

RESOLUTION TABLE FOR DS 478 (Version2, 28 June 2013) NUSSC COMMENTS

COMMENTS BY REVIEWER					RESOLUTION			
Reviewer: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Country/Organization: Germany Note: <u>Blue parts</u> are those to be added in the text. <u>Red parts</u> are those to be deleted in the text.								
Relevance	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
2	1	Proposed Title	“Safety of <u>Nuclear</u> Fuel Cycle Facilities”	Consistency with the title of the current IAEA Safety Standard NS-R-5.	X			
3	2	Proposed Action	“Revision of Safety Requirements NS-R-5: Safety of <u>Nuclear</u> Fuel Cycle Facilities (2008)”	Correct title of NS-R-5.	X			
3	3	Section 2	1 st para, 1 st sentence: “The Safety Requirements document NS-R-5 on the S safety of <u>nuclear</u> fuel cycle facilities was published in 2008.”	Editorial.	X			
3	4	Section 2	2 nd para, 1 st sentence: “The main objective of the NS-R-5 was to provide a basis for safety and a-basis for safety assessment for <u>during</u> all stages in the lifetime of a fuel cycle facility, ...”	Wording.	X			
1	5	Section 2	3 rd para, 1 st and 2 nd sentence: “The requirements established by the NS-R-5 apply to fuel cycle facilities of all types and sizes, <u>including fuel-eye</u> le facilities for processing, refining, conversion, enrichment, fabrication of fuel (including MOX fuel), spent fuel storage, spent fuel reprocessing and associated waste conditioning and storage , and fuel cycle research and development facilities. <u>Facility-specific requirements for the predisposal management of radioactive waste during operation are included as well.</u>	The current wording could be misunderstood so that only waste conditioning and storage associated with spent fuel reprocessing is under the scope of the requirements. The proposed new sentence avoids this and is in line with NS-R-5. In this context, predisposal management of radioactive waste includes processing (i.e. pretreatment,	X			

			Facilities for mining and milling of ores ...”	treatment and conditioning) and storage. General requirements for the predisposal management of radioactive waste are established in GSR Part 5, while additional requirements that are specific for nuclear fuel cycle facilities are established in Paras 9.54–9.57 of NS-R-5.				
1	6	Section 3	2 nd para, 2 nd sentence: “Other General Safety Requirements ... are currently under development; <u>and include aspects that were not originally covered by the NS-R-5 such as the integrated management system.</u> ”	The integrated management system (see DS456) is an important new aspect which is worth mentioning in the context of this section.	X			
2	7	Section 3	2 nd para, last sentence: “Furthermore, the revised version <u>revision process</u> will be an opportunity to incorporate the relevant feedback <u>and lessons learned</u> from the accident at the Fukushima-Daiichi nuclear power plant.”	Clarification. The revision process itself provides such an opportunity, while its results will be visible in the revised version of the NS-R-5.	X			
3	8	Section 4	1 st para, 1 st sentence: “The objective of the revised version of the NS-R-5 is to provide a basis for safety and a basis for safety assessment for <u>during</u> all stages in the lifetime of <u>a</u> fuel cycle facility.”	Wording.	X			
3	9	Section 4	1 st para, last line: “... aspects relating to regulatory supervision, management of safety; <u>and site evaluation</u> ; of fuel cycle facilities.”	Editorial.	X			
1	10	Section 4	2 nd para, 2 nd and 3 rd sentence: “... spent fuel storage, spent fuel reprocessing and associated waste conditioning and storage , and fuel cycle research and development facilities. <u>Facility-specific requirements for the</u>	See our related comment No. 5.	X			

