

Revision of 7 closely interrelated Safety Guides on the Operation of Nuclear Power Plants: NS-G-2.2 to 2.6, NS-G-2.8 and NS-G-2.14 (DPP DS497 indice 2)

**DS497E – NS-G-2.6: 23 comments / Accepted (fully or partially): 7 (30%) / Rejected: 16 (70%)**

Some comments are multiple: one part can be accepted and another rejected; hence, total of “accepted” and “rejected” is not equal to number of comments

<b>Country or Organization</b>	<b>Number of comments</b>	<b>Accepted</b>	<b>Rejected</b>
<b>WNTI</b>	0		
<b>WNA/CORDEL</b>	2		2
<b>GERMANY</b>	18	5	13
<b>ENISS</b>	2	1	1
<b>JAPAN</b>	1	1	

COMMENTS BY REVIEWER					RESOLUTION			
Reviewer: <b>Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)</b> (with comments of GRS) Country/Organization: <b>Germany</b>					Pages: 7 Date: 6 October 2020			
Rele - vanz	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	1.	1.9	This Safety Guide covers: the establishment, <del>and</del> implementation and <u>improvement</u> of preventive and corrective maintenance programmes; testing surveillance and inspection; the repair of defective plant equipment; the provision of related facilities and equipment; procurement; and generating and retaining records of maintenance activities.	<p>“Improvement” should be added.</p> <p>This guide gives also recommendations for an improvement of maintenance programmes. See for example 2.17.</p>			X	<p>1. Comment out of the scope of the DDP.</p> <p>2. Also rejected to remain consistent between the 7 guides.</p>
2	2.	2.27	MTSI activities should be planned and coordinated effectively. A maintenance database should be established, in order to share relevant data, results and evaluations <u>as well as trends</u> among the organizations involved in the planning and implementation of MTSI activities.	<p>It is proposed to include analyses of trends as specific item in the maintenance database.</p> <p>Recommendation for analyzing trends is addressed in Para. 6.11.</p>			X	<p>The database is used to establish trends; but trends must be done according to the para 2.19 (but not only).</p> <p>But we cannot write that the maintenance database shall contain trends.</p>
1	3.	3.2	The operating organization should ensure that the scope and frequency of MTSI activities are sufficient to ensure that the reliability and functionality of SSCs remains in accordance with the design assumptions and intent throughout the operating lifetime of the plant (see also para. 8.5 of SSR-2/2	In the first sentence there is a limitation to the operating lifetime. We suggest to add an extension to address the period between final shut down and decommissioning.			X	<p>Interesting comment, but I do not see the limitation to the operating lifetime. It is written ‘throughout the</p>

			(Rev. 1) [1]). <a href="#">After the final shutdown and during the transition to decommissioning appropriate considerations in terms of scope and frequency of MTSI activities have to be taken, to ensure the reliability and functionality of SSCs necessary at all times (see also para. 8.8, 8.15 of SSG-47 [21] and para. 8.2, 8.4 of GSR Part 6 [22]).</a>					operating lifetime of the plant’.
2	4.	4.8	Control room operators are directly responsible for the day-to-day safe operation of the plant, including its continued configuration control. Control room operators should be informed (e.g. by means of a work permit procedure) of all MTSI activities before they are commenced, of any changes to the plant that this work entails, and of the return of plant systems into service (see also para. 8.10 of SSR-2/2 (Rev. 1) [1]). During the performance of such activities, adequate communication should be maintained between the relevant personnel and control room operators <a href="#">and among other things to avoid an unintentional radiation exposure of personnel not involved in the MTSI activities remaining in the work area.</a>	Based on operating experience it is also important to avoid unintended exposures of personnel not involved in MTSI activities but working at the same time in the same working area.			X	I understand the comment, but it is experience based and I would prefer a reason reference based in this case to take into consideration the proposal.  In addition, the work permit should consider such risk of unexpected exposure and/or co activities within the same working area.
2	5.	4.31	(d) Providing a clear indication of any equipment that is not in service. This includes tagging, where appropriate, and any steps to be taken to prevent unintentional return to service. The tagging should not hide or obscure any displays or indicators on the equipment <a href="#">and the labelling of the equipment.</a>	It is also important that the tagging will not hinder the visibility of the labelling of the equipment.	X			

