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)

NS-G-2.14: 70 comments / Accepted (fully or partially): 28 (39%) / Rejected: 44 (61%)

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

Country or Organization	Number of comments	Accepted	Rejected
ENISS	12	8	4
Finland	14	5	9
Germany	9	4	5
Hungary	8	2	6
Japan	1	3	0
Poland	16	5	11
Russian Federation	1	1	0
South Africa	9	0	9

COMMENTS BY REVIEWER				RESOLUTION			
Guide: NS-G-2.14 Reviewer: Country & Organization: ENISS			Page 2 Date: 29/05/2019				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	2.6	2.6. The operating policy should establish that safety has an overriding priority in all aspects of plant operations, including challenges resulting from production demands and project schedules. The policy should encourage a questioning attitude, open culture and a rigorous and prudent approach to all safety related activities. The defence in depth concept should be generally applied to all safety related activities.	An open, no-blame culture is necessary to support a questioning attitude and the general safety culture.	Yes	As in paragraph 4.33 it is mentioned "To encourage the reporting of errors, the supervisor should demonstrate a no-blame attitude to errors made by operators.": paragraph 2.6 was modified as: "The policy should encourage a questioning attitude, no-blame culture and a rigorous and prudent approach to all safety related activities."		
2.	2.10	2.10. The operations manager should ensure that an adequate number of competent and qualified staff are available at all times to operate the plant safely in both normal and abnormal conditions. There should be sufficient numbers of operations staff to allow staff members to be periodically released to meet requirements for training and development. A long-term succession plan for staff should be put in place, supported by reviews of career development, associated action plans and recruitment plans. In addition, this plan should consider changes	Only qualified personnel can operate a plant.	Yes			

		potential technical capability through life cycle. These reviews should aim to foster continuous improvement and learning. More information can be found in Ref. on Ageing Management for Nuclear Power, IAEA Safety Standards Series No. NS-G-2.12 [14].					
3.	2.12	2.12. During particularly busy periods, for example during reactor outages, line managers should ensure that sufficient staffing cover is provided to permit rest periods. Line managers should be particularly vigilant in noticing any signs of ~~fatigue~~ physical or mental reduction of performance in staff.	When working many hours, people's physical health or mental health can decrease. Fatigue is only an example for reduction of physical performance.	Yes	This paragraph is modified as: …signs of fatigue or fitness for duty reduction. See SSR-2/2 Revision 1, 4.29.		
4.	2.24	2.24. There should be effective interfaces between the plant shift crew (including control room and field operators), the technical support group and maintenance groups, including contractors. After completing work, the shift crew, technical support group and maintenance groups should ensure that structures, systems and components affected by the work are tested, qualified (if applicable) and returned to their original state or to a satisfactory operational state that complies with the operational limits and conditions. Operations staff should not tolerate equipment failures and defects and should urge the maintenance department to resolve such malfunctions within a reasonable time-frame.	Testing must lead to the qualification of a system. Testing must be covering all the important performances of the system, but can also cover more than the essential limits of a system. Qualification means meeting the correct OLC's and expectations for the equipment.			Yes	According SSR-2/2 Revision 1: 4.48. Appropriate concepts and the scope and process of equipment qualification shall be established, and effective and practicable methods shall be used to upgrade and preserve equipment qualification. A programme to establish, to confirm and to maintain required equipment qualification shall be launched from the initial phases of design, supply and installation of the equipment. The effectiveness of

							equipment qualification programmes shall be periodically reviewed.
5.	2.28	2.28. Good interfaces should be established between the operations department and the radiation protection department. Operators should inform radiation protection personnel prior to commencing plant evolutions that have the potential to affect radiation levels at the plant or to necessitate action from radiation protection personnel. Radiation Protection personnel should inform the operators of areas in the plant with a higher or too high dose rate.	For (Field) Operators, it is important to know which areas are not accessible in case of an emergency or in normal operations when they have to do local actions.	Yes	High dose rates are not the only hazard and, according to GSR Part 3, RP should also give instructions and provide operators with protection. The paragraph 2.28 is added with following text: "Radiation Protection personnel should inform the operators of areas in the plant with a radiation hazards. More information can be found in Ref.[4]."		
6.	3.1	3.1. The shift supervisor should manage plant operations on each shift and should be responsible for overall safety at the plant, protection and safety of personnel, coordination of plant activities and performance of the assigned shift. The responsibilities typically should include supervision of the shift personnel and direct control of plant operations in accordance with the operational limits and conditions and operating procedures. In	The shift supervisor is responsible for the shift hand over of the whole crew.			Yes	Paragraphs 4.13, 4.17 clearly define requirements to turnover organization and responsibilities.

		addition, the responsibilities of the shift supervisor should normally be: – To ensure that the shift is properly staffed and to request or initiate a call- out of personnel who are fit for duty, as required; to monitor the qualification and the physical and mental condition of the operations personnel on shift; To ensure that the shift handover is done in a proper way;					
7.	4.27	4.27. Pre-job briefings should be used as a means of avoiding personnel errors, difficulties in communication and misunderstandings. The operations shift crew should use pre-job briefings for all operations other than daily, routine shift activities. A procedure for pre-job briefings should be put in place that includes the following aspects: A verification that the job to be performed is clearly understood by the executer.	Documenting the work procedures is important, but there is an essential managerial aspect to be considered. To avoid personnel errors, it's a good practice that the operators repeat the pre-job briefing in their own words. At least, it requires the supervisor to give a direct feedback to the field operator.	Yes	4.27. … A procedure for pre-job briefings should be put in place that includes the following aspects: A verification that the job to be performed is clearly understood by the operators.		
8.	4.31.A	4.31A Management should establish rules and processes to ensure normal working conditions for control room operators. Consideration should be given to the following: - Communications by hand-held radio between field operators and operators in the main control room should be short and concise. For instance, radios should be used for the initial call-up and the call should then be switched to telephones where possible. If possible, portable phones or head phones should be used by the operators in the main control room;	When using portable phones, the operators are mobile in the control room and/or in the field, making is easier to check the status of equipment when talking on the phone with (field) operators or maintenance personnel. When using head phones, control room personnel can use its hands in a free way, manipulating	Yes			