			predisposal management of radioactive waste during operation are included as well. Facilities for mining and milling ...”						
2	11	Section 5	<p>“The document will be a Specific Safety Requirements publication for Fuel Cycle Facilities. This document will interface with the following IAEA publications (the list is not intended to be final or exhaustive):</p> <p>...</p> <p>3.—DS457: Preparedness and Response for a Nuclear or Radiological Emergency Safety Requirements, (Revision of the GS R-2);</p> <p>4.—DS456: Leadership and Management of Safety (Revision of the GS R-3);</p> <p>...</p> <p>6. Safety Assessment for Facilities and Activities, IAEA Safety Standards Series No. GSR Part 4, (2009);</p> <p>7. Predisposal Management of Radioactive Waste, IAEA Safety Standards Series No. GSR Part 5, (2009);</p> <p>8.—DS450: Decommissioning and Termination of Activities (Revision of the WS R-5);</p> <p>...</p> <p>10.—DS462: Revision through addenda of GSR Part 1, NS R-3, SSR-2/1, SSR-2/2 and GRS Part 4;</p> <p>14. Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), IAEA Nuclear Security Series No. 13</p>	<p>1st sentence: Grammar.</p> <p>2nd sentence: The current wording suggests that the subsequent list of publications is complete. This misunderstanding should be avoided by the insertion in brackets.</p> <p>List of publications: 1.) We propose to separate approved and draft Safety Standards in the listing (see also our related comment No. 12). In case of acceptance, renumbering of publications in the list might be required. 2.) The citation of IAEA publications should follow a consistent format, e.g. <i>title, name of series, series number, year of publication.</i></p>	X				
					X				
					X				
					X				

			(2011).”					
2	12	Section 5	<p>Add new last sentence: “This document will interface with the following IAEA publications under development:</p> <p>11. DS457: Preparedness and Response for a Nuclear or Radiological Emergency (Revision of GS-R-2); 12. DS456: Leadership and Management for Safety (Revision of GS-R-3); 13. DS450: Decommissioning of Facilities (Revision of WS-R-5); 14. DS462: Revision through addenda of GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2 and GRS Part 4.”</p>	<p>The IAEA Safety Standards GS-R-2, GS-R-3, GSR Part 1, GSR Part 4 and WS-R-5 are currently under revision. The Safety Requirements should reflect the current draft documents.</p> <p>Note that the titles of DS450 and DS456 as cited in the DPP are partially erroneous. The correct ones are given at the left.</p>	X			
3	13	Table of contents	Title of Subchapter 2.1: SAFETY OBJECTIVE	Editorial (typing error).	X			
3	14	Table of contents	Title of Subchapter 6.1.3: Application of the defence in depth concept	Missing word.	X			
3	15	Table of contents	Title of Subchapter 8.3: COMMISSIONING PROCEDURES AND REPORTS	Editorial (typing errors).	X			
2	16	Table of contents	Title of Subchapter 9.5: CRITICALITY CONTROL	In the design of a nuclear fuel cycle facility, prevention of criticality is a basic safety function to be fulfilled. In addition to this, all operations with fissile material have to be performed in such a way as to prevent a criticality accident. The title of the corresponding subchapter should reflect this safety objective.	X			
3	17	Table of contents	Title of Subchapter 9.8: EMERGENCY PLANNING AND	Editorial (typing error).	X			

COMMENTS BY REVIEWER

Reviewer: United States of America

Country/Organization: U.S. Nuclear Regulatory Commission Date: 24 September, 2013

