WNA/CORDEL Comments on: DS 446 Commissioning for NPP, Draft 5

27 May 2011

COMMENTS BY REVIEWER					RESOLUTION		
Reviewer: contact: Irina Borysova [borysova@world-nuclear.org] Page..1.. of.35. Country/Organization: WNA/CORDEL Date: 27 May 2011							
Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	1.01	~~1.1 This Safety Guide was prepared under the IAEA programme for safety standards for nuclear power plants. It supplements and elaborates on Section 4 of Safety of Nuclear Power Plants: Operation [1] on safety requirements for the commissioning of nuclear power plants.~~ It is based on the IAEA Safety Standard for "Safety of Nuclear Power Plants: Commissioning and Operation" [1] and it concretizes the respective specific safety requirements on commissioning due to recommendations of cumulated best practice. This Safety Guide ~~is a revision of~~ replaces the IAEA Safety Guide on Commissioning for Nuclear Power Plants which was issued in 2003 as Safety Series No. NS-G-2.9.	The new relevant reference (Specific Safety Requirements, SSR 2/2) which will be published soon to replace NS-R-2 (2000) should be referred here. Further IAEA Safety Standards, e.g. SSG-12 "Licensing Process for Nuclear Installations", (2010), should be considered avoiding repetitions or inconsistencies and it should be mentioned in the reference list.	Accepted (This Guide has not published yet)			

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2	1.02	1.2 The revision ~~of the Safety Series publication No. NS-G-2.9~~ process was ~~conducted according~~ also oriented to the following: ~~• the technical content of the original Safety Guide was kept largely unchanged and updated where necessary;~~ ...	The whole para. 1.2 should be revised considering the relevant requirements in the new SSR 2/2 and if necessary additional particularities.	Accepted (This Guide has not published yet)			
3	2.03	2.3 The commissioning has the objective to demonstrate that the NPP as constructed meets the design requirements and the safety requirements as described in the safety analysis report. For the achievement of future safe and reliable operation of the plant, the commissioning process should ~~also allow~~: • to validate those operating and surveillance procedures for which the commissioning tests provide representative activities and conditions. • to verify by trial use, to the extent practical, that the facility operating procedures and the emergency procedures are adequate. • to familiarise the NPP's operating, maintenance and technical staff with		Accepted			

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		the operation and management of the power plant.					
4	2.04	COMMISSIONING PROGRAMME	The entire part "COMMISSIONING PROGRAMME" should be compared and adjusted to be adequate to **SSR 2/2**, Section 6: **Requirement 25**: **„Commissioning programme“**, **“The operating organization shall ensure that a commissioning programme is developed and implemented.”** and the further detailed requirements described in para. 6.1 to 6.15.	Accepted (This Guide has not published yet)			

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5	2.08	2.8 The commissioning programme should be structured so as to ensure that: - milestones where the regulatory body authorization ~~are~~ is required to proceed in the process of commissioning		Accepted			
6	2.15	2.15 The commissioning programme should be prepared in the frame of the existing Management System giving proper consideration ~~of~~ to all management aspects.		Accepted			
7	2.27	2.27 For multiunit sites the following provision should be taken: c. Special provision should be made to ensure that the safety of a unit already in operation is not jeopardized in the commissioning tests of another unit. Such provisions should include conducting a hazard assessment and obtaining the prior approval (if required) of the regulatory body, in accordance with national practices and specific written approval from the manager responsible for the operating unit.	This statement needs to be softened in order to be compatible with different national regulations.	Accepted			
8	3.21	3.21 The responsibilities of the operating organization should include: — ... — to arrange for the required submissions to the regulatory	This statement needs to be introduced in order to be flexible with different national	Accepted			

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		body at the approved stages hold points and milestones and to comply with its requirements, in accordance with national practices;	regulations.				
9	3.22	3.22 In discharging these responsibilities, various methods may be adopted by the management of the operating organization. The essential tasks in achieving the necessary co-ordination are as follows: — ... — to make available, ~~since~~ from the start of commissioning phase, operating, maintenance and technical staff for their familiarization with the operation and management of the NPP;		Accepted			
10	3.32	3.32 The responsibilities of the construction group in relation to the commissioning process should include the following: — ... — to provide, for use as baseline data, as-built documentation of installation construction and test certificates, highlighting design changes	Point was missed	Accepted			