			equipment during tests, holding procedures, etc.				
9.	4.36	4.36. Factors that should typically be noted and reported by shift personnel include: – housekeeping, for example the condition of components, sumps, thermal insulation and painting, obstructions, strange or unusual smell or odour, posting of signs (especially emergency signs and postings) and directions in rooms, posting of routes and lighting, and posting and status of doors; Deviations in fire protection, such as deterioration in fire protection systems and the status of fire doors, penetrations in fire walls, accumulations of materials posing fire hazards such as wood, paper or refuse and oil leakages, or non-radiation safety problems such as leakages of fire resistant hydraulic fluid9, hazardous equipment and trip hazards.	Strong smell of chemical products like H_2SO_4, NH_3 can be an indication of a leak or a malfunction of equipment. Special attention for emergency signs It's also important to check penetrations in walls: are they closed according the plant expectations, so fire compartments are intact?	Yes	No need to distinguish strange and unusual, smell and odour and types of signs and postings. Walls are not the only barriers. We usually have also fire rated ceilings and floors. Paragraph 4.36 was modified: "4.36. Factors that should typically be noted and reported by shift personnel include: – housekeeping, for example the condition of components, sumps, thermal insulation and painting, obstructions, unusual smell, posting of signs and directions in rooms, posting of routes and lighting, and posting and status of doors; Deviations in fire protection, such as deterioration in fire protection systems and the status of fire		

					doors and dampers, fire rated barrier penetration seals, accumulations of materials posing fire hazards such as wood, paper or refuse and oil leakages, or non-radiation safety problems such as leakages of fire resistant hydraulic fluid9, hazardous equipment and trip hazards."		
10.	4.40	4.40. Adequate means should be used to log data from field operator rounds on log sheets and in computerized databases. Log sheets should specify the list of measurements, ~~and~~ reference values and operational limits necessary to assist the field operator in assessing any reading taken in the field.	A parameter deviating from its normal value doesn't mean the value exceeds its limits. Adding the OLC in the log book of the field operator makes it easier for him to report errors and unavailability's to the control room.			Yes	Operational limits are important for MCR crew and are measured in MCR.
11.	4.41	4.41. The timely and proper conduct of operator rounds should be controlled by the control room staff. The control room staff should be aware of the activities performed by field operators and should stay in close communication with them at all times. The results of the rounds should be reported in a timely manner, exceedance from the OLC's should be reported immediately to the main control room, and the control room operators should review the log sheets periodically. An analysis of trends should be carried out when important parameters show drifts.	A deviation from the normal value isn't always a problem. But when the value exceeds it limit, this should be reported immediately to the control room and shift super visor			Yes	Paragraph 4.35 fully covers this concern.

12.	4.42	4.42. The shift supervisor and control room operators, when properly relieved or not on shift, should spend some time walking through the plant and observing field operators carrying out their activities. These observations should be appropriately documented, include giving feedback to the field operator and, when necessary, corrective actions should be developed, prioritized and tracked. Best practices include documenting minimum requirements as a basis for written field observations.	Not giving feedback to the field operator and telling him/her what he did good/wrong, can be interpreted as spying, which may decrease confidence between the staff and the management.	Yes			

COMMENTS BY REVIEWER				RESOLUTION			
Guide: NS-G-2.14 Reviewer: M-L Järvinen Country & Organization: Finland - STUK			Page 8 Date: 28/05/2019				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	General	IAEA should consider developing a process for simultaneous development or revision of several safety guides. Lessons learned from the revision of the Safety Requirements after Fukushima Dai-ichi accident 2011 should be used in developing this process.		Yes	The team have been working like this. Lessons learned from the revision of the Safety Requirement were followed. DPP was developed based on this experience.		
2.	General	IAEA should consider presentation of the recommendations for maintenance only in one safety guide. The new safety guide for ageing management and LTO, SSG-48 presents current, updated recommendations for maintenance. The safety guide NS-G-2.6 and SSG-48 are overlapping.				Yes	Comment not relevant for NS-G-2.14.
3.	General	Development of procedures for accidents in NS-G-2.2 is overlapping and may be conflicting with SSG-54. The new accident management guide SSG-54 should be		Yes	Paragraph 5.31.E was cropped. New paragraph was added:	Yes	Contradictions between what is written in SSG-54, NS-G-2.2 and NS-G-2.14 have been

		considered also in other relevant safety guides in this set. IAEA should consider presentation of the recommendations only in one safety guide.			5.31F More information can be found in Ref. Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards No. GSR Part 7 [12C]. Detailed guidance on accident management, including severe accident management, is provided in the guide on Accident Management Programmes for Nuclear Power Plants, Specific Safety Guide Standards Series No. SSG-54 [12B]. Reference 12B was modified as: [12B] INTERNATIONAL ATOMIC ENERGY AGENCY, Accident Management Programmes for Nuclear Power Plants, Specific Safety Guide IAEA Safety Standards		checked and there is no such case. There is some overlapping but this is because severe accidents are viewed from different perspectives in each guide. The guides are in no way "competing" on the subject. The overlap that exists is necessary in order to fully cover the subject of each guide.

