

DS529

Proposed Title: Investigation of Site Characteristics and Evaluation of Radiation Risks to the Public and the Environment in Site Evaluation for Nuclear Installations

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: M-L Järvinen, J. Leino, A. Kuusi Country/Organization: Finland - STUK October 2020			Page.... of.... Date:7th				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	This revised Specific Safety Guide will supersede and expand the IAEA Safety Guide NS-G-3.2, “Dispersion of Radioactive Material in Air and Water and Consideration of Population Distribution in Site Evaluation for Nuclear Power Plants” and expand the scope from NPPs to all nuclear installations.	The definition of nuclear installations covers also waste management facilities. Now those facilities are not covered by the DPP and referenced IAEA safety requirements documents.		X The scope will address all nuclear installations, as defined in the IAEA Safety Glossary.		
2	General	10 Assessment of nuclear installations other than nuclear power plants → Site characteristics requirements for SMRs may also differ from requirements for large NPPs. A separate chapter should be added for SMRs.	Wide interest in SMRs in many countries.			X	Guidance will be applicable to SMRs and will cover the graded approach. On the other hand, they are not included explicitly.
3	Chapter 3	... The current Safety Guide NS-G-3.2 issued in 2002 needs an update addressing the following aspects: • Changes of the applicable safety requirements in SSR-1, <u>SSR-2/1</u> , SSR-3, SSR-4, GSR Part 3, GSR Part 4	Please add SSR-2/1 the design requirements for NPPs. See also comments 1. Applies also to Chapter 4 and Chapter 6.	X			

	(Rev. 1) and GSR Part 7;					
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COMMENTS BY REVIEWER					RESOLUTION			
Reviewer: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Country/Organization: Germany					Pages: 4 Date: 01.10.2020			
Relevanz	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	1	3. JUSTIFICATION ...	The revised Safety Guide will provide guidance on the investigation of site characteristics and the evaluation of radiation risks to the public and the environment as part of the process of site evaluation of nuclear installations. It will directly support Requirement 12 (paras 4.38-4.40), Requirement 13 (paras 4.41-4.43), Requirement 14 (para. 4.46), Requirement 25 (paras 6.1-6.7), Requirement 26 (paras 6.8-6.10) and, Requirement 27 (para. 6.11) <u>“Requirement 28: Monitoring of external hazards and site conditions”</u> and <u>„Requirement 29: Review of external hazards and site conditions”</u> of SSR-1.	Please add “Requirement 28: Monitoring of external hazards and site conditions” and „Requirement 29: Review of external hazards and site conditions” of SSR-1. On the one hand these requirements are directly related to data collection in site assessment, on the other hand the eighth chapter of the proposed Specific Safety Guide "8. Monitoring of radioactivity in the environment" refers to monitoring of specific variables in the environment stipulated in the requirements mentioned.	X			
1	2	3.	For the reader's		X		

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		JUSTIFICATION ... third bullet	<p>- Evolution of the approach, methodology and techniques to evaluate the radiation risks to the public and the environment of nuclear installations also taking account of recent relevant IAEA publications on dose assessment and radiological environmental impact assessment for facilities and activities (in particular GSG-10 and the forthcoming update to Safety Reports Series No. 19). <u>Examples of new findings in methodologies and techniques to evaluate the radiation risks should be approached as well.</u></p>	<p>understanding of the update of the document, it would be beneficial to give examples of new findings in these areas. These could include new mathematical methods or models that have not been considered in previous documents.</p>		<p>Text is changed as “• Evolution of the approach, methodology and techniques to evaluate the radiation risks to the public and the environment of nuclear installations also taking account of recent relevant IAEA publications on dose assessment and radiological environmental impact assessment for facilities and activities (in particular GSG-10 and the forthcoming update to Safety Reports Series No. 19), in other words, the consideration of potential exposures for all nuclear installations using a graded approach</p>		

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Reviewer: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Country/Organization: Germany					Pages: 4 Date: 01.10.2020			
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						and examples of new findings in methodologies and techniques to evaluate the radiation risks including the explicit consideration of the protection of the environment, respectively).”		
1	3	7. OVERV IEW	The planned table of contents includes the following sections: 1. Introduction 2. General approach and considerations 3. <u>Data collection in site evaluation</u> 4. 3. Environmental background levels of activity and population distribution 5. 4. Analysis of dispersion of radionuclides in atmosphere [...]	According to Section 3 of the DPP, this Safety Guide will directly support Requirement 14 of SSR-1. Requirement 14 is about data collection for site evaluation. Currently this topic is missing in the proposed content of DS529. When developing the scientific/technical content of this chapter, a clear distinction should be made between data collection for evaluating the		X Guidance on data collection will be covered in individual sections (Section 3 to 6). But a section is included as “Section 7, Summary of site characteristics.”		