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		and concessions; — Ensure that configuration control is maintained and that the effected system design basis documentation (including the FSAR (as required)) has been updated to reflect any design changes and/or concessions. — to transfer the installed systems to the commissioning group using a system of documents such as transfer certificates; — ...					
11	3.34	3.34 The responsibilities of the operating group at the plant in relation to commissioning should be as follows: — ... — to establish and implement a procedure for the systematic recording of plant data as results of commissioning tests ; — Establish and implement a procedure including organisational responsibility to maintain plant design and configuration control over the	Issue was missed. According to SSR 2/1 (safety requirements on design of NPPs), e.g. chapter 2, a formal process should be installed to maintain the integrity of the plant design throughout its lifetime controlled by a formally	Accepted			

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		operating life of the plant (concept of maintaining the integrity of plant design). This includes maintaining the safety analysis report current and up to date.	designated entity within the operating organization taking the responsibility.				
12	3.44	3.44 Concerning the responsibility of the commissioning group to repeat testing of systems that have been commissioned initially as partially installed, the following should be considered:		Accepted			
13	3.45	3.45 The following particular aspects should be considered in relation to the interface between commissioning and operating activities: — provisions in the definition of role, functions and ~~delimitation~~ delineation of responsibilities of operating group and commissioning group before transfer of structures, systems and components for operation			Accepted Delimitation means **distribution**		
14	3.49	3.49 The regulatory body should prepare a programme of review and assessment of the commissioning process. Before the start of commissioning, the regulatory body should review and approve the		Accepted			

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		commissioning programme as required by national practice. Where appropriate, hold points should be established in order to assess test results before regulatory authorization is given to proceed as required by national practice.					
15	3.50	3.50 Before authorizing the loading of nuclear fuel or initial criticality, the regulatory body should complete as appropriate the review and assessment of such aspects as: — .... — the adequacy of the arrangements for physical protection important to safety;	Clarification is needed. Is this a recommendation to ensure adequate arrangements for physical security of the plant against potential terrorist threats and to safeguard the new and spent nuclear fuel? If that is not what this bullet means then that needs to be added to this list.	Accepted			
16	3.54	3.54 The most important transfer of responsibility is the transfer of responsibility for safety and security. Special care should be taken to ensure that responsibilities for personnel, plant and safety and security are clearly		Accepted			

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		defined and rest with the appropriate organization. From the time of the arrival of nuclear fuel at the site, responsibility for safety and security should rest with the operating organization.					
17	3.55	~~3.55 Responsibility for systems should be transferred gradually to the operating group as soon as the testing~~ has been performed and results approved before the introduction of fissile and radioactive material (pre-nuclear). ~~tests have been performed and the results approved.~~ In this way operating personnel can carry out the inspection prior to acceptance in a thorough manner. Some systems (e.g. electrical systems) may be transferred, to operating personnel with responsibilities for operation only before the pre-nuclear tests have been performed and the results approved.		Accepted			
18	3.57	3.57 The following documentation should be included in the acceptance package for each system: — ... — acceptance packages from ~~the~~ construction (including welding inspection records);		Accepted			
19	3.60	3.60 A licensee should have human resource planning process in place to		Accepted			

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		ensure adequacy of organization during commissioning. This includes the planning of the organization and raising the ~~competences~~ competency of the staff during the commissioning. Adequacy of organization and ~~competences~~ staff competency needs to be assessed ~~in~~ on a continuous bases.					
20	3.61	3.61 The licensee organization might be a mix of own staff and a group of consultants. Licensee should have ~~a~~ systematic processes in place to train and monitor consultants. It is especially important to ensure that consultants have adequate competency from a nuclear know-how point of view.		Accepted			
21	3.66	3.66 A training programme should be developed to cover these aspects. The subjects that should be considered are: — ... — nuclear safety, industrial safety, fire protection, ~~and~~ radiation protection~~;~~ and security;		Accepted			
22	3.69	3.69 The training programme and trainees should be subject to periodic assessment, the results of which should be passed on to the commissioning manager and supervisors.		Accepted			