					Series No. SSG-54, IAEA Vienna (2019).		
4.	General	Core management section is overlapping in NS-G-2.5 and in DS488. IAEA should consider presentation of the recommendations only in one safety guide.				Yes	Comment not relevant for NS-G-2.14.
5.	General	It is not clear from the guidance which safety requirements are covered by each safety guide. There should be a transparent and systematic way of presented the covered safety requirements in each safety guide. As a part the allocation of the requirements made for DPP DS497 should be utilized.		Yes	New paragraph 1.1A was added. Also, to reflect DPP requirements paragraphs 1.1, 2.8, 5.17, 5.6, 6.21, 6.22, 7.2, 7.34 were changed.		
6.	General	Safety-security interface should be implemented to all of the safety guides in a systematic manner. Some guides do net even mention the word security. The set of safety guide demonstrate the need for guidance on the management of the safety-security interface. Presently the safety guides give references to security guides and vice versa. However, there is not always a suitable guide to reference for instance for safety-security interface in change management. The utilization of the synergies of implementation of safety security interface should be emphasized. There is need for a specific guidance on safety security interface management.				Yes	Addressed consistently with the DPP scope. In addition, it is in contrary with comments No. 2, 3, 4 and 5. Please, see answer in the resolution table of the NS-G-2.4 for this comment.
7.	General	The terminology should be harmonized. There are several examples of the harmonization needs in the safety guide specific comments. The examples concerning the term risk are collected for safety guide NS-G-2.6. However similar review should be made for all of the safety guides and the use of term risk should be systemized.				Yes	This is out of the scope of the DPP. The word “risk” (or risks) is used 20 times in the NS-G-2.14, all without any conflict with the

							interpretation of the term in the IAEA Safety Glossary. In the IAEA Safety Glossary, “risk” is mentioned 93 times! Words used have to the extent possible been checked against the IAEA Safety Glossary.
8.	General	Please check the terminology used in the NS-G-2.14 and align that with in the SSR-2/2 Revision 1. Terms staff and personnel used, harmonization. Phrases such as high performance standards, high standards in safe operation of the plant.				Yes	Personnel in general refers to a body of persons employed in an organization. Staff refers to persons who are in positions to discharge supporting function. But in SSR-2/2 Revision 1 both words are used in both meanings as well as in NS-G-2.14. In SSR-2/2 Revision 1, the phrase “safety performance standards” is used two times in one paragraph 4.2. In NS-G-2.14, the phrase “high performance

							standards" is consistently used multiple times in different paragraphs. The phrase "high standards in safe operation" is not found.
9.	1.7	Section 2 focuses on the organizational and administrative aspects of the operations department. Section 3 provides recommendations relating to the shift complement of operators and their duties. Section 4 provides recommendations on shift routines and on good operating practices. Section 5 provides recommendations for the control of plant equipment and of the plant status. Section 6 provides recommendations on the use and maintenance of facilities for operation and operator aids, and Section 7 provides recommendations on work control and authorization.	Delete good; Recommendations are for good practices. There is no need for word good.			Yes	This is out of the scope of the DPP.
10.	2.29	The operations department should coordinate relevant activities with the organization responsible for security at the plant and for developing measures to reduce the vulnerability of the plant to malicious acts, to be able to utilize the synergies between safety and security (see also 5.6). More information can be found in Ref.[2].	Please check the reference. 5.6 mentions a few security measures. However, there is a whole security system to be coordinated with the operations. Appropriate references should be included.			Yes	The reference to NS-G-2.4 is correct. In the draft text of the revised NS-G-2.4 paragraphs 6.50A – 6.50D cover some aspects of Nuclear Security and give reference to specific guidelines. Security systems vary from state to state and all related matters cannot be and should not be

							covered by this guideline. The most important are presented.
11.	5.6	See 2.29					See paragraph 2.29.
12.	7.3	Recommendations on the authorizations, permits and certificates referred to in paragraph 7.2 are provided in Ref.[9]. Ref. Radiation Protection and Radioactive Waste Management in the Operation of Nuclear Power Plants, IAEA Safety Standards Series No. NS-G-2.7 [12] provides recommendations on permits for radiation work, waste minimization and radiological releases.	Please clarify and ensure that SSR-2/2 Revision 1 requirements are used for radiation protection guidance at the NPPs. According to IAEA webpages NS-G-2.7 has been superseded by GSG-7 and SSG-40. However, GSG-7 does not list NS-G-2.7 as one of the safety guides to be covered by GSG-7. In addition, SSR-2/2 Revision 1 requirements are not referenced in GSG-7.	Yes	Paragraph 7.3 was modified: Recommendations on the authorizations, permits and certificates referred to in paragraph 7.2 are provided in Ref.[9]. Ref. Occupational Radiation Protection, General Safety Guide, IAEA Safety Standards Series No. GSG-7 [12] and Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors, Specific Safety Guide, IAEA Safety Standards Series No. SSG-40 [12D] provide recommendationson permits forradiation work, waste minimization and radiological		SSR-2/2 Revision 1 references to GSR Part 3 in paragraph 5.10 (the first in "RP-chapter") and both new guides refer to GSR Part 3 also. Anyway, references between SSR-2/2 Revision 1, SSG-40 and GSG-7 are out of the scope of the DPP. Main requirements from SSR-2/2 Revision 1 regarding operations are covered: Req.20: in paragraphs 2.9, 2.28, 3.1, 4.27, 7.12, 7.23. Req.21: 5.46.

				releases. Reference [12] was modified: [12] INTERNATIONAL ATOMIC ENERGY AGENCY, Occupational Radiation Protection, General Safety Guide, IAEA Safety Standards Series No. GSG-7, IAEA, Vienna (2018). Reference [12D] was added: [12D] INTERNATIONAL ATOMIC ENERGY AGENCY, Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors, Specific Safety Guide, IAEA Safety Standards Series No. SSG-40, IAEA, Vienna (2016).		
13.	7.12	Work to be undertaken in controlled areas where it is possible that radiation levels or contamination levels may be significant	see 7.3 and General comment on NS-G-2.7			Yes	The reference [12] was modified.

		should be planned so that doses are kept ALARA. The radiation protection group should take part in the planning of any activities that might entail significant doses to workers and should advise on the conditions under which work may be undertaken in controlled areas and contamination zones [12].					
14.	2.28	~~Good~~ Effective interfaces should be established between the operations department and the radiation protection department. Operators should inform radiation protection personnel prior to commencing plant evolutions that have the potential to affect radiation levels at the plant or to necessitate action from radiation protection personnel.	Delete good; more descriptive adjective should be chosen.	Yes	Effective.		

