitude exceeding the design basis shall also be considered for planning emergency response that are not considered in the design.</b>			
Argentina	5.6	... <b>in particular, in case of extreme events that were are not considered in the design.</b>		X		
France 20	5.6 last sentence	... The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management <b>in particular, in case of extreme events that are not may exceed those considered in the design.</b>	To be more consistent and avoid the idea that design basis is poorly chosen	X		
Finland	5.6	<u>Modify the last sentence with two sentences</u>  The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management. <u>Also extreme events that are not considered in the design shall be considered.</u>	The main purpose of the safety assessment is to the design basis of the plant including DBA, DEC. Therefore the term particular could be misleading.	X		
Japan	5.6	The results of the safety assessment have to be used to specify the procedures to be put in place for all	<b>Completeness</b> for ‘accidents conditions’.			

		operational activities significant to safety and for responding to anticipated operational occurrences and to accidents <b>conditions</b> . The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management, that are in particular, in case of extreme events that are not considered in <b>the a</b> design.	<b>Completeness and Confirmation.</b> What does ‘not considered in the design’ stand for? We understand that it is the ‘(a)’ part figured in the definition of plant states in SSR-2/1.	X		X the is more appropriate here	
USA 6	5.6	The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management, in particular, in case of <b>extreme</b> events that are not considered in the design.	This requirement may need to be reconsidered. I’m not sure what the advice is. By definition, events not covered in the design have been “practically eliminated”. What particular issue does the requirement want the reader to do?	X			
Canada	5.6	Existing text in GSR Part 4 to be modified to:  The safety assessment is also to be used as an input into planning for on-site and off-site emergency response and accident management – in particular, <b>in case of design basis accidents and design extension conditions</b> .	The potential range of “extreme events that are not considered in the design” is not clear.		X		
Germany WASSC	Footnote No. 4 to Para 1.6  Additional comment not initially proposed by the Secretariat	“The list of facilities and activities given here has been compiled from the lists provided in the Fundamental Safety Principles [1] and the Safety Requirements publication on <a href="#">Governmental, Legal and Regulatory Framework for Safety</a> <del>Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety</del> [2].”	Editorial (correct title of GSR Part 1).	X	The drat DS462 also includes at the end a list of changes to update the cross-references		

Germany WASSC	4.20  Additional comment not initially proposed by the Secretariat	“... An assessment is undertaken to determine whether the safety functions can be fulfilled for all normal operational modes (including startup and shutdown where appropriate), all anticipated operational occurrences and the accident conditions to be taken into account; these include design basis accidents and <del>beyond design basis accidents</del> <u>extension conditions</u> (including severe accidents).”	According to the new definitions introduced by the IAEA Safety Requirements SSR-2/1, the term ‘design extension conditions’ has superseded ‘beyond design basis accidents’. Design extension conditions could include severe accident conditions (see Section “Definitions” in SSR-2/1).  For the sake of consistency, we recommend to harmonize the terminology used in SSR-2/1 and GSR Part 4.	X  As GSR Part 4 applies to all facilities and activities, we cannot use DEC. But “accident conditions” covers well all situations		4.20. All safety functions <sup>1</sup> associated with a facility or activity are to be specified and assessed. This includes the safety functions associated with the engineered structures, systems and components, any physical or natural barriers and inherent safety features as applicable, and any human actions necessary to ensure the safety of the facility or activity. This is a key aspect of assessment, and is vital to the assessment of the application of defence in depth (see paras 4.45–4.48). An assessment is undertaken to determine whether the safety functions can be fulfilled for all normal operational modes (including startup and shutdown where appropriate), all anticipated operational occurrences and the accident conditions to be taken into account; <del>these include design basis accidents and beyond design basis accidents (including severe accidents).</del>  <u>Footnote: Safety functions are functions that are necessary to be performed for the facility or activity to prevent or mitigate radiological consequences of normal operation, anticipated operational occurrences and accident conditions. These functions can include control of reactivity, removal of heat from radioactive material, confinement of radioactive material and shielding, depending on the nature of the facility or activity.</u>
Germany WASSC	4.50  Additional comment not initially proposed by the Secretariat	“The consequences arising from all normal operational conditions (including startup and shutdown, where appropriate) and the frequencies and consequences associated with all anticipated operational occurrences and accident conditions have to be addressed in the safety analysis. This includes <del>accidents that have been taken into account in the design (referred to as design basis accidents)</del> as well as <del>beyond design basis accidents</del> <u>extension conditions</u> (including severe accidents) for facilities and activities where the radiation risks are high. ...”		X		4.50. The consequences arising from all normal operational conditions (including startup and shutdown, where appropriate) and the frequencies and consequences associated with all anticipated operational occurrences and accident conditions have to be addressed in the safety analysis. This includes accidents that have been taken into account in the design <del>(referred to as design basis accidents) as well as beyond design basis accidents</del> (including severe accidents) for facilities and activities where the radiation risks are high. The analysis has to be performed to a scope and level of detail that correspond to the magnitude of the radiation risk associated with the facility or activity, the frequency of the events included in the analysis, the complexity of the facility or activity, and the uncertainties inherent in the processes that are included in the analysis.
Japan	4.20  4.50  Additional comment not initially	4.20 ... these include design basis accidents and beyond design basis accidents (including severe accidents).  4.50 ... the design (referred to as design basis accidents) as well as beyond design basis accidents (including severe accidents)	<b>Completeness</b> for definitions.  These definitions should be consisted with the plant states in SSR-2/1 and SSR-2/1, and modified accordingly.	X		

DS462 Addenda to GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2 and GSR Part 4 –  
Comment resolution table draft 1, 7 June 2013

	proposed by the Secretariat							
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