COMMENTS BY REVIEWER Reviewer: Marcus Grzechnik Country/Organization: ARPANSA, Australia Date: 9/10/18				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	General	The first three guides appropriately reference GSR Part 7, however consideration should be given to referencing GSR Part 7 in the remaining guides. This is particularly relevant where emergency plans are required (such as in NS-G-2.5 revision.		Ok Text modified			

COMMENTS BY REVIEWER Reviewer: Mikko Lemmetty, Stéphanie NGUYEN, Laurence Oury Country/Organization: ENISS Date: 2018-09-26				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection

1.	NS-G-2.5, paras 2.53B and 2.54	Remove everything after the first sentence in both paragraphs.	The rest of the paragraph is a best practice but should not be given in an IAEA guide, that is used in some countries as a binding regulation. (Even if this may be argued to be wrong, it is the actual situation.) When interpreted as such, the text prevents further improvement. For example, the text specifies a logbook which precludes the use of any more advanced, computer-based technology.	Ok Text modified as:	Sentence "A logbook should be located at the entrance of the FME zone" has been removed. The rest of both para are valid and remain unchanged.		DPP associated to DS497 is explicit about the need to give guidance for FME expectations. (SSR-2/2 Req28 para 7.11 needs to be addressed in NS-G-2.5 and NS-G-2.6 in particular) Text in 2.53B is not a best practice; it is an expected normal practice. There is no para 2.54. We guess that your comment on the logbook refers to para 2.53D. Sentence about the logbook is removed. The control log can be electronic or paper. The rest of 2.53D is not a best practice; it is an expected normal practice.

2.	NS-G-2.5, para 4.3	Return the term "two-way" instead of "three-way" and remove foot-note 3.	In this paragraph, "reliable two-way communication" means reliable voice communications connection that allows both sending and receiving. In addition, the use of formal three-way communication between the fuel pool hall and the MCR is not necessary in all situations but only when the type of information given is important to the safety.	Ok Text modified			

COMMENTS BY REVIEWER Reviewer: ? Country/Organization: FRANCE ASN IRSN Date: 17th October 2018				RESOLUTION			
Comment No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	1.2	~~In addition, the application of the recommendations of this safety guide will support the fostering of a strong safety culture.~~	Regarding the definition of “safety culture”, there is no reason to enhance safety culture in the objective of this safety guide than in any other guide. Consider deletion or complementary explanation. Why does this sentence appear in DS 497?			X	DS497 approved. This sentence has been added in each guide for consistency.

2.	1.3	This Safety Guide deals with fuel management for all types of land based stationary ~~thermal neutron~~ nuclear power plants equipped with a thermal reactor	Neutron nuclear power plant is not the relevant wording. Why is this guidance dedicated to thermal reactor considering that all the other references are for all NPP?	Ok Text modified			
3.	2.53B	The plant FME programme should include provisions to ensure the ~~exclusion~~ prevention of foreign materials when performing specific activities near /or on the fuel or fuel containing facilities in order to prevent immediate or latent fuel damage or loss of integrity. Specific attention should be paid to the maintenance activities, in particular	“exclusion” is not practicable. The wording is understandable as a generic wording in FME but the article should provide guidance explaining that prevention is expected. “ensure” reinforce sufficiently the goal of prevention	Agree (word missing / language incorrect) Text modified as:	The plant FME programme should include provisions to ensure the ~~exclusion~~ prevention of foreign materials intrusion when performing […]		

4.	8.4 A – 8.4 B	~~8.4.A These policies [CR63] should be based on maintaining the independence between the levels of the defense in depth and an adequate reliability of each level. The influence of human and organizational factors on one, several or all levels of defence in depth should be considered and addressed in all operational activities, to avoid negative impact on the reliability of these levels and the independence between the levels. This principle should be applied to core management.~~ ~~8.4.B A defence in depth approach [CR64] should be generally applied to safety related activities in plant operations, including core management and fuel handling. These activities should be carefully planned, appropriately authorized and carried out in accordance with properly approved procedures by competent staff, implementing management system practices to achieve a high level of safety performance. In addition, adequate independent safety assessments and verifications should be carried out for different operational activities, to ensure their reliable accomplishment.~~	These articles do not provide any guidance for applicable provisions			X	The DPP DS497 explicitly requests to provide guidance about the application of the Defence-in-Depth concept to NPP operation. Similar paras have been introduced in all guides revised under DS497.