COMMENTS BY REVIEWER **Guide: NS-G-2.14** Reviewer: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (with comments of GRS) Page 15 Country & Organization: Germany Date: 29/04/2019				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	2.6.A	This policy should ~~be based on~~ foster ~~maintaining~~ the independence between the levels of the defence in depth…	Clarification: "should be based on maintaining" is not a correct wording, the policy is based on the priority of safety (see para. 2.6). The intention of 2.6.A is correct.			Yes	"Should foster" is not the intention of this paragraph. In 2.6 policy should **establish** priority of safety, not to be based on.
2.	2.8.A	The operation~~al~~s personnel should assure the safe operation at all units at a multiple unit~~'~~s' site, …	This document is often using "operational personnel", as in this para, which is not correct. According to IAEA Safety Glossary from 2016 "operating	Yes	The term "operating personnel / crew /staff" is used 3 times in 2.3, 5.31D, 5.49; "operations personnel / crew / staff" is used 61		

			personnel" is a term. "Operations personnel" makes also sense. Please check the document and stick to one term.		times. Based on that paragraphs 2.8A, 2.13A, 7.38 and 7.39 (all are new) were modified: 2.8.A The operations personnel should assure the safe operation ... 2.13A. All the operations and shift technical support personnel should be familiar … 7.38 All operations personnel should be familiar with … 7.39 … Joint exercises between operations personnel and emergency services should be periodically performed …		
3.	3.3 Line 7	…. instructions, procedures and ~~behaviors~~ performance.	Clarification: we suggest to replace "behavior" by performance which is more general.			Yes	This paragraph defines field operator's performance. There is no need to be more

							general here. Behaviour is quite precise term in this case.
4.	4.13 Line 7	…. Sufficient overlap ~~between~~ at shift turnovers should be provided to ensure there is time to perform an effective transfer of the information.	Clarification	Yes	The text in paragraph 4.13 is changed: Sufficient overlap at shift turnovers should be provided to ensure there is time to perform an effective transfer of the information.		
5.	4.26	Administrative controls should be put in place to ensure that the operator prepares carefully for an activity by reviewing the procedure, in order to understand fully the procedural steps to be taken for correct performance of the activity or plant evolution. Special attention should be paid to independent checks and hold points in the procedure at which certain critical tasks are to be performed. When an operator…	Sentence removed from the existing version of NS-G-2.14. It would be useful to keep the sentence. These procedural hold-points are important to perform complex tasks.	Yes	This paragraph is modified as suggested. This removal from original text was done before consultancy meeting on June, 11-14, 2018		
6.	5.20.A	Surveillance activities should also cover the non-permanent equipment related to safety, ~~non-permanent,~~ for instance used to provide resources of electricity and residual heat removal.	Ref [9] gives more details for surveillance activities as stated in para 5.17. The key aspect of current para is the "non-permanent equipment", which should be more highlighted.	Yes	The text in paragraph 5.20A is changed: 5.20.A Surveillance activities should also cover the non-permanent equipment related to safety, used to provide resources of electricity and residual heat removal.		
7.	5.31.B And 5.31.C	~~5.31.B In the preventive domain, EOPs should be used. EOPs cover design basis accidents. EOPs should cover design~~	Both new paras. are more definitions than requirements. In addition,			Yes	This text is not a definition and is consistent with

		~~extension conditions without significant fuel degradation.~~ ~~5.31.C The SAMGs should be used for accident management activities in the mitigatory domain.~~	5.31.B is not correct for all NPPs (EOPs cover only BDBAs and not DBAs). We suggest to delete both paras.				paragraph 8.6 NS-G-2.2 (draft).
8.	7.17	The operations manager and safety engineer / technical advisor on duty should maintain oversight and awareness of the plant status during special tests or infrequent plant evolutions. In accordance with the rules and regulations some tests may need authorization by the regulatory body and for other tests the regulatory body must be informed before conduction of the test.	Information dealing with the regulatory body has been lost during the revision of current document. However, some test may even require authorization by the reg. body. Therefore, we suggest to add this sentence.			Yes	Please, see DDP: "All references to the involvement of regulators in the operational activities (commissioning, maintenance, operation, modification, etc.) currently available in the operational safety guides should be deleted.". This proposed sentence with "may" does not give a great value. These requirements to inform or get authorization from regulatory body vary from state to state.
9.	New headline 7.38-7.40	EMERGENCY SITUATIONS	Paras 7.38 -7.40 are new if compare with NS-G-2.14. We guess that a headline (title) is missing for these three paras, which are dealing with emergency situations.			Yes	These paragraphs are dealing with rescue of the personnel in emergency situations related to occupational safety, i.e. working at heights or in confined space. The term "emergency

							situation" is quite broad and using of this term as a title may make it ambiguous.