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23	3.77	3.77 The self-assessment of management should be implemented by the operating organization in order to evaluate the effectiveness of the performance of the commissioning programme in all areas for which ~~the~~ management has responsibility. The purpose of management self-assessment should be to evaluate known performance issues, to identify management aspects contributing to these issues and to make improvements. Guidelines for the conduct of ~~of the~~management self-assessment ~~of manageme~~nt can be found in Ref. [GS-R-3], and further details are in Ref. [GS-G-3.1].		Accepted			
24	3.80	3.80 The operating organization should take the necessary action to remedy, in a timely manner, any deficiencies revealed in the assessment process.		Accepted			
25	3.81	3.81 The provision of a consistent process for the management of non-conformances is a requirement of all safety management systems, and the process applies to the failure of components to meet their specified performance requirements and for larger systems to meet their requirements from the safety analysis or other performance		Accepted			

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		specifications. A robust system for recording and resolving non-conformances and for approving concessions, corrective and preventative actions is necessary. Refer to [GS-R-3] and [GS-G-3.1] for further information.					
26	3.82	Experience Feedback ~~of Experience~~ from Commissioning 3.82 The commissioning phase yields much information that should		Accepted			
27	3.89	3.89 A potential nuclear hazard could arise if an operating plant is adjacent to a construction site or a commissioning site. If this is the case, emergency arrangements should be made for the protection of ~~the~~ construction personnel and commissioning personnel. ~~Account should be taken in the emergency~~ Emergency arrangements should take into account ~~of~~ any other ~~any~~ local hazards.		Accepted			
28	3.90	3.90 All the parties involved in the commissioning programme should be trained appropriately to cope with any anticipated emergency at the plant ~~under~~ during commissioning.		Accepted			
29	3.94	3.94 Measures should be established to protect SSCs at ~~on~~ the site. Security	This sentence does not make clear what	Accepted			

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		access control should be established before initiating work affecting items important to safety.	security you are referring to...please clarify. There needs to be a distinction between industrial security which is in effect up to receipt of nuclear fuel on site and nuclear security which is in place once nuclear fuel is received on site.				
30	4.01	4.1 The implementation of commissioning activities should be initiated only after it is authorised by the regulatory body. One main document to be submitted (see Annex 2) in advance to the regulatory body is the Safety Analysis Report whose content will be updated according to commissioning results and will be subsequently submitted for an operat~~ion~~ing license.		Accepted			
31	4.03	4.3 The commissioning program should be implemented in stages (sub-stages) so ~~as~~ that at the end of each stage a review of the results can be performed to support the decision whether the commissioning		Accepted			

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		program shall continue to the next stage, or whether the succeeding stages need to be modified as a consequence of results obtained or because some activities in the stage have not been undertaken or have not been completed.					
32	4.04	4.4 The commissioning program should be implemented ensuring the compliance of the activities carried out with the established requirements of the management system developed and established by the Commissioning Organization. ~~In~~ To this end, all contractors, and subcontractors, involved in the commissioning process should ensure that their own arrangements ~~to~~ ensure quality meets the requirements of the management system.		Accepted			
34	4.05	4.5 According to different technology and possible construction processes, there ~~could~~ could be tests performed off-site on SSC ~~performed off-site~~ which need to be considered as part of the commissioning process. In such cases, specific justification should be provided showing the validity of the performed tests to the current installed conditions of the SSC and related functional and physical interfaces.		Accepted			

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35	4.0	4.6 The commissioning process should be documented in compliance with the licensee management system. The documentation showing the testing and results, analysis, deviations and dispositions should be kept for the lifecycle of the NPP ~~lifecycle~~.		Accepted			
36	4.08	4.8 Preparatory process for testing should clearly identify the test purpose and test objectives from the commissioning test program, with particular focus ~~of~~ on the safety objectives. The safety objectives should be clearly put in evidence in order to facilitate ~~the~~ regulatory review. The safety objectives are mainly linked with the identification of the safety functions of the SSC to be tested and the related safety requirements.		Accepted			
37	4.09	4.9 The scope of the test in terms of functions, parameters and requirements to be tested should be defined with indication of approach and methods applied for each relevant aspect. If the testing procedure will make use of results of already performed in-factory tests, this ~~has to~~must be defined and justified showing the validity and applicability of performed factory tests to the onsite physical and functional status of		Accepted			

