DS516 – SSG-27 – Criticality Safety in the Handling of Fissile Material – Step 11
Master Resolution Table

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: Date:09 November 2020					RESOLUTION			
Comment No.		Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	WNTI-01	1.15	1.15. (…). Section 5 provides recommendations on criticality safety practices in the various areas of conversion and enrichment, fuel fabrication, irradiated fuel operations prior to reprocessing or disposal, reprocessing, radioactive waste management (i.e. processing, storage and disposal) and decommissioning, transport and on-site movement of fissile material, and research and development laboratories. (…).	Clarification. The wording should be consistent with the content of paras 5.81 to 5.86 and with the heading just before para. 5.81 "Criticality safety in the transport of fissile material and during the on-site movement of fissile material".	X			
2.	FRA - 01	2.2	Remove "and dynamic effects (in particular for fluids)"	This term is not a macroscopic parameter used for subcriticality	X			
3.	FRA - 02	2.2	Remove (or move) the sentence "Some other parameters, like the delayed neutron fraction (βeff), might also play a role in the safety assessment, if dynamic effects can occur, in particular for fluids in accident conditions."	This sentence is not in the correct paragraph related to subcriticality.	X			
4.	GER - 22	2.2	Some other parameters, like the delayed neutron fraction (β_{eff})[3], […]	Please explain the term in a footnote as it is done for the effective neutron multiplication factor k_{eff} in this para.			X	The sentence was removed following other comment.
5.	GER - 11	2.5	"A graded approach is required to be used…"	correction		X		The wording changed to "may be used" following USA-01 comment.
6.	USA-01	2.5	Replace "A graded approach is required to be used in developing and implementing the approach to ensuring criticality safety…" to	The referenced SSR-4 Requirement 11 does not require the use of a graded approach (the Para	X			

			"A graded approach may be used in developing and implementing the approach to ensuring criticality safety…"	incorrectly states that it does). Rather, Requirement 11 requires that the use of a graded approach, when used, shall be commensurate with risk (overall Requirement 11) and that the strictness of certain SSR 4 requirements also be commensurate with risk (Requirement 11, 6.28). Note that previous comments 108 (USA006) and 109 (USA013) made this comment for Para 2.05, and it was accepted. So, this change is consistent with previous accepted changes.				
7.	FRA - 04	2.8b	Remove "and dynamic effects (in particular for fluids)"	This term is not a control parameters for subcriticality	X			
8.	GER - 01	2.8 (b) Line 4	… temperature, density~~,~~ and neutron reflecti~~on,~~ng materials. ~~interaction or absorption and dynamic effects (in particular for fluids), and with~~ Proper account should be taken of neutron production, leakage, scattering ~~and,~~ absorption, other interactions and dynamic effects (in particular for fluids).	Neutron interactions such as absorption, reflection and dynamic effects themselves can hardly be defined as "macroscopic control parameters". Contrary, a physical neutron reflector may be a simple control parameter. Nonetheless, proper care should be taken of neutron interaction effects since they strongly affect the tolerable values of the control parameters.		X		"Dynamics effects" excluded from the list of control parameters as suggested; but reflection and interaction should be kept (they are commonly used as control parameters). Finally, the end of the sentence is not really necessary (because included through the list of parameters given).
9.	FRA - 05	2.11	Remove "and dynamic effects (in particular for fluids)"	This term is not a control parameters for subcriticality	X			
10.	USA-02	2.13	A revision to the last sentence is suggested, as follows: "A useful starting point is the exception criteria applied to the classification of transport packages containing fissile material in para. 417~~(a), (b), (e)~~ in conjunction with para. 570 of SSR-6 (Rev. 1) [3]."	It is unclear why subsections (a), (b), and (e) of para. 417 are singled out. Any of the fissile exception provisions of para. 417 are a useful starting point.	X			
11.	JPN -	2.18	2.18. Requirements for the management	Correct cited reference numbers.	X			