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				impact of the installation on the environment and data collection for the assessment of external hazards (both covered by Requirement 14). This distinction is necessary, because in the first case the focus is on the prevailing conditions (i.e. typically mean values of environmental parameters) whereas in the second case rare environmental conditions (e.g. extreme winds or flood levels) are of interest				
1	4	7. OVERVIEW	... 10. <u>Special issues of Assessment of nuclear installations other than nuclear power plants</u>	We suggest to make a clearer distinction between NPPs and other installations.		X Title of Section 10 is changed as "Specific considerations in the assessment of nuclear installations other than nuclear power plants."		

Relevanz: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: WASSC Member		Page.1 of.1					
Country/Organization: Pakistan/PNRA		Date: October, 2020					
Comment No.	Para/Line No.	Proposed new text	Reason	Agreed	Agreed, but modified as follows	To be discussed	Justification for modification
1.	Section 3, para 2, bullet 1	SSR 2/1: Safety of Nuclear Power Plant Design	Please include SSR 2/1 (Safety of Nuclear Power Plant Design) as mentioned SSR-3 (Safety of Research Reactors) and SSR-4 (Safety of Nuclear Fuel Cycle Facilities).	X			
2.	Section 3, 4 & 5	Application of Graded Approach to Different Nuclear Installations	Please include the guidance regarding graded approach to nuclear installations other than NPP as not mentioned in the referred sections whereas the scope is now extended from NPP to nuclear installations.	X			
3.	Section 7 (Contents)	Uses of land and water in the region of the site	The content related to "Uses of land and water in the region of the site" is excluded from DPP as was given in IAEA NS-G-3.2.		X Sub-section on uses of land and water in the region of the site will be under Section 3 Environmental background levels of activity and population distribution.		
4.	Section 7	Content No. 10: Assessment of nuclear installations other than nuclear power plants	The scope of the DS is Nuclear Installation whereas content 10 is other than nuclear power plant. Please clarify.	X			The scope will address all nuclear installations, as defined in the IAEA Safety Glossary (2018 Edition). The guidance will be

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Reviewer: WASSC Member		Page.1 of.1					
Country/Organization: Pakistan/PNRA		Date: October, 2020					
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							applicable to all phases of nuclear installations (e.g.; site selection, site characterization; operation, and decommissioning) as appropriate. This will be addressed in “Section on special considerations in the assessment of nuclear installations other than nuclear power plants”.

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: G. Delfini/ R. Jansen		Page x of 2					
Country/Organization: Netherlands/ ANVS		Date: 5-10-2020					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	Compared to NS-G-3.2 the scope of this guide is extended to all nuclear installations. Consideration should be given in this guide to the application of the graded approach. Here below a few suggestions.	NS-G-3.2 (which becomes superseded) dealt only with NPP. This guide supports SSR-1 which covers all nuclear installations. For different installations the	X			

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Reviewer: G. Delfini/ R. Jansen Page x of 2 Country/Organization: Netherlands/ ANVS Date: 5-10-2020							
			requirements in SSR-1 etc. should be applied in a graded way. The enlargement of the scope of this guide should be accompanied by guidance on how to apply the graded approach.				
2	JUSTIFICATION	The current Safety Guide NS-G-3.2 issued in 2002 needs an update addressing the following aspects: <ul style="list-style-type: none"> • Changes of the applicable safety requirements in SSR-1, SSR-3, SSR-4, GSR Part 3, GSR Part 4 (Rev. 1) and GSR Part 7; • ... • ... Add a bullet <ul style="list-style-type: none"> • <u>Guidance on how to apply the graded approach to nuclear installations other than NPP.</u> 		X			
3	OBJECTIVE	The second objective is to make recommendations on how to apply the existing IAEA guidance on radiological environmental impact		X			

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Reviewer: G. Delfini/ R. Jansen Page x of 2 Country/Organization: Netherlands/ ANVS Date: 5-10-2020							
		assessment in the process of site evaluation, <u>and how to do it in a graded way</u>					
4	OVERVIEW	... 10. Assessment of nuclear installations other than nuclear power plants; <u>graded approach</u>				x	There will be guidance on graded approach in Section 10. On the other hand, to be consistent with safety guides on site evaluation for nuclear installations, it is better to keep title of section as it is.