RESOLUTION

Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General comment	Add appendices on different facility types or initiating events (IE) based on facilities with similar IE's.	In the past NS-R-5 has included appendices that discuss different types of facilities (e.g. FCF vs. Reprocessing). From the scope of this DPP it seems that it is still the intention to discuss FCF, SF Storage (wet/dry) and reprocessing where IE (and other areas like consequence and inventories) could vary significantly. Requirements could potentially vary depending on the type of facility (or process) and should be addressed either through different sections in the report/standard or through appendices, as previous versions of NS-R-5 did.		The decision has been made to adopt the first option – incorporate in main text and remove Appendices.		The intent of the comment is accepted. Following feedback from some Member States that the current (Appendix) format was confusing, this issue was carefully considered and it was decided to incorporate the Appendices into the main text. This, with the new IAEA document format, will provide more clarity and coherence. See response to ENISS comments also
2	Section 3, Section 6 and Section 9	Section 3, REGULATORY INSPECTION AND ENFORCEMENT	The word “inspection” in these sections could be differentiated to mean inspection by the regulatory body vs. facility self-inspection (or surveillance). If only one of those meanings is intended, it should be clarified.	X (§3)		X (§6) X (§9)	Meaning clear by context Meaning clear by context
3	Page 4, Section 6, Chapter 9	Insert “Transportation” as a topic to be discussed and referenced in Chapter 9,	Operations performed by facility personnel are likely to include radioactive material transport		Included Design & Operation as “Radioactive		“Nuclear” lifts, radioactive material packaging and handling, (solid) waste

		Operations for a fuel cycle facility.	package loading and offering to carrier for transport, or package receipt and unloading. These operations may also affect facility personnel training requirements. The DPP appropriately references SSR-6 in Section 5 as a topic for interface but fails to identify the interface with transportation in the long list of topics to be addressed and included in Chapter 9.		Material Movements”		movements etc. are only some of a wide variety of safety significant activities that occur in Fuel Cycle Facilities. There is a balance about how much detail to put in the Table of Contents. However radioactive material movements are particularly relevant to Fuel Cycle Facilities
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COMMENTS BY REVIEWER	RESOLUTION
Reviewer: ENISS Page 1 of 1 Country/Organization: ENISS Date: 20 September 2013	

Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
The deletion of the previously existing Appendices dealing with safety requirements specific to FCF types would provide confusion or too general statements, especially when dealing with both front-end and back-end, or research and development FC facilities E.g.: <ul style="list-style-type: none"> - Confinement: front-end versus back end e.g. related to UF6 cylinders or to back-end - Decay heat / Cooling, only back-end - Shielding: mostly back-end (except with very rich ores) - Hot commissioning : back-end - Criticality safety (not a concern for conversion) 					The need to avoid confusion or too general statements is accepted. However following feedback from some Member States that the current (Appendix) format was confusing, this issue was carefully considered and it was decided to incorporate the Appendices into the main text. This, with the new IAEA document format, will provide more clarity and coherence. To be discussed in NUSSC meeting.

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Country Organization: Japan/NRA		Date 2013/ 9/20					
Com ment No.	Para./Line No.	Proposed new text	Reason	Acce pted	Accepted but modified as follows	Rej ecte d	Reason for modify/rejection
1	4. OBJECTIVE AND SCOPE First sentence	This sentence should be modified based on the point shown in the left column if necessary.	<p>1.1 The present NS-R-5 states that it emphasis on requirements for design and operation. On the other hand, the first sentence of the chapter 4 in the DPP states that the revised NS-R-5 particular emphasis on requirements not only for design and operation but also for construction, commissioning and decommissioning. This new strategy itself is OK. However, a background and a reason to add new 3 items, i.e. construction, commissioning, decommissioning, as items emphasized should be described in a clear manner in order to promote our understanding of the new strategy.</p> <p>1.2 The descriptions of the chapter 6 (design) and 9 (operation) in the present NS-R-5 are very rich according to the former direction shown above. On the other hand, the descriptions of the chapter 7 (construction), 8 (commissioning) and 9 (decommissioning) are not so rich when they are compared with those of the chapter 6 and 9. For example, the chapter 7 has just 7 paragraphs. Taking the new strategy means that descriptions of construction, commissioning and decommissioning in the revised NS-R-5 will became richer than those in the present NS-R-5. If IAEA has a clear plan or prospect about how to make such description richer, there is no problem.</p> <p>1.3 However, if not, it is better to modify this sentence, i.e. the new strategy, in a realistic manner, i.e. according to a plan or prospect for revising the NS-R-5 which IAEA has at present.</p>			X	The 3 topic identified are already in NS-R-5 (§1.4). However in the light the of the SPESS and NUSSC comments “decommissioning” will be changed to “preparations for decommissioning”
						X	In accordance with the complexity of the individual topic and the range of application in fuel cycle facilities adequate discussions will be included in all sections and on all topics in accordance with the guidance in SPESS and to ensure that Requirements are clearly defined, readily implemented and easily understood by the intended reader.
						X	This is included in the scope of the response to comment #1.3 above
2	4. OBJECTIVE AND SCOPE Second paragraph	First, the scope of the document should be clarified based on the point shown in the left column.	2.1 First, concerning “associated waste conditioning and storage facilities” IAEA provided requirements as GSR Part 5 “Predisposal Management of Radioactive Waste” and guides as DS447 “Predisposal Management of Radioactive				GS-R-5 takes the leading role. Fuel cycle facility specific requirements will be identified in NS-R-5