2	6.	4.38	<p>The training of personnel for MTSI activities should take into account the following:</p> <p>...</p> <p>(b) It may be necessary to conduct MTSI activities with the plant (or plant systems) out of service or <u>all fuel is unloaded off-load from the reactor vessel</u>. In such cases, personnel involved might be under pressure to return the plant or plant systems back into service.</p>	<p>The proper meaning of “off-load” remains unclear. We propose to clarify assuming, the unloading the fuel from the reactor core is meant here.</p>		<p>X</p> <p>(b) It may be necessary to conduct MTSI activities <b>with the plant off-load (all fuel is unloaded from the reactor vessel) or plant systems out of service.</b></p>		
1	7.	4.40	<p>Depending on the nature of the work to be performed (and whether it has been performed before), its importance to the safety of the plant, the potential risks involved and the safety precautions that are necessary, maintenance personnel should receive a <b>special briefing by the responsible plant personnel or other competent personnel before performing the activities</b> in addition to the normal training. Relevant personnel should also be appropriately trained in the quality management aspects of their duties.</p>	<p>We suggest to add who will perform the briefing and when the briefing should be performed.</p>			X	<p>By definition, a briefing takes place before an activity. And we cannot state by whom. And it is well known that the best briefings are the reverse briefings: workers explain what they are going to do to their supervisor.</p>
1	8.	5.5	<p>If exceptional circumstances arise in which a particular task has to be performed without following authorized procedures, this task should only be performed <u>after informing the control room personnel and</u> under the direction of an authorized person. Once the task has been performed, an appropriate safety evaluation should be made as soon as possible, and before the equipment is returned to normal service.</p>	<p>Based on operating experiences tasks may lead to unexpected deviations in plant conditions. The control room operators have to be informed.</p>		<p>X</p> <p>If exceptional circumstances arise in which a particular task has to be performed without following authorized procedures, this task should only be performed <b>after informing operating personnel, in particular the</b></p>		

						operators in the main control room, and under the direction of an authorized person.		
2	9.	5.43	..... A pre-closure inspection should consist of, at a minimum, a visual inspection (either directly or by use of suitable equipment) of all surfaces the foreign material could reach. The inspection should verify that these surfaces are free of foreign materials such as sand, metal chips, <a href="#">cleaning tools</a> , weld slag and cutting oils. The tools used for performing the MTSI activities should also be inspected to ensure that any material or part has not been lost. The results of inspections should be documented, including, wherever practicable, photographic and video evidence.	Based on operating experiences, cleaning tools should be added as well.	X			
2	10.	8.9	Workshops should be equipped with the following <a href="#">(f) Equipment for radiation monitoring and radiation protection;</a>	Proposal to add “radiation monitoring/protection” as superior aspect in the workshop.			X	Such workshops are “cold”; I do not understand the proposal. And the next paragraph deals with this issue.
2	11.	8.18	Tools, gauges, instruments, and other measuring and test equipment used for maintenance activities on items important to safety should be <a href="#">specified</a> , controlled, calibrated at specific periods, adjusted, and maintained. Selection of measuring and test equipment should be based on the type, range, accuracy, and tolerance needed to accomplish the necessary measurements.	It is necessary to specify the tools, etc. so that no unspecified tool, etc. will be used.			X	The purpose of this para is only about ‘Measuring and test equipment’ in ‘MAINTENANCE FACILITIES’. Therefore, ‘specified’ here has not a real added-value.

								If this para was dedicated to the maintenance procedure to perform a test, in this case 'specified' is necessary.
2	12.	8.53	The operating organization should keep records of repairs, identifying the component that failed, <a href="#">the period of use, number of switching operations</a> , the cause of failure, the corrective action taken, and the state of the system after repairs. The operating organization should periodically review the maintenance results for evidence of incipient or recurring failures.	Proposal to add “the period of use, number of switching operations” because that can be important aspects for failure analyses; see 8.56.			X	The period of use is not available by and useful for the maintenance personnel who repair a component. Regarding the number of switching operations, it is the same and this information should be already written in the logbook in the MCR (see NS-G-14, para 4.19).
2	13.	8.56	After any corrective maintenance has been completed, a brief report on the repairs or replacements performed should be prepared. The component that failed, <a href="#">the period of use, number of switching operations or other cycles</a> , the mode of failure, the corrective action taken, the total repair time, the total outage time and the state of the system after completion of the corrective maintenance work should all be identified and described in the report.	Proposal to add “the period of use, number of switching operations or other cycles” because that can be important aspects for failure analyses; see 8.53.		X		For the same reason. Nevertheless, paras 8.53 and 8.56 should be more consistent; therefore, ‘the total repair time, the total outage time’ will be added in the para 8.53. Finally, your proposal will be

						added in the para 5.56.		
1/2	14.	9.22	All SSCs, including mobile equipment, that perform functions intended to mitigate the consequences of accidents should be subject to periodic surveillance, to demonstrate their availability and effectiveness, as far as practicable, and to detect any degradation of their performance. These functions include the following: <a href="#">(a) The correct functioning of the reactor shutdown system and control of reactivity;</a> <a href="#">(ab) Emergency core cooling and heat transport to the ultimate heat sink;</a>	Reactivity control is one of the three fundamental safety functions and should be added here. The reactivity has to be controlled at each mode and an ATWS has to be avoided due to proper functioning of the reactor shutdown system and by inherent reactor core design. But in the case of an ATWS the reactivity has to be controlled and mitigative measures have to take place.			X	I agree, but what you suggest is the purpose of the para 9.21.  In case of accident, you need mitigation measures which should be subject to periodic surveillance and this is only the purpose of the para 9.22.
1	15.	9.51	The operating organization should ensure that all necessary test equipment for the surveillance programme is <a href="#">specified</a> , available, operable and calibrated. So far as is practicable, test equipment should be permanently installed.	Proposal to add “specified” so that only specified equipment will be used and not some unspecified “voltmeter” as example.			X	Same reason as for comment 11
1	16.	10.20	All equipment used for inspections and tests should be <a href="#">specified in such an extent that they are</a> of an adequate quality, and have the necessary measurement range and accuracy for their intended use.	Proposal to add “specified” so that the specified equipment is proper for the intended use.			X	Same reason as for comment 11
1	17.	<a href="#">[21]</a>	<a href="#">INTERNATIONAL ATOMIC ENERGY AGENCY, DECOMMISSIONING OF NUCLEAR POWER PLANTS, RESEARCH REACTORS AND OTHER NUCLEAR FUEL CYCLE</a>	To add as reference			X	No need (comment 3 rejected)