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Reviewer: Country/Organization: UK/ONR				Page..1.. of..1.. Date: Oct 2020			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	-	Add some text about intention to recommend a graded approach, and/or if installation specific guidance will be given.	The wish to expand the scope of NS-G-3.2 from NPPs to nuclear installations more generally is noted. However, expectations need to be graded, based on hazard and risk.		X A text added to the scope as "The guidance will be given for nuclear		

			<p>As minimum, it is suggested some text stating an intention to recommend a graded approach should be put in the DPP.</p> <p>There might be value in considering (before embarking on revising the guide) whether the approach will be to set the highest standards (ie for NPPs) and expect other installations to apply those standards in a graded manner, or if the approach will be to give specific guidance for eg NPPs, research reactors and fuel cycle facilities.</p>		<p>power plants and application of this guidance for other installations using the graded approach will be discussed.”</p>		
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COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: U.S. Nuclear Regulatory Commission							
Country/Organization: U.S. Nuclear Regulatory Commission				Date: 10/13/2020			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Page 3	Recommend the addition of a new section to the Table of Contents reflecting a summary of the site characteristics that form the basis for the radiological assessment.	The scope of the revised Safety Guide is intended to cover the investigation of site characteristics including population distribution, uses of land and water, etc. in the region of the nuclear power plant site as well as an evaluation of potential radiation risks. However, there is nothing in the proposed Table	X			

			of Contents describing/summarizing those site characteristics that later form the basis for the radiation risk assessment.				
2	General/Scope	<p>The scope of the DPP document appears to be focused on new NPPs and Nuclear Fuel Cycle nuclear installations. The title of the DPP “<i>Investigation of Site Characteristics and Evaluation of Radiation Risks to the Public and the Environment in Site Evaluation for Nuclear Installations.</i>” The definition of “Nuclear Installation” in IAEA Glossary 2018 is given as: “Nuclear power plants; <i>research reactors</i> (including subcritical and <i>critical assemblies</i>) and any adjoining radioisotope production <i>facilities</i>; <i>storage facilities for spent fuel</i>; <i>facilities for the enrichment of uranium</i>; <i>nuclear fuel fabrication facilities</i>; <i>conversion facilities</i>; <i>facilities for the reprocessing of spent fuel</i>; <i>facilities for the predisposal management of radioactive waste arising from nuclear fuel cycle facilities</i>; and <i>nuclear fuel cycle related research and development facilities.</i>” In this context, we suggest that the scope of the DPP be clarified to explain applicability of this guidance to all such facilities as defined in IAEA Glossary 2018. We believe the level of investigation and characterization should commensurate with the type of facilities as characterization and investigation should be based on reasonable graded</p>	<p>The scope needs to indicate that the guidance would apply to different categories of installation with different aspects of risk evaluation and potential environmental impacts. The depth of details would depend on the type of facility using reasonable approaches to assess risk to the public and the environment.</p>		X	<p>A sentence is included in the scope as “The guidance will be given for nuclear power plants and application of this guidance for other installations using the graded approach will be discussed.”</p>	

		approach to potential risk to the public and the environment. The current DPP appears to assume that one size fits all in assessment of radiation risk to the public and the environment.					
3	General/Scope	The scope of the DPP appears to be more applicable to <u>new nuclear installations</u> , in order to assess risk to the public and environmental impacts to grant a license to operate. The scope is unclear if site investigation and characterization under this guidance would also involve site investigation/characterization during operation, after environmental releases based on environmental monitoring, after incidents/accidents, and/or after cessation of operation for decommissioning of the facility. In this regard, we suggest that the DPP provides clarification by indicating if the guidance applies to all phases of nuclear installations (e.g.; siting and site selection; operation, and decommissioning) or just to grant a license to operate.	Clarification of DS529 scope of application to different phases of nuclear installations.	X A sentence is added to the scope as “The guidance will be applicable to all phases of nuclear installations (e.g.; site selection, site characterization; operation, and decommissioning) as appropriate.”			
4	Consideration of Environmental Monitoring Aspects	We suggest the guidance establishes a link of the need for investigation/characterization based on assessment of environmental monitoring data and history of radionuclide or hazardous materials releases.	Potential risk impacts to the public and hazards to the environment are usually evaluated based on environmental monitoring data and history of site releases to the environment.	X This will be addressed in the guide.			
5	Line 1, page 2	“...of nuclear installations, which includes NPP, Research reactors, Fuel	The document does not make clear what type of nuclear			X	The scope will address all nuclear

		<p>Cycle Facilities, Spent Fuel Storage Facilities, and XXX”</p> <p>Or state criteria for the types of facilities for which the guidance will apply.</p>	<p>facilities for which the guidance is intended. The phrase nuclear installations is vague and unclear.</p>				<p>installations, as defined in the IAEA Safety Glossary (2018 Edition). This is clearly written in the DPP.</p>
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