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		equipment or system subject to the test and its interfaces with the rest of NPP.					
38	4.10	~~4.10 The acceptance criteria (against which the test results will be evaluated), their acceptability or the evidence of potential non-conformity should be clearly defined in the preparatory activity. The technical basis of the acceptance criteria should~~ be consistent with the safety objectives and requirements.			What is the comment?		
39	4.12	4.12 The acceptance criteria should be defined and justified in order to ensure that they do demonstrate~~d~~ the achievement of test safety objectives.~~,~~ This definition and justification should ~~taking~~ take into account the limitation of achieving site specific conditions for the commissioning test ~~test regarding feasibility of obtaining on site particular conditions~~ without impairing the plant, structure or equipment integrity. The acceptance criteria definition and justification should ~~or the need to~~ establish a link between the safety requirements to be demonstrated and the parameters measured during the test.		Accepted			
40	4.13	4.13 A list of the acceptance criteria that should be verified shall be available at		Accepted			

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		the end of each commissioning stage or sub-stage ~~stage shall be available~~, notably the acceptance criteria linked to safety concerns. ~~It is~~ This represents one of the main inputs to assess the ability to proceed to further commissioning stages.					
41	4.18	~~4.18 The development, verification and validation of commissioning test procedures~~ should benefit from the use of simulator or computer codes. ~~The use of simulator should contribute also to the preparation on specific relevant aspects of the team implementing the commissioning test~~.	Th is requirement is very confusing. Please rewrite this sentance so it is clear what is being required. It is not at all clear what is asking here.	Accepted			
42	4.19	4.19 The test procedures should state any necessary deviations/changes from the normal plant operating configurations. Examples of such deviations/changes may be temporary interlock bypasses, temporary additional interlocks, temporary system bypasses, valve configurations and instrument settings. The test procedures should also include all necessary checks that are needed to ensure that these deviations are made correctly. They should also include all necessary steps for the restoration of the systems and components to their normal status once the testing is		Accepted			

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		completed. Consistent with safety requirements, consideration should be given to minimizing such arrangements and to ensuring that any deviations from the normal functioning of the as-built systems do not invalidate the test objectives.					
43	4.20	4.20 Although the format of procedures may vary from plant to plant, the contents of test procedures should include, but are not limited to, the following: *c. Limiting criteria*- Applicable operational limits and conditions, including appropriate temporary operational limits and conditions, should be stated. In addition those plant limits and conditions which must be observed to prevent damage to plant should ~~be~~ also be included.		Accepted			

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44	4.29.	4.29 The start of a test of a SSC should require that certain other activities have been performed first, e.g., completion of construction, and/or preliminary tests, inspections, and certain other preoperational tests or operations. The typical prerequisites of the testing are as following: • construction and installation activities associated with the system to be tested have been completed and documented. • tests of individual components or subsystems to demonstrate that they meet their functional requirements have been completed. • surveillance tests necessary to demonstrate the proper operation of interlocks, set-points, and other protective features, systems, and equipment required by the specifications have been completed.	This requirement is repeated in greater detail below and should be deleted	Accepted			

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		• checkout of wiring continuity and electrical protective devices; adjustment of settings on torque-limiting devices and calibration of instruments have been completed; • all special conditions for the plant or system or status of equipment necessary prior to the commencement of testing using the procedure are implemented • all necessary jumpers, interlocks are installed for the certain testing configuration • all records for the temporary changes are made • required personnel are available • pre-test briefing is performed • testing and measuring devices are adjusted, calibrated and checked	here.				

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		~~• procedures checked for their validity~~ • field inspections have been made to ensure that the equipment is ready for testing, including inspection for proper fabrication and cleanness; • communication tools are available and checked for operability • availability of approved test procedures developed according to the design and with verified validity taking into account potential system changes ~~taken place~~ that have occurred during construction • written authorization, as required, should be issued prior to the commencement of the performance of the test or commissioning stage • documentation (state that all documentation showing the readiness for the test to					

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		be performed shall be issued and approved) • safety analysis (safety analysis of the NPP conditions during the test to be performed shall be carried out in advance and shall show the existence of acceptable safety conditions during the performance of the test), • compliance with regulatory authorization corresponding to what was envisaged in the commissioning program, to the hold points established by the regulatory body and also to specific conditions and request issued by the regulator, in accordance with national practices,	This should be added to be flexible to different national approaches.				
45	4.30	4.30 The starting of a commissioning stage or sub stage, as described in the commissioning program, should be based on the completion of the previous stage and fulfilment of pre-defined conditions. For instance the preoperational tests					