COMMENTS BY REVIEWER **Guide: NS-G-2.14** Reviewer: Gábor Sárdy Country & Organization: Hungary / HAEA			Page 19 Date: 24/05/2019	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	Page 13 bottom	Instead of "cognizant", I would use "aware"				Yes	"cognizant" means more / truly informed with real knowledge, than "aware". In the context of the paragraph, "cognizant" is better.
2.	2.8		Syntax error, not justified text			Yes	Any syntax errors found.
3.	Page 16 bottom		2 typos: "…"	Yes	The second dot was deleted.		
4.	2.13 par. ending		Typo: "…"	Yes	The second dot was deleted.		
5.	3.8	Instead of "For core alterations for reactors" use: "For core alterations **of** reactors"				Yes	This text is not new (from original NS-G-2.14) and, consequently, passed English check.
6.	4.9	Instead of "manoeuvre" use "action/operation"				Yes	"manoeuvre" is not a synonym for "action/operation". In this paragraph this word means the change of status and can be replaced with "evolution". But this

							text is not new (from original NS-G-2.14) and, consequently, passed English check.
7.	4.40	Instead of “assessing” use “evaluating”				Yes	The full phrase is: *“Log sheets should specify the list of measurements and reference values necessary to assist the field operator in assessing any reading taken in the field.”* “Assessment” means comparison with known values. “Evaluation” means analysis and finding a value. In this context “assessment” is much better.
8.	6. par. title		Syntax error			Yes	There is no syntax error. This is a MS Word visualisation deviation (after turning on show of hidden symbols we can see a “space” symbol between “operations” and “equipment”).

COMMENTS BY REVIEWER				RESOLUTION			
Guide: NS-G-2.14 Reviewer: Country & Organization: Japan / NRA			Page 21 Date: 09/05/2019				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	5.43	All operators should be trained to look for temporary modifications in the course of their rounds and tours of the plant.	Clarification of difference among "rounds", "tours" and "walk down". These three are supposed to be identical action.	Yes	Walkdown/Tour and Round are different terms. Walkdown is an action when a manager is going in the field to check something. The route of the walkdown can be not closed (not "round"). "Round" is cyclic action, performed with set periodicity when a person uses predefined route. So, Walkdown and Tour can be applied to managers and Round is more about field operator activity. None of these words are mentioned is the IAEA Safety Glossary. In SSR-2/2 Revision 1: "walkdown" is used in paragraph 4.35 (for managers' activities),		
	~~6.16.B~~ 5.16.B	FME observation and reporting should be part of the field operators and managers~~-~~tours.		Yes			
	7.34	The shift supervisor and the operations manager should conduct periodic walkdowns in the plant to observe the tagging process and the process for bringing equipment back into service, and in particular the process for filling and venting a drained system or component in a manner that ensures the industrial safety of field operators.		Yes			

					“round” and “tour” are not used. In NS-G-2.14: “round” is used 10 times including chapter title, “walkdown” is used 1 time in paragraph 7.34, “tour” is used in paragraphs 5.16.B (which is new) and 5.43. Based on that “tour” is replaced with “walkdown” in paragraph 5.16.B; “and tours” is deleted in 5.43 and 7.34 left without changes.		

COMMENTS BY REVIEWER **Guide: NS-G-2.14** Reviewer: Country/Organization: Poland / PGE EJ1			Page 9 Date: 15/04/2019	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1	2.7/5	The assignment to operate control panels at the main control room ~~keys~~ or equipment local control panels in the ~~field~~ in-plant working areas should be specified in administrative procedures.	Editorial comment. It is unclear that does the terms “keys” and “field” means in this certain case. Proper terminology used in other guide paragraphs should be adopted.			Yes	“To operate” in this context means to manually change position of something. We can change position of a key or button (to press it) but cannot change position of the panel.

			Alternatively, paragraph 2.7 could be rewritten following way: *"The assignment to operate main control room or control the equipment and process that could affect plant conditions at the local control panels/consoles should be specified in administrative procedures."*				Except control panels in the in-plant areas we have electrical equipment, valves etc. which are operated manually.
2	2.11/4	The shift operator crews should be staffed in such a way that a sufficient number of authorized operators[2] and other staff are available for the reliable accomplishment of assigned tasks in all operational states and accident conditions, as well as for ensuring fire protection..	Editorial comment. Ending of sentence doesn't fit to the rest part of sentence: *"The shift operator crews should be staffed in such a way… as well as fire protection"*. Might be that part of the text was lost. Staff should be available either for ensuring fire protection, or either for accomplishment of assigned tasks during fire external or internal events. Also, it should be noted that both paragraph 2.11 sentences ends with double dots thats might indicate that some other sentences were deleted.			Yes	If we understand "accomplishment" as realization, then the phrase can be read as *"… authorized operators and other staff are available for the reliable accomplishment of … fire protection"*.

3	2.13.A	~~All the~~ The operational and shift technical support personnel should be familiarized with or trained regarding the safety analysis aspects relating to those activities that they are directly and indirectly responsible for. The degree of familiarization with safety analysis reports and knowledge level of the main aspects of safe nuclear power plant operation should depend from operational personal direct and technical support personnel indirect involvement in operation of the systems, structures, components important to nuclear safety and radiological protection.	This requirement requires additional clarification regarding the degree of knowledge or familiarization with safety analysis. For operation personnel and for various technical support personnel this degree of familiarization should be different depending from the activities performed. Operational control room shift personnel should be trained on the main aspects of safety analysis, as well as on the limits and conditions of safe power plant operation. Technical support personnel responsible for nuclear safety, nuclear fuel and reactor core should have the highest knowledge of the safety analysis, be capable of providing independent review of the safety analysis reports and performing internal safety analysis. The rest of the operational shift personnel and shift support technical personnel should be familiarized with safety	Yes	It is not always possible to set or to assess a degree of familiarization. And new proposed sentence doesn't add significant value to original text. The paragraph was modified as: "2.13.A All the operations personnel and technical support to the shift should be familiarized with or trained regarding the safety analysis aspects relating to those activities that they are directly and indirectly responsible for."		