	01		system are established in GSR Part 2 [5], and associated recommendations are provided in IAEA Safety Standards Series Nos GS-G-3.1, Application of the Management System for Facilities and Activities [1~~6~~7], DS477, The Management System for the Processing, Handling and Storage of Radioactive Waste [18], GS-G-3.5, The Management System for Nuclear Installations [19], and TS-G-1.4, The Management System for the Safe Transport of Radioactive Material [~~19~~20].	The title of DS477 in the cited reference [18] is different between the text and REFERENCES.				
12.	GER - 02	2.37 Line 3	… The results are required to be evaluated by the operating organization and corrective actions taken where necessary: see para. 4.2 (d) of SSR-4 [2].	If the audit results indicate that the current status is sufficient there might be no need for specific actions but only for documentation why the existing procedures are sufficient.	X			
13.	GER - 12	2.37	"The results are required to be evaluated by the operating organization and corrective actions taken where necessary"	Corrective actions are required, when the subcriticality is compromised.	X			
14.	GER - 13	2.38	"This highlights the importance of sharing operating experience (…), of training operating personnel, of promoting of a strong safety culture and of independent audits."	The promotion of a strong safety culture by the operator is also an important point in this context.		X		"promoting strong culture for safety" – in line with GSR Part 2
15.	GER - 23	2.39	see paras 9.34, 9.35 and 9.84 of SSR-4 [2]~~)~~	Editorial	X			
16.	UKR - 01	2.40	Requirement 73 of SSR-4 [2] states that "***~~[t]~~ t***he operating organization shall establish a programme to learn from events at the facility and events at other nuclear fuel cycle facilities and in the nuclear industry worldwide." Recommendations on operating experience programmes are provided in SSG-50 [16] (see also para. 2.7).	Editorial correction			X	This is to show that the cited text was partially cut from the original sentence.
17.	GER - 03	3.2 Line 3	…(i.e. the design should be such that a failure occurring anywhere within the systems provided to fulfil each safety function will not cause the system to achieve criticality: see also para. 6.142 of SSR-4 [2]).	Both relevant paragraphs (6.141 and 6.142) of SSR-4 should be cited here. Quoting SSR-4 in 3.3 is not necessary with this modification			X	My understanding is both options are equivalent as both include 6.141 as well as 6.143. We prefer to keep the current text as

								this gives the reader some comfort in bringing the relevant para 6.142 to SSG-27.
18.	FRA - 06	3.9	"The characteristics of a system should meet the recommendations in para 2.12, […]"	Paragraph 2.112 does not exist. The link goes to paragraph 2.12.	X			
19.	GER - 14	3.9	"The characteristics of a system should meet the recommendations in para 2.11~~2~~, in order that each change…"	misprint	X			
20.	GER - 04	3.18	The control parameters that should be considered for ensuring subcriticality include the following (see also para. 6.143 of SSR-4 [2]):…	Citation of para. 6.143 of SSR-4 should be kept when paras. 3.17 and 3.18 are reduced to one in order to avoid repetition.		X		We agree, however there was no intention to reduce 3.17 and 3.18 into one. The suggested change is captured by the current text as well.
21.	UKR - 02	3.19	The control parameter limits in para. 3.18 can be evaluated either by multiplying the critical parameter value determined for the particular system conditions by a safety factor, or by calculating the value of the parameter that allows the system to be subcritical with a sufficient margin. In deriving safety margins, consideration should be given to the degree of uncertainty in a system's conditions, the probability and rate of change in those conditions, the uncertainties in calculations, if used, and the consequences of a criticality accident. As stated in para. 6.140 of SSR-4 [2], "~~***[c]***~~ ***C***riticality evaluations and calculations shall be performed on the basis of conservative assumptions."	Editorial correction			X	This is to show that the cited text was partially cut from the original sentence.
22.	FRA - 07	3.23	Add the term "and their associated moderators" to the following sentence. Consideration should also be given to monitoring the long term degradation of neutron absorbers (and their associated moderators) and/or situations that could cause such degradation.	The neutron absorbers' efficiency can be highly dependent on their associated moderating material. So care should be given to the degradation of the moderator.	X			
23.	UKR -	3.34	Paragraph 6.92 of SSR-4 [2] states:	Editorial correction			X	This is to show that the