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		should be completed and the results of such tests evaluated and approved before proceeding to ~~the~~ fuel loading and subcritical tests.					
46	4.33	4.33 In determining the sequence of testing, the following points should be carefully considered: (1) Sequence of commissioning tests should be planned in a chronological order in which they are expected to be performed and that the systems required to ensure the nuclear safety of a commissioning stage should be adequately tested prior to integrated system testing.		Accepted			
47	4.35	~~4.35 A review should therefore be undertaken before the commencement of this stage to ensure that the tests have been carried out on those systems and components required for this stage for which the construction group is responsible. The tests should ensure that the construction is of the appropriate quality and that the equipment is in a fit state for commissioning to be started~~.	This requirement is a repeat of requirement 4.33 (2). One of these requirements should be deleted.	Accepted			
48	4.45	4.45 The purpose of ~~the stage of~~ fuel loading and subcritical tests is to ensure that the fuel is loaded into the reactor safely in accordance with the loading		Accepted			

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		pattern ~~re~~calculated in the design. In addition, at this stage it should be confirmed that the reactor is in a suitable condition to be started up and that all prerequisites for ~~permitting~~ the reactor to go critical have been met (see also the Appendix).					
49	4.47	4.47 The beginning of initial fuel loading is the commencement of operation; from this point onwards the relevant safety and security requirements for plant operation apply [1]. Responsibility for meeting these safety requirements should usually rest from this juncture with the plant manager. plant systems and containment, should be clearly described and documented on the basis of the safety analysis report and the existing regulatory requirements. These prerequisites should be satisfied well in advance of the initiation of fuel loading.		Accepted			
50	4.48	4.48 The requirements and procedures should be in place to test the fuel loading machine and/or any other tool or systems necessary before the commencement of fuel loading. The personnel responsible for fuel loading should be qualified and trained in advance. Proper training should be		Accepted			

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		carried out on the fuel machine, including operations in the reactor cavity and spent fuel pit, using dummy fuel assemblies. Operators of the fuel loading machine should be licensed in accordance with local regulations.					
51	4.52	4.52 The fuel loading procedure should require, as appropriate: periodic data recording; audible indication of flux increases; and monitoring of neutron count rate instruments when fuel is being inserted and/or when other operations are performed that could affect core reactivity. In addition, sub criticality checks should be performed at regular steps in the loading procedure to determine safe loading increments for subsequent loading. Predictions of the behaviour of the core in terms of its reactivity should be available for evaluation of the sub criticality margin. If actual measurements deviate from the predicted values, procedures should require further fuel loading to be stopped until the circumstances have been analysed, the reasons for the deviations have been determined, and any appropriate corrective action has been taken. (The Appendix contains further		Accepted			

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		guidance on the details to be included in the procedures for fuel loading.)					
52	4.56	4.56 Before reactivity is increased ('inserted') to approach initial criticality, the necessary prerequisites should be met to ensure that the reactor is in the proper condition for start-up in terms of the availability and readiness of qualified personnel and systems important to safety. It should be adequately documented that these prerequisites have been met and the reactor is in the proper condition for start-up, and the appropriate approvals to proceed to this stage of commissioning ~~is~~ have been obtained.		Accepted			
53	4.57	4.57 Before the approach to criticality is started, operability of the automatic reactivity shutdown devices ~~is required to~~shall be ensured and appropriate start up monitoring instrumentation ~~to~~ shall be available to initiate shutdown devices when necessary.				Rejected Shall is used in "Requirements"	
54	4.61	4.61 At the stage of initial criticality and low power tests, the initial criticality of the loaded core is achieved for the first time. The subsequent low power tests should be made to confirm that: the performance of the reactor core is commensurate with predictions made in		Accepted			

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		the core design; the reactor core is in a proper condition for operation at higher power levels and the characteristics of the reactor core coolant, reactivity control systems and shielding (as appropriate) and reactor physics parameters are in accordance with predictions made in the core design. In order to permit power testing, assurance should first be obtained on the basis of the information gained from these tests that there is no serious discrepancy between measured values of reactor physics parameters and other parameters and values used in the safety analysis report. The power levels ~~of this stage~~for low power testing should be the lowest power that gives reliable and stable measurements and enable the required conditions ~~to~~ necessary to perform the specified tests. Special start-up instrumentation should be provided if necessary.					
55	4.66	4.66 Tests should be made to demonstrate to the extent practicable that the plant operates in accordance with the design both in steady state conditions and during and after anticipated operational occurrences, including reactor trips, isolations and load rejections initiated at		Accepted			