			<a href="#">FACILITIES, SPECIFIC SAFETY GUIDE No. SSG-47, VIENNA, 2018</a>					
1	18.	[22]	<a href="#">INTERNATIONAL ATOMIC ENERGY AGENCY, DECOMMISSIONING OF FACILITIES, IAEA SAFETY STANDARDS SERIES No. GSR Part 6, VIENNA, 2014</a>	To add as reference			X	No need (comment 3 rejected)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Japan NUSC Member Page..1 Country/Organization: <b>Japan</b> / Nuclear Regulation Authority (NRA) Date: 9 October, 2020							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	7.3 (g)	(g) <u>Preparing for u</u> Unforeseen mechanisms that might be causing equipment degradation <del>should be identified., deviations and anomalies are properly evaluated</del> in a timely manner <u>after detected</u> ;	According to the Resolution table- DS497-Step8, Japan's comment (No.2 for paragraph 7.5B/ seventh bulle) was accepted. However it is not reflected in this draft (step 10) dated 19 August 2020.  Please reflect our comment in it.	X			

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: P. Malesys, S. Edwards Country/Organization: <b>WNTI</b>				Page 1 of 1 Date: 9 October 2020			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		No comment					



COMMENTS BY REVIEWER				RESOLUTION			
Country/Organization: <b>WNA/CORDEL</b> Date: <del>09/10/2020</del> 11 October 2020 (after the deadline)							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	8.35	... Modern production processes can make it difficult to discover that a manufacturer has made a change to an item. This is particularly true for electronic equipment or small sealed items of control equipment. Close liaison with manufacturers should therefore be maintained. <b>Good practices such as described in ISO 22383 [21] should be implemented to prevent and / or detect the intrusion of counterfeit, fraudulent, and suspect items (CFSI).</b>	Awareness about CFSI is mentioned in § 8.31 and 8.38 and recommends that personnel be trained. This may not be sufficient. Indeed, an ISO standard has been published mid-September 2020 to provide recommendation for the selection and performance evaluation of authentication solutions. Therefore, it is proposed to include this reference which provides up to date good practices on this matter.			X	Correct, good reference, but out of the scope of the DPP. In addition, para 8.15 of SSR-2/2 (Rev.1) and para 8.25 of NS-G-2.6 are clear enough in this regard.
2	REFEREN CES	<b>[21] ISO 22383 (first edition 2020-09) Security and resilience — Authenticity, integrity and trust for products and documents — Guidelines for the selection and performance evaluation of authentication solutions for material goods</b>	New reference is suggested in relation to the above comment			X	See above.

COMMENTS BY REVIEWER

Reviewer: ENISS

Country/Organization: ENISS

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Date: 9 October 2020

RESOLUTION

ENISS

Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	2.6	2.6. While there are various conceptual approaches to maintenance, the relevant activities should be divided into preventive maintenance and corrective maintenance. Many maintenance activities are performed while the plant is shut down; however, maintenance may be performed during power operation provided that adequate defence in depth and redundancy is maintained, taking into account risk considerations and the results of probabilistic safety assessment, <u>when feasible</u> : see para. 8.13 of SSR-2/2 (Rev. 1) [1].	When PRA model does not allow the quantitative handling of risk, it should not be required.		X  Not 'when feasible', but ' <u>as appropriate</u> '.		
2	8.10.(b)(iii)	(iii) A high voltage test area with controlled access <u>and portable test equipment</u> ;	Generally insulation and voltage tests of LV and MV equipment is performed on the field, without or with a minimum dismantling, which requires a portable test equipment. For the most, moving equipment to a local high voltage test area (on-site or off-site) is difficult and time consuming; Local consignment, area control and test with a minimum dismantling is more convenient. It is also possible to perform hipot tests in the			X	1. Arguments understandable, but less the proposed new text. Not easy to make a link. 2. And test equipment must be available because it is a HV test area (portable or not).

			<p>workshop with the portable equipment. Regarding HV large equipment, these last are generally not possibly moveable to the workshop, tests can only be done on the field.</p>				
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