	03		"The principles of redundancy and independence shall be applied as important design principles for improving the reliability of functions important to safety. Depending on their safety classification, items important to safety shall be physically separated and the use of shared systems shall be minimized.". In addition, para. 6.141 of SSR-4 [2] states that "~~***[s]***~~ ***s***afety controls for criticality shall be independent, diverse and robust." Active engineered components are required to be subject to surveillance, periodic testing for functionality, and preventive and corrective maintenance to maintain their effectiveness: see Requirements 26 and 65 of SSR-4 [2].					cited text was partially cut from the original sentence.
24.	GER - 15	3.35	"Active components with actions that necessitate a human response (…) should be considered as administrative safety measures (see paras 3.35–3.47)."	It should probably read 3.36, otherwise it is a self-reference.	X			
25.	GER - 16	3.40	"The relevant authorities and responsibilities are required to be documented in the management system (see paras. 2.22 and 2.23~~3~~)"	misprint	X			
26.	UKR - 04	3.43	Requirement 12 of GSR Part 2 [5] states that "~~***[i]***~~ ***I***ndividuals in the organization, from senior managers downwards, shall foster a strong safety culture." This should ensure that all personnel understand the importance of ensuring subcriticality and the necessity of adequately implementing the criticality safety measures. For this purpose, the operating organization should provide the following: …	Editorial correction			X	This is to show that the cited text was partially cut from the original sentence.
27.	GER - 17	3.47(c)	The operating personnel should also stop the work in a safe way if there is a potential for unsafe conditions to occur.	The wording should be aligned with the wording in para 3.46(d)			X	It is aligned with the wording of 3.47 (a) and (b). The leading sentence in 3.46 differs slightly from 3.47.
28.	GER -	3.52	"Where ageing has reduced criticality safety	correction	X			

	18		below acceptable levels, corrective measures are required to be implemented; …"					
29.	FIN - 01	4.2/2	The scope and level of detail of the criticality safety assessment is required to reflect the type of practice and **its** operation and be consistent with the magnitude of the possible radiation risks arising from the facility or activity, in accordance with a graded approach:	what is the word its referring to: the assessment, the practice, the facility, … ? Please clarify!	X			
30.	FRA - 11	4.5 footnote 14	Change reference [13] to [14]	Wrong reference	X			
31.	JPN - 02	4.8/L1	All margins adopted in setting subcritical limits, criticality safety limits and operational limits (see paras 2.8–2.12) should be justified and documented and there should be sufficient detail and clarity to allow an independent review of the judgements made and the chosen margins.	Based on the description in paras 2.9-2.12, the multiplication factor of each limit can be estimated as follows; subcritical limits -> criticality safety limits -> operational limits Focusing only on the nuclear (multiplication factor) analysis method, it may be necessary to ask only for the explanation of the safety margin of subcritical limits. However, focusing on the overall criticality safety assessment, it should be also justified and documented what kind of safety margin is considered in the setting of operational limits and criticality safety limits.	X			
32.	FRA - 08	4.25	Change reference [22] to [21]	Wrong reference	X			
33.	GER - 05	4.25 Line 4	…A useful source of benchmark data can be found in Ref. [212].	Ref. 21 is the ICSBEP, Ref. 22 is SSG-5.	X			
34.	GER - 06	4.26 (c) (ix) / 1	… Neutron energy spectrum ~~and spectrum index~~;	Spectrum index seems not to be a term commonly used, maybe it	X			