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Com ment No.	Para./Line No.	Proposed new text	Reason	Acce pted	Accepted but modified as follows	Rej ecte d	Reason for modify/rejection
		Second the scope should be modified based on the clarification as necessary.	<p>Waste From Fuel Cycle Facilities.” According to the scope of GSR Part 5 (refer the paragraph 1.12), all activities associated with waste conditioning and storage are under the scope of GSR Part 5. Therefore, a boundary of roles between the NS-R-5 and GSR Part 5, e.g. which document takes a leading role, how to apply the NS-R-5 for such facilities if GSR Part 5 takes a leading role, is not clear. The boundary should be made clear in the paragraph.</p> <p>2.2 Second, regarding Interim Spent Fuel Storage Facilities IAEA provided guides as SSG-15 “Storage of Spent Nuclear Fuel.” The SSG-15 refers GSR Part 5 and the NS-R-5. It should be clear that which document takes a leading role for the facilities.</p> <p>2.2A The present NS-R-5 has the appendixes I, II, III. They are requirements specific to 3 types of facilities, i.e. U fuel fabrication facilities, MOX fuel fabrication facilities, conversion facilities and enrichment facilities. In cooperation with these 3 appendixes, guides (SSG-5, 6 and 7) were prepared for above 3 types of facilities after. When we consider such circumstances above, GSR Part 5 seems to takes a leading role for Interim Spent Fuel Storage Facilities because NS-R-5 does not have an appendix for Interim Spent Fuel Storage Facilities. (If NS-R-5 takes a leading role for the facilities, it should have the appendix for the facilities, but it does not.) The role of NS-R-5 for Interim Spent Fuel Storage Facilities must be clear as shown before.</p>			X	<p>See response to Comment #2.1. SSG-15 correctly refers to both the General and Specific Requirements and offer guidance on how meet both as necessary in the context of the specific facility type.</p> <p>Response: Interim Spent Fuel Storage Facilities are within the scope of NS-R-5. If it is decided to include Appendixes, an Appendix may be required.</p>

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Com ment No.	Para./Line No.	Proposed new text	Reason	Acce pted	Accepted but modified as follows	Rej ecte d	Reason for modify/rejection
			2.3 Third, the present scope of NS-R-5 excludes followings processes in a reprocessing facility. (Please refer DS439. Its introduction stated below clearly.) -Spent fuel storage pool -Spent fuel receiving and handling processes -Vitrification process Regarding above processes the scope of the revised NS-R-5 should be clarified, i.e. whether the new NS-R-5 includes above processes or not. Then, the paragraph should be modified to make the scope clear regarding this matter.			X	Scope of NS-R-5 is unchanged and includes these facilities. See DPP§4
3	5. PLACE IN ...	14. Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities(INFCIRC/225/Revision 5). IAEA Nuclear Security Series No.13. (2011)	Clarification	X			
4	6.OVERVIEW 9.OPERATION	<u>Comment</u>	“Fire Safety” will be needed to discuss in this section.		Agreed but also included in “Design”		Complements inclusion in “Operation”
5	6.OVERVIEW 9. OPERATION	6.1 Add a title showing operational requirements against BDBA (beyond design basis accident) in the chapter 9 clearly.	The item shown in the left column is lessons learned from TEPCO’s Fukushima Daiichi NPP accident. Note 1: The commentator understand that for the chapter 6 the title “Design for extension conditions” corresponds with design requirements for BDBA (beyond design basis accident).			X	See §3.¶2 of the DPP and will be addressed in §6 Design: Design for Extension Conditions, & §9 Operation: Emergency Planning & Preparedness, of the DPP