COMMENTS BY REVIEWER Reviewer: ? Country/Organization: Germany/Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Date: 05.10.2018				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	1.5	In addition, it deals with loading a transport cask with irradiated fuel and its preparation for transport off the site. Transport requirements and safety precautions for transport beyond the site, off-site storage and ultimate disposal of irradiated fuel and core components are beyond the scope of this publication.	See IAEA Glossary, disposal is the "Emplacement of waste in an appropriate facility without the intention of retrieval."	Ok Text modified			
2.	2.3 Line 23	- Assessing the effects of irradiation on core components, and adjacent reactor internals and the reactor pressure vessel. Alternative formulation: Assessing the effects of irradiation on core components and adjacent reactor internals components.	Assessment of irradiation effects on the RPV for LWRs has to be included. To consider any NPP design the second formulation is more adequate. Adjacent reactor components should include reactor internals as well as e.g. Calandria tubes or the RPV.	Ok Text modified			

3.	2.4.B	Reactor core analysis should be carried out at appropriate times to ensure throughout the reactor's operating lifetime that the operational strategy and the limitations on operation do not violate any the design limits.	It is unclear which design limits are meant although adjacent reactor internals but no RPV are mentioned in the preceding paragraph 2.3.	Ok Text modified			
4.	2.33.A New item	The monitoring system itself (especially the measurement equipment) shall be tested and calibrated periodically.	Add this important point.			X	This (indeed important) point is covered in para 2.53. It is also widely covered in NS-G-2.6 (need for surveillance testing, maintenance, periodic calibration, etc.)
5.	3.13/1 3.12	To ensure that under all circumstances fuel assemblies may be readily placed in a safe location during handling, manually operated equipment for emergency operations should be provided. Emergency operating procedures and necessary equipment should be provided to ensure a readily placement of fuel assemblies in a safe location under all circumstances.	Under emergency conditions some kind of fuel handling can become impossible. Although the same formulation is used in NS-G-1.4 paragraph 4.37 and a similar one in paragraph 3.33 it should be changed.	Ok Text modified			

6.	4.20 Line 18	- The refueling machine should be operated by authorized persons only and special dispensation should be granted if any abnormal mode of operation is necessary (interlocks should only be overridden considering recommendations in 3.4 if specifically authorized on each occasion);	Requirements for overriding interlocks are already given in paragraph 3.4 and should be referenced.	Ok Text modified as:	The refueling machine should be […] of operation is necessary. (interlocks should only be overridden considering recommendations in 3.4)		Para 3.4 is applicable to handling of both fresh and irradiated fuel, and both to on-load and off-load refuelling. As a result, para 3.4 has been moved to 4.18B.
7.	5.3A	Before starting handling the irradiated fuel, the operability of all fuel handling, and transfer equipment and their safety features should be confirmed. This equipment should include, but is not limited to, the following:	Operability is not clearly defined and could just mean the functioning of the equipment.	Ok Text modified			
8.	5.15	To avoid damage to fuel stored in the storage pool, the movement of heavy objects that are not part of the lifting devices above stored fuel should be prohibited unless specifically authorized on a case by case basis. Detailed safety analysis should be performed and reviewed independently. All lifting should be restricted to the minimum height necessary to complete the operation safely. The pool crane should be checked prior to the start of fuel handling to ensure correct operation.	Prior to this kind of non-normal operation, a safety assessment should be performed. A specific authorisation is not sufficient.	Ok Text modified as:	[…] on a case by case basis, based on a detailed safety analysis should be performed and reviewed independently. All lifting […]		The need for independent review is comprehensively covered in NS-G-2.4.

	COMMENTS BY REVIEWER Reviewer: ? Country/Organization: Germany/Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) (with comments of GRS and BfE) Date: 2018-05-10				RESOLUTION			
Relevance	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/ rejection
2	1	5.13/1	For wet storage facilities, the composition of the cooling medium should…	Clarification, which cooling medium is meant.	Ok Text modified			
1	2	5.14/1	For ~~storage under water~~ wet storage in water pools	In accordance to SSG-15 and 5.11 it is wet storage	Ok Text modified			
2	3	5.17/2	…for ~~Pool~~ wet storage	In accordance to SSG-15 and 5.11 it is wet storage	Ok Text modified			
2	4	5.21/7	Providing containers or quivers for failed rods removed from assemblies that function as a new first barrier and can be used either for long-term storage, or for transport off the site.	Emphasis should be given to the fact, that a new enclosement of the fuel must be provided.	Ok Text modified			
1	5	7.2/1 7.3/1/3/6/9	~~Shipping~~ transport cask or transport package	Following SSR-6	Ok Text modified			