				refers to a specific code package. It can be removed without altering the meaning.				
35.	FRA - 09	4.29	Remove the examples	These examples are not necessarily appropriate to establish bias and bias uncertainty. This topic is still subject to discussions.	X			
36.	FRA - 10	4.31	Remove the part "and the additional margin should be reasonable"	The term "reasonable" is ambiguous and depends on the context.		X		Replaced with "…and the additional margin should be justified."
37.	WNTI -02	5.2. (b)	(b) The potential for criticality exists in enrichment facilities, uranium and mixed oxide fuel fabrication facilities, fresh fuel storage facilities, irradiated fuel storage facilities, reprocessing facilities, waste processing facilities, disposal facilities and in the transport of ~~nuclear~~ **fissile** material.	Clarification. "Fissile material" is the wording that is used in the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6 (Rev. 1)). "Nuclear material" is the wording that is used, for instance, in the Convention on the Physical Protection of Nuclear Material, and its scope is unduly narrower than "fissile material" for the purpose of para. 5.2.	X			
38.	GER - 07	5.10	In meeting the requirement established in para. 6.146~~9~~(c) of SSR-4 [2], when considering measures…	Typo, para. 6.1469 does not exist, 6.146 is correct.	X			
39.	UKR - 05	5.10	In meeting the requirement established in para. 6.146~~9~~(c) of SSR-4 [2], when considering measures to mitigate the consequences of a fire or a UF6 release, the use of borated water and/or favourable geometry to collect the water should be taken into account.	The paragraph referenced incorrectly.	X			
40.	JPN - 03	5.14. (c)	5.14. (c) For firefighting, procedures should be provided to ensure the safe use of fire extinguishing media (e.g. control of materials and densities of materials to be used, such as ~~CO_2,~~ water, foam, dry powders and sand).	CO_2 used for extinguishing suffocation is usually in a gas state of several atmospheres, so its spatial density is small and the moderating effect of neutrons can be ignored.	X			

				There is no CO_2 as an example in para. 6.146 (c) of SSR-4.				
41.	JPN - 04	5.14. (e) L4	5.14. (e) … Furthermore, hydrogenated materials (e.g. ~~materials used as lubricants~~ additives in the manufacture of pellets) should be applied with safety factors consistent with the double contingency principle.	A better wording. In addition to the lubrication effect, there is also hole density adjustment.	X			
42.	UKR - 06	5.27	Further recommendations for ensuring criticality safety in the handling of fresh fuel at nuclear power plants and at research reactors, are provided in IAEA Safety Standards Series Nos ~~***DS497D***~~ ***NS-G-2.5***, Core Management and Fuel Handling for Nuclear Power Plants [25], and NS-G-4.3, Core Management and Fuel Handling for Research Reactors [26], respectively.	The Draft Safety Guide DS497D is a new Revision of the Safety Guide NS-G-2.5. When it will be released, it will lose the "DS497D" number and supersede NS-G-2.5.			X	Yes, this is correct, NS-G-2.5 will be superseded and therefore we do not use the reference anymore. If the DS497D is published before this SG, the new number shall be inserted.
43.	UKR - 07	5.44	Paragraph 6.148 of SSR-4 [2] states that "~~***[i]***~~ ***I***f the design of the facility takes into account burnup credit, its use shall be appropriately justified in the criticality safety analysis."	Editorial correction			X	This is to show that the cited text was partially cut from the original sentence.
44.	WNTI -03	5.43. (d)	(d) Larger capacity transport packages ~~(casks)~~;	Editorial. There is no value in adding the word "casks". "Package" is the word that is used in the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6 (Rev. 1)).	X			
45.	FIN - 02	5.48	Further information and guidance on the application of burnup credit is available in Ref. [~~29~~28].	The reference is wrong!	X			
46.	USA-03	5.48	Further information and guidance on the application of burnup credit is available in Ref. [~~29~~28].	Reference 28 is the ISO standard on burnup credit, and is the appropriate reference here.	X			
47.	FIN - 03	5.50/1	5.50. Specific requirements for criticality safety in the design of facilities ~~handing~~ handling mixed uranium and …	Misprint!	X			
48.	GER - 08	5.64	The effectiveness, reliability and accuracy of the safety measures described in para. 5.63~~-4~~ should be considered as part of the criticality	Typo, Reference to the identical paragraph, 5.63 seems to be the intended paragraph.	X			