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Com ment No.	Para./Line No.	Proposed new text	Reason	Acce pted	Accepted but modified as follows	Rej ecte d	Reason for modify/rejection
		6.2 Examples are shown below. Insert “ACCIDENT MANAGEMENT” or “COUNTERMEASURES AGAINST BEYOND DESIGN BASIS ACCIDENT” between “EMERGENCY PLANNING AND PREPARDNESS” and “MODIFICATION OF THE FACILITY”.				X	As Comment #6.1 above
6	6. OVERVIEW 11. DECOMMISS IONING	11. PREPARATION FOR DECOMMISSIONING DECOMMISSIONING PLAN ... DECOMMISSIONING OPERATION COMPLETION OF DECOMMISSIONING	1) Consistency with DS476 2) Implementation of decommissioning is can be discussed in DS 452 “Decommissioning of Installation Facilities”.	X			
7	6. OVERVIEW APPENDIX	I REQUIREMENTS SPECIFIC TO URANIUM FUEL FABRICATION FACILITIES II REQUIREMENTS SPECIFIC TO MIXED OXIDE FUEL FABRICATION FACILITIES III REQUIREMENTS SPECIFIC TO CONVERSION	The present appendixes I, II, III, IV and V are necessary for the revised NS-R-5 and they should be written in the main body or APPENDIX in the OVERVIEW in the DPP the same as NS-R-5. In particular, the efforts to develop DS439 should not be in vain.				Appendices for different types of fuel cycle facility have proved confusing to users. The content of the Appendixes will be incorporated into the main text and use of the new format will to help distinguish facility type specific requirements. NUSSC will be asked to advise on this issue. Information from DS439 will be incorporated in either case

COMMENTS BY REVIEWER				RESOLUTION			
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Country Organization: Japan/NRA		Date 2013/ 9/20					
Com ment No.	Para./Line No.	Proposed new text	Reason	Acce pted	Accepted but modified as follows	Rej ecte d	Reason for modify/rejection
		<u>FACILITIES AND ENRICHMENT FACILITIES IV REQUIREMENTS SPECIFIC TO REPROCESSING FACILITIES V REQUIREMENTS SPECIFIC TO FUEL CYCLE RESEACH AND DEVELOPMENT FACILITIES</u>					
8	6. OVERVIEW APPENDIX: SELECTED POSTULATE D INITIATING EVENTS FOR FUEL CYLCE FACILITIES	Delete	This item is not appropriate as an APPENDIX because of following reason. An APPENDIX is part of a main text, i.e. it provides requirements. On the other hand, about fuel cycle facilities have various specifications and there are many kinds of postulated imitating events. Therefore, it is expected such hat a certain initiating event is postulated in one facility but not in other facility even if both are same type of facilities. The item “SELECTED POSTULATED INITIATING EVENTS FOR FUEL CYLCE FACILITIES” shall be an ANNEX instead of an APPENDIX.			X	It is considered that this information is integral to the document It will be necessary to divide PIEs in to those relevant to all facilities and those relevant to specific types of facility.