			analysis on the level related to their activities influence to nuclear safety and safe nuclear power plant operation. Due to said above it is recommended to extend and supplement paragraph 2.13 with additional details clarifying the required level / degree of knowledge / familiarization with safety analysis for different operational staff and different technical support staff.				
4	4.11/4	… For multiunit plants ~~with multiunit control rooms~~, operators ~~on~~ at control rooms of the units that are unaffected by the event or the transient operational state should continue to monitor their units routinely and should not allow themselves to become distracted. For multiunit power plants ~~C~~crewing structure of ~~multiunit~~ each unit control room~~s~~ should specifically consider and mitigate the risk of distraction during faults or transients on individual units.	The concept with single control room for multiunit Nuclear Power Plants historically was not proved as good choice of the design or best practice, particularly for the reasons mentioned in original text of the recommendation, as well as due high risk of common cause events and failures at multiunit control room which would affect operation of all the power units. Considering that nuclear safety guide purpose is to provide recommendations based on best historical			Yes	The objective of this standard is (paragraph 1.4): "The objective of this publication is to provide Member States with recommendations to ensure that plant operations are conducted in a safe, effective, thorough and professional manner, in accordance with the requirements established in Ref.[1] and, where possible, best international practices"

			practices and requirements for future nuclear power plant designs and project developments based on high nuclear safety standards, it is proposed to reconsider the purpose of the paragraph 4.11 in general and the applicability of the single multiunit control rooms designs in particular. It should be noted, that no SSR-2/1, no SSR-2/2 Revision 1 provides any requirements or recommendations which would consider authorization of the design and/or operation of the nuclear power plants with single multiunit control rooms.				That means that standard must be used not only for the new plants but also at existing plants. Recommendations for design of MCR are out of the scope of this guideline. But for existing NPPs with multiunit MCR this paragraph has a great value. For NPPs with separate MCRs for each unit this paragraph is almost not applicable both in original version and in proposed.
5	4.12/4	… If, after the pre-job briefing ~~has been performed~~ and familiarization with the planed complex or infrequently performed task, the operator ~~does not feel confident~~ sees that the activity cannot be conducted safely and efficiently he must report to the operation management about concerned factors. ~~, the~~ The activity ~~should not~~ might be commenced ~~and,~~ only when concerned factors are eliminated or, with the involvement of the operations management, other options ~~should be sought~~ to perform the task are considered and approved.	Operators lack of confidence should not be the case for not commencing the activity. Unconfident operator might be replaced. Complex or infrequently performed tasks, such as plant heat-up, startup and shutdown, physical tests, cooldown and refueling might be performed after activity safety analysis,			Yes	This comment totally changes the intention and meaning of the original text. If operator has any doubts before commencing the work he must request clarification of broader explanation from the person, performing PJB. This is one of objectives to perform PJB.

			safety justification, operation management approval, regulatory body authorization if necessary, as well as operators familiarization with the task strictly in accordance with approved procedures or action programs. If operator sees factors which might disrupt the performance of approved activity, he must report to the operation management, and act according to written procedures. Operator may stop performing task if further actions may result in human health disorder, equipment damage or breach of nuclear safety and radiological protections. Due to said above, considerations regarding operators lack of confidence should be removed from the paragraph 4.12 and replaced by the consideration of the factors affecting the performance of the task.				Lack of confidence may arise from lack of knowledge or experience of a particular operator but not because of wrong procedure or dangerous conditions. Usually there's no need to report to operations managers on any operator's doubt. Such kind of report should be done if all the team have not confidence in safety. Approvals and authorizations before activities, as well as disruptions during activity are considered in other paragraphs. Consideration of the factors affecting the performance of the task is a part of PJB (see paragraph 4.27).
6	4.21/3	Operating procedures are a key element for ensuring compliance with the Operational Limits and Conditions. The policy at the	Incorrect understanding of procedures may result in inappropriate actions			Yes	In some member states there are more than one official language and

		plant for the use of operating procedures by the operators should be clearly established and communicated. These procedures should be translated into the mother tongue of the operators.	(mainly in emergency situations).				multinational environment. Having several versions of a procedures can cause errors and misunderstanding. Mother tongue of a particular operator can be different from mother tongue of other plant staff. We cannot tell member states to select people based on their mother tongue. Also, we have examples when procedures in language which is not mother tongue in the country are used for many years (i.e. NPP Krsko in Slovenia or NPP Metzamor in Armenia, also NPPs in Ukraine, UAE, etc.). Operating procedures are developed by the plant or utility according their local requirements. The utility can decide itself which language to use.
7	4.31.A/13	– Communications by hand-held radio between field operators and operators in the main control room should be short and concise. For instance, radios should be used	Usage of hand-held radio communicators or other mobile communication devices should be			Yes	There is no need to duplicate requirements from paragraph 6.11 here.

		for the initial call-up and the call should then be switched to telephones where possible;	justified in particular regarding used frequency and signal strength. The absence of any potential radio device interference with nuclear power plant systems, components, equipment and instrumentation should be justified and ensured. The areas where usage of radio and/or mobile communications devices are forbidden or restricted should be defined in safety analysis. Due to said above it is proposed to add a footnote regarding potential hazards and restrictions of radio communication devices usage at nuclear power plant with the text similar to paragraph 6.11.				
8	4.34/1 4.35/1	Rounds [?] should be conducted regularly by the operators to identify actual and potential equipment problems and conditions that could affect the functioning of the equipment. The frequency of equipment inspections should be determined on the basis of the safety significance… Personnel assigned the task of carrying out rounds should be made responsible for verifying that operating equipment and	Meaning of the term "round" is unclear. From what is written it looks like by "rounds" are understand "in-service inspection" and/or "surveillance" It should be noted, that IAEA glossary does not provide any definition of the term "shift rounds".			Yes	See comment from Japan.