			safety assessment. …					
49.	FRA - 12	5.64	"The effectiveness, reliability and accuracy of the safety measures described in para. 5.63 […]"	Wrong paragraph number. Change 5.64 to 5.63	X			
50.	GER - 19	5.64	"The effectiveness, reliability and accuracy of the safety measures described in para. 5.634 should be considered as part of the criticality safety assessment."	correction of reference	X			
51.	WNTI -04	5.76.	5.76. (…). This might then lead to an increase in the number of packages produced, resulting in more handling, **more** transport**s** ~~consignments~~ and higher storage volumes, each of which is associated with a degree of risk (e.g. due to occupational exposures, road or rail accidents, construction accidents). (…).	Clarification. The wording "transport consignments" is unclear. The words "transport" and "consignments" seems redundant in this sentence. The word "transport" is sufficient.	X			
52.	WNTI -05	5.83	5.83. The assessment of subcriticality referred to in para 5.82 provides a basis for the package design. ~~In addition, a~~ **A** criticality safety assessment for the transport of such packages ~~under real conditions~~ is required in accordance with para. 673 of SSR-6 (Rev. 1) [3], which states: "*Fissile material* shall be transported so as to: (a) Maintain subcriticality during routine, normal and accident conditions of transport; in particular, the following contingencies shall be considered: (…).	Para. 673 in the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6 (Rev. 1)) is not about "real conditions". The routine, normal and accident conditions that are quoted in the subparagraph (a) are not real conditions of transport but are those that are specified in SSR-6 (Rev. 1). Para. 673 in SSR-6 (Rev. 1) is related to the design of packages, not about the conditions of transport.	X			
53.	WNTI -06	5.84	5.84. The state of a ~~prototype~~ transport package before, during and after the tests specified in SSR-6 (Rev. 1) [3] (e.g. water spray and immersion, drop and thermal tests)**, as determined by any of the methods listed in para. 701 of SSR-6 (Rev. 1) [3],** can provide confirmation of the assumptions made for the criticality assessment and analysis of the design. (…).	Para. 701 in the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6 (Rev. 1)) identifies several methods. Test with a prototype is only one of those methods, and is not the method that is the most commonly used. It is not appropriate to emphasize	X			

				specifically this method.				
54.	FRA - 13	5.85	Add the sentence at the end of §5.85. "In addition, the package need to be in the same configuration than during transport (equipped with its shock absorbers for example)."	The package complying with SSR-6 is prepared to an off-site transport with a given configuration (including shock absorbers). It should be kept in mind that on-site transport are sometime performed with a different configuration, so justifications might be adapted.	X			
55.	WNTI -07	5.85	5.85. The criticality safety assessment of a transport package, complying with a package design approved for off-site transport in accordance with the requirements of SSR-6 (Rev. 1) [3]**,** may rely upon this approval for the use in a facility. (…).	Editorial. A comma is missing after [3].	X			
56.	WNTI -08	5.86. (c)	(c) The potential for ~~transport~~ **on-site movement** accidents (e.g. collisions with other vehicles);	Consistency with the wording used in the introductory sentence of the para. 5.86 and with the wording used in the heading before para. 5.81: "movement" is to be used instead of "transport" for operation taking place on-site.	X			
57.	WNTI -09	5.86. (e)	(e) Interactions with other fissile material during ~~transit~~ movement on the site.	"transit" is never used in the other paragraphs of this document, and "movement" is the word that is used for that purpose in paras 5.81 to 5.86 and with the heading just before para. 5.81 "Criticality safety in the transport of fissile material and during the on-site movement of fissile material".	X			
58.	GER - 09	5.89 Line 4 footnote 13	Pore former is an additive that is used in the blending of nuclear fuel oxides for the purpose of creating randomly distributed closed pores in the blended oxide before	Underlined text exists but only on the following page. Footnote should not be distributed on 2 pages but forced on the same page.	X			This is often a problem of converting a Word file with track-changes to PDF.