Note: Blue parts are those to be added in the text. ~~Red parts~~ are those to be deleted in the text.
Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

COMMENTS BY REVIEWER Reviewer: ? Country/Organization: Japan/NRA Date: 09/10/2018				RESOLUTION			
No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	Para.5.3A	This equipment should include, but is not limited to, the following: — Fuel handling machines; — Fuel transfer equipment; — Fuel lifting devices; • • • • — Fuel Inspection equipment	Fuel Inspection equipment is considered as one of the important equipment.	Ok Text modified			

COMMENTS BY REVIEWER Reviewer: J Jones Country/Organization: UK Office for Nuclear Regulation Date: 16 October 2018				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	2.3 bullet 5	Avoiding reloading *fuel and other components* that cannot be left in the core until the end of the fuel cycle without potentially degrading to a level where an additional radiological risk could be created.	Design life of control rods in particular should be respected. Also add the why.	Ok Text modified			
2.	2.4.B	Reactor core analysis should be carried out at appropriate times to ensure throughout the reactor's operating lifetime that the operational strategy and the limitations on	To make it clear that this applies to all plant states.	Ok Text modified as:	[…] design limits appropriate to each plant state.		

		operation do not violate the design limits appropriate to the plant state.					
3.	2.4C last bullet	Operation at the thermal-hydraulic stability boundary for boiling water reactors, and the xenon stability boundary for PWR.	Xenon stability is naturally part of this list. Especially for load follow.			X	Para 2.4C is a non-exhaustive list ("such as"). Xenon effect is already the object of the last bullet of para 2.4, and is also considered in 2.14D.
4.	2.4 append	Boiling duty or void fraction constraints necessary to comply with assumptions relating to corrosion and crud formation.	These limits are an important part of managing corrosion.			X	Para 2.4 is a non-exhaustive list. Comment UK4 is not detailed / clear enough to justify inclusion in the non-exhaustive list.
5.	2.14A	With the aim of protecting fuel against pellet–cladding interaction, the vendors' recommendations on the power manoeuvring should be ~~taken into consideration.~~ Complied with or exceptions justified in safety documentation.	This requirement needs is important and needs to have force.	Ok Text modified			
6.	2.14 B	Append: During planned power transients, protection or limitation functions should be set to values which prevent damaging transients as far as reasonably practical.				X	This is true not only during transients, but more generally during all operation phases. This is already covered in other guides (including NS-G-1.9, NS-G.1.12, NS-G-2.2,

							…)
7.	2.16A	Append: Where detailed information is available in the control room, the validity of this information should be confirmed by periodic surveillances commensurate with the safety category of the monitoring function.	Increasingly complex display systems are being provided.	Ok Text modified			
8.	2.36	In-core or out-of-core sipping tests (and if necessary ultrasonic inspection) are used to find failed fuel.	Don't forget ultrasonics. These are more reliable if you have CRUD.	Ok Text modified			
9.	2.52	Append to the list: Integral and differential rod worth measurement.	These are important parameters, usually measured as part of zero-power tests.	Ok Text modified			
10.	2.53 D	Append: Appropriate arrangements should be made to capture swarf during machining operations.	This is a common cause of pin debris failures.	Agree Text modified as:	Activities potentially generating debris should be avoided as much as possible within FME areas. Where these activities cannot be avoided, appropriate arrangements should be made to capture debris generated.		Activities with a risk of generating debris should be avoided as much as possible in FME areas. When they cannot be avoided, precaution should be taken. Swarf from machining is not the only example; wire cuts from scaffolding, wire pieces from metallic brushes, … are also among many other typical issues.

COMMENTS BY REVIEWER Reviewer: ? Country/Organization: United States of America/NRC Date:10-11-2018				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text/comments	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	General	Comment 7 in NS-G-2.2 above also applies to NS-G-2.3 through NS-G-2.8, namely, that these guides cite references and documents that were revised and published several years ago. The updated versions should be referenced.	Completeness and update.	Ok	This action will be implemented at the end of the process of revision (before publication)		
2.	Reference section in NS-G-2.4, NS-G-2.5, NS-G-2.14	EUROPEAN COMMISSION, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, WORLD HEALTH ORGANIZATION, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014).	Completion: Recognize all of the sponsors, and provide consistency with other safety guides.	Ok Text modified			