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		appropriate power levels.					
56	4.68	4.68 After the test completion the test results should be reviewed to provide assurances that the testing performed demonstrates that the performance of the systems considered is in accordance with the plant design intent, and that any operating constraints have been identified. It should ensure that all necessary data have been obtained and analysed, and that a technical evaluation and report have been completed. It should also provide assurances that the succeeding stages can be conducted safely and that the safety of the plant is never dependent on the performance of untested structures, systems or components.		Accepted			
57	4.69	4.69 The evaluation process should assure that the interpretation of test data is appropriately reviewed by competent persons who have the technical expertise to determine that the operational characteristics of the component, structure, system (CSS) and/or process is performing satisfactorily. The evaluation of the test results should include a comparison with the acceptance criteria and should be carried out by the		Accepted			

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		commissioning group, the designer and the regulator in accordance with national practices. ~~.~~ The objective is to clarify that the plant design intent has been met.					
58	4.70	4.70 At the end of a stage, the results of the tests in ~~the~~ that stage and the general condition of the plant should be reviewed by the representatives of the commissioning group and the operating organization prior to approval being granted to begin the next stage. Depending on the national regulatory practices, the regulatory body may be involved in the review and approval of the results of the specific stage. All test reports for the stage should be completed and all test certificates should be signed before this review.		Accepted			
59	4.71	4.71 Reviews should ensure that all systems and special testing equipment for the tests in the next stage will be available before proceeding to ~~that~~ the next stage, and that all relevant administrative and control procedures will be complied with, as documented.			Accepted Will be modified to avoid duplication of words		
60	4.72	4.72 To ensure that the commissioning programme proceeds in an orderly manner, suitable preparations should be made so that the stage completion and		Accepted			

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		approval documents can be produced expeditiously. To this end, reviews of test results should be undertaken and test results should be accepted at suitable times during the progress of testing within each stage. The end of each stage should include preparations for the start of the succeeding stage and a means should be arranged for the continual updating ~~of~~ the documentation (see Section 5). In addition, close liaison should be maintained with all participants in the commissioning programme, including personnel at the headquarters of the operating organization and personnel of the regulatory body.					
61		4.73 Progress to the next stage should only be permitted by the operating organization when the completed review of the current stage has been approved by the operating organization ~~as~~ in accordance with the requirements of the regulatory body.		Accepted			
62	4.76	4.76 Stage completion certificate should be issued to certify that all ~~the tests in~~ commissioning tests during the respective stage have been satisfactorily completed (listing all deficiencies, if any). It should also list associated test		Accepted			

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		certificates.					
63	4.78	4.78 The commissioning group should report the test results to the operating organization and, as required, to other participants in the commissioning programme. Although it may be expedient to prepare summary reports for a quick assessment of the test results, a formal comprehensive report should be submitted containing all the required information, including a collation and final evaluation of the test results. These formal reports should be retained for record purposes ~~of keeping a record~~. In addition to individual tests, stage test reports and a final station commissioning report should be prepared. (1) conduct of the test, including initial and final state of plant, the actual limitations experienced, and problems encountered and actions taken to overcome them, including modifications to the plant or procedures;		Accepted			
64	4.80	4.80 During commissioning, changes to plant design, programmes or tests may be necessary, unexpected results may be obtained and incidents may occur. The operating organization should establish		Accepted			

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		procedures for dealing with these situations.					
65	5.07	5.7 The Commissioning Management System Manual (MSM) (sometimes referred to as the Commissioning Manual) should form the part of the suite of commissioning documentation, set out the management organisation and documentation processes agreed between the Operating organisation and the Commissioning group. The Commissioning MSM applies to the testing and commissioning of new nuclear power plant and encompasses the~~n~~ span of activities from the completion of erection through plant completion and commissioning ~~to establish the power plant in~~ leading to commercial operation. The Commissioning MSM should detail the commissioning management structure to permit commissioning activities to be logically planned and safely executed.		Accepted			
66	5.10	5.10 The commissioning documentation should include the basic information on the principles and objectives of the plant commissioning tests as well as details of the testing to be carried out on the plant. Such documentation should contain		Accepted			