			pelletizing and sintering for the purpose of producing pre-sintered fuel pellets that are free of flaws and have improved strength. Pore former has a neutron moderating effect.					
59.	GER - 20	5.89	Footnote 13 should be formatted so that its text appears on one page only.	It is useful to have the text of a footnote on one page and not distributed on two pages.	X			This is often a problem of converting a Word file with track-changes to PDF.
60.	UKR - 08	5.89 Footnote 13, pages 56-57		Footnote 13 is spread on two pages. It is recommended to combine those parts.	X			This is often a problem of converting a Word file with track-changes to PDF.
61.	WNTI -10	5.95	Subcritical assemblies 5.95. Subcritical assemblies are generally used for research and educational purposes. Subcritical assemblies have the potential for criticality accidents; hence, criticality safety measures should be applied. Annex II of IAEA Safety Standards Series No. SSR-3, Safety of Research Reactors [37] provides an overview of the application of the safety requirements to subcritical assemblies.	A definition of "subcritical assemblies" should be given (or a precise reference with such a definition should be given). *No proposal.*			X	Subcritical assemblies are part of the definition of "nuclear installation" in the IAEA Safety Glossary. We do not have explicit definitions for subcritical assemblies as we do not define NPPs, Research Reactors… The scope is implicit based on SSR-3.
62.	UKR - 09	6.1	Requirements for preparedness and response to a nuclear or radiological emergency are established in GSR Part 7 [9]. Associated recommendations and guidance are provided in IAEA Safety Standard Series Nos GSG-2, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency [38], GS-G-2.1, Arrangements for Preparedness for a Nuclear or Radiological Emergency [39], GSG-11, Arrangements for the Termination of a Nuclear or Radiological Emergency [40], and ~~***DS469, Preparedness and Response for a Nuclear or Radiological Emergency Involving the Transport of Radioactive***~~	The Draft Safety Guide DS469 is a new Revision of the TS-G-1.2 Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material (2002). When it will be released, it will lose the "DS469" number and supersede TS-G-1.2.			X	This is the correct way to reference safety standards under revision.

			~~*Material*~~ ***TS-G-1.2, Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material*** [41].					
63.	GER - 21	6.15	"Personnel assembly points should be designated outside the areas to be evacuated, with appropriate consideration given to nuclear security (see para. 2.6) and the need to ~~optimize~~ minimize radiation exposures."	"optimize" is too unspecific. It should at least be pointed out that optimization means minimization in this context.	X			
64.	UKR - 10	6.23	Requirement 20 of GSR Part 7 [9] states that "~~*[t]*~~ ***T***he government shall ensure that authorities for preparedness and response for a nuclear or radiological emergency are clearly established."…	Editorial correction			X	This is to show that the cited text was partially cut from the original sentence.
65.	GER - 24	6.31	The operating organization should take the primary responsibility to meet the conditions, criteria and objectives for enabling the termination of an emergency due to a criticality accident.	To be commensurate with the wording in para 5.100 (d) GSR Part 7. In Germany, it is not down to the operator to formally terminate a severe emergency with possible off-site consequences.	X			
66.	WNTI -11	6.36. (c)	(c) Packages ~~requiring competent authority approval~~ for fissile material awaiting transport, during transport or awaiting unpacking.	For the purpose of criticality detection and alarm systems, there is no reason to make a difference between packages for fissile material requiring competent authority approval and those packages for fissile material that do not need competent authority approval.	X			
67.	GER - 10	6.39	The criticality detection and alarm system is required to detect neutron and/or gamma radiation: see paras. 6.172 and 6.173 of SSR-4 [2]. Consequently, …	Citation of SSR-4 from para. 6.40 should be preserved		X		Ref to 6.173 added. Ref. to 6.172 is in 6.40 so no need to repeat it in 6.39.
68.	UKR -	6.39	6.39. The criticality detection and alarm	The paragraph referenced		X		Ref. to 6.173 corrected as