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: F. Féron		Page		Date: Sept 2013			
Country/Organization: France /ASN							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	Para 4	For the benefits of the end users (mainly from Member States operating fuel cycle facilities with small or no nuclear power programme), the revised version will also include safety requirements on aspects relating to regulatory supervision, management of safety, site evaluation, of fuel cycle facilities.	<p>There are already safety requirements on regulatory supervision (GSR Part 1), safety management (GS-R-3) and site evaluation (NS-R-3) which are applicable to nuclear installations and therefore to fuel cycle facilities. Such requirement should not be duplicate in DS478.</p> <p>This comment should be discussed in NUSSC.</p>				It is not intended to duplicate requirements in other documents but to provide as far as possible complete information for Member States with small nuclear programmes
2.	Para 4	<p>Add a new paragraph : The revision of NS-R-5 will also be an opportunity to increase consistency with SSR2-1 and SSR2-2 as well as DS476 requirements when no specificities of fuel cycle facilities warrant a requirement worded differently.</p> <p>This revision will also be an opportunity to implement the new format of safety requirement (overarching requirements and associates requirements) and to revisit the balance between requirements set in the main text and those set in each appendix.</p> <p>Finally, this revision will also enable relevant lessons learned from Fukushima Daiichi accident (for example related to spent fuel pools) to be reflected in the requirements</p>	Additional objectives of the update.	X	<p>See §3.¶2 of the DPP</p> <p>See §3.¶2 of the DPP</p>		<p>The document will be coherent with other publications including SSR-2/1, 2/2 etc.</p> <p>It is clearly stated in the document that this is one of the reasons for the revision. See also response to ENISS comment.</p> <p>Comments accepted but these aspects are already covered by the inclusion of §3.¶2 of the DPP</p>

3.	Para 4	The revised NS-R-5 is intended for use by organizations engaged in the site evaluation, design, construction, commissioning, operation, and <u>preparation for decommissioning</u> of fuel cycle facilities as well as by regulatory bodies.	Decommissioning is addressed in WS-R-5. To be consistent with SSR2-1/2.2 and DS476.	X			
4.	Para 5	Add SSR2-1, SSR262 and DS476 in safety standards to be taken into account when drafting				X	DS462 references already include SSR-2/1 & 2/2. DS476 is not relevant to fuel cycle facilities
5.	Para 6.	3. LEGAL FRAMEWORK AND REGULATORY SUPERVISION LEGISLATIVE AND REGULATORY INFRASTRUCTURE REGULATORY BODY LICENSING PROCESS Safety Analysis Report and other licensing documentation Review and assessment by the regulatory body Acceptance criteria INSPECTION AND ENFORCEMENT 4. MANAGEMENT AND VERIFICATION OF SAFETY INTEGRATED MANAGEMENT SYSTEM VERIFICATION OF SAFETY 5. SITE EVALUATION INITIAL EVALUATION AND SELECTION OF THE SITE MONITORING OF HAZARDS REASSESSMENT OF THE SITE	Duplicates already published requirements applicable to fuel cycle facilities (see earlier comment)	X			See Comment #1 resolution

1.	Para 6	11. PREPARATION FOR DECOMMISSIONING DECOMMISSIONING PLAN TRANSITION PERIOD BETWEEN OPERATION AND DECOMMISSIONING DECOMMISSIONING OPERATIONS COMPLETION OF DECOMMISSIONING	WS-R-5 addresses decommissioning and is applicable to fuel cycle facilities	X			
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Country/Organization : FRANCE/MEDDE		Date: 23-09-2013					

Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
9	10. INTERFACE BETWEEN SAFETY AND SECURITY IN DESIGN AND OPERATION	A complete paragraph does not seem to be needed. As proposed by NSGC a generic sentence at the beginning of the document should draw awareness of users about the need to take into consideration interfaces between safety and security. This sentence should reference ad hoc security documents. Conflicts between nuclear safety and nuclear security provisions should be managed when and where they are identified in the document	X			