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		sufficient information about the design, function and expected performance of the plant systems to adequately characterise the system for subsequent~~ly~~ proposed test definition.~~defining the proposed tests.~~ This documentation may also include the vendor specifications, design basis and safety analysis report and records of subsequent changes to any of these documents, requirements of the regulatory body, licences and other relevant statutory documents. Such information should also substantiate the proposed commissioning tests and clearly address any specific precautions or measures required during the tests in order to protect personnel and plant. The testing substantiations may be presented as the separate document or included in the testing procedures.					
67	5.13	5.13 These documents are related to a System (or group of Systems or particular commissioning scope). Each SCP gives a brief description of the objectives, principles, test conditions and acceptance criteria for all the tests to be performed within the test phases for the concerned system (s), including the reference ~~of~~ to documents to be used for test		Accepted			

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		performance (test guidelines, test procedures), the phases during which they are performed and their logical sequence.					
68	5.14	Stage Commissioning Programs (STGCP): 5.14 These documents are related to a Commissioning Stage (or sub-stage)	The acronym for System Commissioning Programs (SCP) and Stage Commissioning Program (SCP) are the same. I suggest using a different name or acronym...like STGCP	Accepted			
69	5.15	5.15 In scheduling of the commissioning activities ~~the~~ safety ~~considerations~~ should be ~~taken as a~~ first priority. The following principles should be maintained when scheduling the commissioning programmes: • Only~~ those~~plant configurations that have been addressed in the Safety Analysis Report should be ~~made during the~~allowed during testing ~~test that have been addressed in the Safety Analysis Report~~	This is a repeated recommendation from above when developing the commissioning program. Think about deleting it here. It is redundant.	Accepted			

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		• The sequence of the tests should be arranged in a such manner that the most onerous tests are carried out after the less onerous ones • The testing schedules should be arranged in such a manner that all auxiliary systems that are needed for the system to be tested are tested in advance Procedures					
70	5.19	Test reports 5.19 A report should be drawn up on the results of all tests included in the testing programme. Formal reports for each test should be prepared by the individuals responsible and should be approved by the commissioning group. The format of a report may vary but normally it should include: ...	Please review this section (para. 5.19 to 5.29). Much of the details of the test reports, stage reports, certificates, test certificates etc. occur in earlier portions of this Safety Guide. There is no need to repeat it twice. Decide where the details are best located and delete duplication.	Accepted Will be combined and shortened			
71	A.2.	Appendix A.2. The following activities and checks should be considered for					

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		completion before fuel loading: — verification of the configuration of all relevant systems as specified in the design documentation; — inspections of fuel assemblies, reactivity control devices and other absorbers, and the identification of fuel (careful distinction should be made between different types of fuel and different grades of enrichment, and note taken of which of the elements are 'poison' elements); — completion of any pre-fuel loading fuel assembly required (i.e. fuel channelling) — operability of nuclear start up instrumentation, in terms of proper calibration, location (source–fuel–detector geometry) and functionality, including audible and visual alarm indications in the control room as well as the response of the instrumentation to a neutron source;					
72	Annex 1	Annex 1 TYPICAL LISTING OF COMMISSIONING TESTS	This Annex is not very helpful nor arranged logically. It is just a list of commissioning tests, in no			Annex demonstrates usual practice and is not obligatory	

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
			particular order, for all types of reactors. Most regulators have commissioning test guidance for PWRs, BWRs and Heavy Water PWRs etc. A more meaningful Annex would be to summarize the regulatory guidance on recommended commissioning test by reactor type for the current generation of PWR, BWR and heavy water reactors etc.. In the US, Regulatory Guide 1.68 governs commissioning testing. I would use this regulatory guide as an outline				

Com. No.	Para/ Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
			for this section and add any specific EU commissioning test requirements for the current generation of reactors and step thru a pre-op and startup progam. Including the strart-up test conditions and commissioning tests from fuel load to 100% power operation.				
73	REF.	[1] INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Power Plants: Commissioning and Operation, Safety Standards ~~Series No. NS-R-2~~Specific Safety Requirements, SSR 2/2, IAEA, Vienna (~~2000~~.....).	Reference list should be updated	Accepted			
74	REF	[...] INTERNATIONAL ATOMIC ENERGY AGENCY, Licensing Process for Nuclear Installations, SSG-12, IAEA, Vienna, (2010)	Reference list should be updated	Accepted			