	11	6.40	system is required to detect neutron and/or gamma radiation: see para. 6.17~~2~~***3*** of SSR-4 [2]. Consequently, consideration should be given to the deployment of detectors that are sensitive to both neutron radiation and gamma radiation. If applicable, other reliable and practical methods could be adopted. ~~6.40. Paragraph 6.173 of SSR-4 [2] states:~~ ~~"Instrumentation and control systems used to ensure subcriticality shall be of high quality and shall be calibrated against known standards. Changes to computer codes and data shall be controlled to a high standard by means of the management system."~~	incorrectly. It is more accurate to reference to §6.173 because there are no quality, calibration or standards requirements stated in §6.39. However, in this case, §6.40 should be omitted. From SSR-4: "6.172. Instrumentation and control systems used to ensure subcriticality shall be of high quality and shall be calibrated against known standards. Changes to computer codes and data shall be controlled to a high standard by means of the management system. 6.173. Radiation detectors (gamma and/or neutron detectors), with audible and, where necessary, visible alarms for initiating immediate evacuation from the affected area, shall cover all the areas where significant quantities of fissile material are present, unless the safety analysis demonstrates that no reasonably foreseeable set of circumstances can initiate a criticality accident, or that a large radiation dose to personnel in the event of criticality is not credible."				suggested. Para 6.40 is kept as a relevant requirement in this context.
69.	JPN - 05	REFERENCES	[14] LOS ALAMOS NATIONAL LABORATORY, A Review of Criticality Accidents, 2000 Revision, LA-13638, LANL, Los Alamos, NM (2000)	Since it is considered to be the same document as the penultimate document (p.79) included in Annex Bibliography, the description should be aligned.	X			
70.	JPN - 06	Annex Bibliogr	AMERICAN NUCLEAR SOCIETY, Nuclear Criticality Control and Safety of Plutonium–	Reflect the latest reaffirmation.	X			

		aphy	Uranium Fuel Mixtures Outside Reactors, ANSI/ANS-8.12-1987; R2002; R2016 (R = Reaffirmed), ANS, La Grange Park, IL (1987).					
71.	JPN - 07	Annex Bibliography	AMERICAN NUCLEAR SOCIETY, Nuclear Criticality Safety Based on Limiting and Controlling Moderators, ANSI/ANS-8.22-1997; R2006; R2011; R2016 (R = Reaffirmed), ANS, La Grange Park, IL (1997).	Reflect the latest reaffirmation.	X			
72.	JPN - 08	Annex Bibliography	AMERICAN NUCLEAR SOCIETY, Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors, ANSI/ANS-8.14-2004, R2011; R2014; R2016 ANS, La Grange Park, IL (2004).	Reflect the latest reaffirmation.	X			
73.	USA-04	Handbooks and Guides, page 76	ATLANTIC RICHFIELD HANFORD COMPANY, Criticality Handbook, ARH-600, ARHCO, Richland, WA (1968), **Hyperlink reference not valid.**	Correct hyperlink reference for this guide.	X			
74.	USA-05	Computational Methods, page 78	SCALE ~~(Standardized Computer Analyses for Licensing Evaluation), Modular~~ Code System ~~for Performing Criticality and Shielding Analyses for Licensing Evaluation with ORIGEN-ARP~~, ORNL/TM-2005/39 Version ~~6.0~~6.4, ~~Vols I-III,~~ ~~January 2009~~2020, RSICC Code Package ~~C00-750~~ C00834, Radiation Safety Information Computational Center, Post Office Box 2008, 1 Bethel Valley Road, Oak Ridge, TN 37831-~~6171~~ 6003, http://scale.ornl.gov/	Update this reference to the most recent supported version of SCALE.	X			
75.	FRA - 03	Annex	Add a new reference: "(see also Refs. [11], [12] and [13])."	The following reference could also be a useful document to help determining the credible abnormal conditions. "ANALYSIS GUIDE NUCLEAR CRITICALITY RISKS AND THEIR PREVENTION IN PLANTS AND LABORATORIES DSU/SEC/T/2010-334 - Index A" https://www.irsn.fr/EN/publications/technical-	X			

				publications/Documents/IRSN_report_nuclear_criticality_risks.pdf				