		standby equipment operate within normal parameters…	Due to said above proper definition of the used term "shift rounds" should be provided or used another proper term according to IAEA glossary In the last case, term "rounds" should be replaced in the entire guide.				
9	4.42/1	The shift supervisor and control room operators, when properly relieved or not on shift [?], should spend some time walking through the plant and observing field operators carrying out their activities. These observations should be appropriately documented [?] and, when necessary, corrective actions should be developed, prioritized and tracked.	This recommendation is doubtful with hardly understandable logic. It is unclear how control room operators might be involved into field operators activities observation at the place, out of their shift/working hours, performing documentation and corrective actions development. Control room operators should stay at the control room including designated rest area during entire shift and as such should not be relieved during shift to go observe field operators actions at place. It is unclear how to perform these observations after the shift or before the shift as well. Meaning of the term			Yes	This is normal situation to have MCR operators at the plant but not on shift. Usually the plant has additional shift teams to ensure ability for training or substitution in case of vacations or illness. And there can be a situation when operator from this extra shift is not on training or vacation. Also, during the outage, reactor operators in some plants have a responsibility to perform walkdowns and observations. Results of walkdowns and observations are usually documented in computer-based systems. Original text does not require from operator to develop corrective

			"not on shift" is unclear for this particular case. There are several issues, which need to be explained, including but not limited to: "not on shift" control room operators transportation to/from NPP out of regular transportation schedule; nuclear security and control room operators access to restricted zones; industrial security during observation of field activities, etc. It is unclear how control room operators could document observations of the field operators activities, identify inconsistencies and develop corrective actions. Should that even be a control room operators responsibility to develop corrective actions for field operators activities? **This should be clarified in paragraph 5.19 as well.** Proper walks through the nuclear power plant, observation of field operators activity and identification of				actions. But anyway, MCR staff can be involved in such development.

			inconsistencies should be carried out by power plant operation management staff, not the control room shift operators (see 5.16B, 7.34). Due to said above the purpose and logic of the paragraph 4.42 should be revised considering the real control room shift operators duties, the psychological pressure on them during shift, and their capabilities to perform additional tasks (make a walks through plant and document field operators activities) after their shift time.				
10	Section 5	**5. CONTROL OF EQUIPMENT AND PLANT STATUS**	Editorial remark. Section 5 title should be moved from the bottom of page 36 to the top of page 37, or at least one single paragraph 5.1 should be written bellow the section title.			Yes	Fonts, paragraph numbering, spelling, etc. will be checked and corrected by IAEA staff in the final editing process.
11	5.16.B/2	The operations staff should be trained in FME programme requirements. FME observation and reporting should be part of the field operators surveillance activities and plant operation managers periodic observing walkdowns through the plant ~~tours~~ [?].	The usage and the meaning of the term *"field operators and managers tours"* is unclear in this particular case. Proper definition of the term "tour" should be	Yes	See comment from Japan.		

			provided, or clarification regarding performed action should be presented. It should be noted that in the paragraph 7.34 the term *"periodic walkdowns in the plant to observe"* is used. The guide should be screened for the term "tour" usage and relevant clarifications should be provided in the entire document as applicable.				
12	5.19	Departments other than the operations department should be assigned responsibilities by management to develop individual surveillance test procedures, specify the appropriate frequency of testing, complete some of the testing and identify acceptance criteria, as well as to develop corrective actions if necessary, prioritize and track their implementation.	It should be clarified who will retain responsibility for the correction action development, prioritizing and tracking if inconsistencies will be identified during surveillance tests or observing walks through the plant (see the comment for paragraph 4.42).			Yes	Detailed requirements on surveillance tests are given in NS-G-2.6 including evaluation of results and corrective actions. Paragraph 5.17 gives reference to NS-G-2.6 and also considers trending of results. The intention of 5.19 – to clarify that operations department should remain responsible for the scheduling, accomplishment and control of results of surveillance test. Organization of technical support at the

							plant is out of the scope of this guideline.
13	5.38/4	After other necessary approvals have been obtained, temporary modifications should be made subject to the approval of authorized operations personnel prior to their implementation. The shift supervisor should be given the authority to veto any temporary modification or test ~~according to a~~ considering current status of the nuclear power plant and personal assessment of the Operational Limits and Conditions breach possibility. The nuclear power plant management should have the authority to reject shift supervisor's veto to implement temporary modification after confirming the nuclear safety and radiation protection, as well as after appropriate corrective actions development if necessary.	Shifts supervisor's right to veto any temporary modification or test should be clarified in more details. What is the reason for veto, what is duration of the veto. Can somebody reject the veto? What if temporary modification may be the only way to perform maintenance work on the equipment, etc. Why authority to veto temporary modifications is mixed (joined) with authority to veto some tests? This is 2 different issues. The right to veto of the tests might be separated to different proper paragraph.	Yes	There is no need to clarify a term "personal assessment" because except the plant status and OLCs shift supervisor may consider other matters: readiness of temporary procedures, schedule of activities, radiation conditions and so on. The term "nuclear power plant management" is very unclear and broad. Paragraph 5.18: "Initiation of a surveillance test should be subject to prior authorization by the shift supervisor…" Paragraph 5.38 is modified: "5.38. Operations personnel should participate in evaluations and reviews of temporary modifications prior		

					to their implementation. Reviews should verify that temporary modifications will not cause approved operational limits to be exceeded and are appropriate for the current plant configuration. After other necessary approvals have been obtained, temporary modifications should be made subject to the approval of authorized operations personnel prior to their implementation. The shift supervisor should be given the authority to veto any temporary modification according to a personal assessment. Further actions after shift supervisor's veto should be defined in the plant procedure."		

14	5.43/1	All operators should be trained to look for temporary modifications in the course of their ~~rounds~~ [?] in-service inspection and ~~tours~~ [?] surveillance observation of the plant systems, structures and components.	Meaning of the terms "rounds" and "tours" is unclear in this particular case (see comments for paragraph 4.34, 5.16B).	Yes	See comment from Japan.		
15	6.4/1	The habitability of the control room should be maintained in good condition so as to ensure maximum Occupational Health and Safety at the same time (e.g. elimination of fluorescent lamps, the breakdown of which would be associated with the spread of poisonous substances)	The threats to work safety in the control room should be eliminated, as they can result in stress and consequent wrong actions of the operators.			Yes	Paragraph 6.1 (chapter CONDITION OF CONTROL ROOMS AND PANELS): "Overall plant cleanness, good lighting and good environmental conditions are important attributes of the operation of a plant and efforts should be made to maintain these." No need to duplicate this in other words.
16	6.21/3	Plant evacuation routes should be well lit and clearly marked by luminescent signs and direction arrows and should not be obstructed by material or equipment of any kind.	There must be a possibility to use evacuation routes in the dark in case if lighting, including emergency lighting, goes off.	Yes	As one of objectives of the guideline is to provide member states with best international practices, paragraph 6.21 was modified: "6.21. Means of radiation protection, ~~industrial safety~~ non-radiation-safety related, emergency first aid and fire protection should be		

					adequately distributed in the plant, well-marked and available to support all modes of plant operation. Plant evacuation routes should be well lit and clearly marked and should not be obstructed by material or equipment of any kind. Best practices include the use of luminescent signs, direction lines and arrows for evacuation routes to maintain its visibility in case of absence of the lighting.”		

COMMENTS BY REVIEWER **Guide: NS-G-2.14** Reviewer: Rogatov D., Sviridov D. Page 37 Country & Organization: Russian Federation / SEC NRS Date: 29/04/2019				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	2.8, 5.25	Item 2.8 states: “The nuclear power plant should be maintained in a safe condition by deliberate control and monitoring to ensure that fundamental safety functions (such as control of reactivity, removal of heat from the reactor and from the fuel store, and confinement of radioactive material) are fulfilled.”	Text enhancement	Yes	Proposed modified text: “CONTROL OF CORE AND FUEL STORAGE COOLING		

		However, in section 5 there is only a chapter "Control of core cooling". **It's recommended to add provision on control of fuel cooling in spent fuel pool**.			5.25.B The operations personnel should at all times, be assured that the status of core and fuel storage cooling is known and clearly understood. All plant configuration changes should be controlled by the operations personnel to ensure that core and fuel storage cooling is provided continuously. If, for any reason, there is concern or uncertainty about the core or/and fuel storage cooling function, direct and timely action should be taken to establish what are the circumstances and the actions that should be taken to ensure core and fuel storage cooling."		

COMMENTS BY REVIEWER **Guide: NS-G-2.14** Reviewer: V. Maree Country & Organization: South Africa / National Nuclear Regulator			Page 39 Date: 06/05/2019	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for rejection
1.	Introduction	Legal Framework: Legislation and Regulation • Regulatory documents; • License conditions Principles.	For consistency, legal framework and principles must be added.			Yes	It is not clear consistency with what? Please, see DDP: "All references to the involvement of regulators in the operational activities (commissioning, maintenance, operation, modification, etc.) currently available in the operational safety guides should be deleted."
2.	Management and Organization of Plant Operations	Roles and Responsibilities of Plant Manager and Operation (OPS) Manager	Not defined in the draft document.			Yes	Responsibilities of ops department are described in detail in paragraph 2.3. Responsibilities of the Ops manager are described in paragraph 2.4. Organizational structure of ops department may vary from plant to plant, from country to country as well as responsibilities of plant manager and

							operations manager. We cannot require strict roles for these positions.
3.	Shift Routines and Operating Practices	Management of risks associated with work duties	Not included in the draft document.			Yes	The standard mentions that risks should be managed in multiple paragraphs: 2.26, 4.11, 4.30, 5.15, 7.1, 7.2, 7.10, 7.18-7.20 and others. Paragraphs 4.12, 4.27 require to discuss risks before activities as a part of pre-job briefing. The purpose of this standard itself – to reduce risks associated with operations duties. Overall risk management is a part of QA programme.
4.	Shift Routines and Operating Practices	Procedures Emergency Operating	Not included in the draft document.			Yes	Paragraphs 5.31 – 5.31.E cover EOPs. Detailed arrangements for emergencies are given in NS-G-2.2, SSG-54, GSR Part 7.
5.	Control of Equipment and	Safety culture	Not included in the draft document.			Yes	Safety culture is mentioned several times.

	Plant Status						Some aspects, such as human error prevention tools use, are covered.
6.	Operations Equipment and Operator AIDS	Control Room Habitability	Not included in the draft document.			Yes	Control Room Habitability is mentioned in paragraph 6.4 and covered in detail by SSR-2/1 (req.65), SSR-2/2 Revision 1 (7.7, 7.8), SSG-54 (3.51).
7.	Work Control and Authorization	Limits and Conditions (LCO's)	Not included in the draft document.			Yes	OLC are covered by NS-G-2.2. In this draft OLC are discussed in multiple number of paragraphs: 2.8, 2.9, 4.21 and others.
8.	Work Control and Authorization	Non-radiation safety vs industrial safety	The previous version of the document including the industrial safety. It is not clear, what is the difference.			Yes	It is based on SSR-2/2 Revision 1, Requirement 23.
9.	Work Control and Authorization	Management of Emergencies; Reviews and Assessments on site and off site (Peer reviews and Regulatory reviews)	Not covered in this draft document.			Yes	Management of Emergencies is covered in paragraphs 5.31 – 5.31.E and in SSG-54. Please, see DDP: "All references to the involvement of regulators in the operational activities (commissioning,

							maintenance, operation, modification, etc.) currently available in the operational safety guides should be deleted.”. Peer reviews are out of scope of this standard and covered by other standards in the areas of leadership and management and operating experience.