Japan Title: Commissioning for Nuclear Power Plants, DS446 (Rev of NS-G-2.9)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: S. Maki Page 1 of 2 Country/Organization: **Japan/ NISA** Date: 3 June 2011							
Note: Underlined means insertion of ward(s) and ~~delete~~ means deletion.							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
1	Before 4.14	Available information on operating experience, including reportable occurrences at operating power reactor, should also be used appropriately in developing and executing the test procedure.	New item to test safely and efficiently.	Accepted			
2	4.29	・All applicable limiting condition for operation (Technical Specification requirement) at tested power should be met.	New bullet to test safely.	Accepted			
3	4.41	Add the following next to paragraph 4.41; "For a new type plant, a test should, to the extent possible, verify that any flow induced vibration beyond design assumption dose not occurred during operating conditions."	Such requirement should be explicitly defined.	Accepted			
4	4.88	Are there any drafts of substances for "Safety Assessment and Regulatory Approval"?	There is an item of Safety Assessment and Regulatory Approval in chapter 4 of Table of Content.				

5	Annex1 Whole	We propose that each explanations should be defined the object of nuclear power plant types. So the names of nuclear power plant type is added the end of each sentences. For example: P49 A.5 (a) Tests of the chemical control system: proper blending of boric solution and moderator, uniform mixing and adequacy of sampling and analytical techniques, (PWR) ・・・	This document is described all type of nuclear power plants. As the commissioning tests are different for the specific type, distinction should be defined.		Annex demonstrates usual practice and is not obligatory		
6	4.5	According to different technology and possible construction processes there could be tests on SSC performed off-site which need to be considered as part of the commissioning process.	Typo-miss.	Accepted			
7	4.37 L.4/ 4.44	4.37. …~~Any required pre-service inspections should be performed during or at the end of these stages.~~	Editorial comment. Duplicated of paragraph 4.44.	Accepted			
8	4.45 L.2	recalculated→precalculated	Editorial comment. As same as paragraph 3.19 of NS-G-2.9.	Accepted			

CANADA DS446 – Commissioning of Nuclear Power Plants

COMMENTS BY REVIEWER Reviewer: Canadian Nuclear Safety Commission Page 1.. of..2.. Country/Organization: CANADA, CNSC, with input from Canada's nuclear industry Date: June 2, 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	Document needs considerable work	The document appears to be a very early draft and could benefit significantly from improvements in language and organization.	Thank you			
2	2.8, 3rd bullet	In place of "The tests are gather (sic) in commissioning…" recommend using "The tests are ***grouped or arranged*** in commissioning…"	For clarity	Accepted			
3	2.8 6th bullet	In place of "..to proceed in the process of commissioning", recommend using "..to proceed in the process ***or stages*** of commissioning."	For clarity	Accepted			
4	3.9	In place of "… management and the regulatory authority", recommend using "… management ~~***and the regulatory authority***~~ ***or ombudsman***.	Reporting directly to the authority might be considered whistle blowing.	Accepted Will be deleted			
5	3.26	In place of "…with appropriate	For clarity. Does	Accepted			

		experience", recommend using "…with appropriate experience ***and qualifications***."	experience also include competence?				
6	3.33 19th bullet	In place of "...changes are requested, reviewed and implemented when design criteria are not met or when they fall short", recommend using "...changes are requested, reviewed***, ~~and~~*** implemented***, and re-tested*** when design criteria are not met or when they fall short"	For clarity	Accepted			
7	References	In place of "GS-R-3 THE MANAGEMENT SYSTEMS FOR FACILIRIES AND ACTIVITIES", suggest using "GS-R-3 THE MANAGEMENT SYSTEMS FOR ***FACILITIES*** AND ACTIVITIES	Spelling	Accepted			
8	References	In place of "GS-G-3.1 APPLICATION OF THE MANAGEMENT SYSTEMS FOR FACILIRIES AND ACTIVITIES", recommend using GS-G-3.1 APPLICATION OF THE MANAGEMENT SYSTEMS FOR ***FACILITIES*** AND ACTIVITIES	Spelling	Accepted			

European commission Comments on IAEA Draft Safety Guide DS 446

COMMENTS BY REVIEWER Reviewer: Date: 24/05/2011 Country/Organization: EC				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	To be included between paragraphs 3.4 and 3.5	As some contractors involved in large commissioning project are not familiar with specific nuclear requirements, contracting documentation should include and emphasize the specific nuclear requirements and local nuclear regulations particularly as regards quality management and safety culture. Compliance with those requirements should be properly checked at the stage of awarding contracts and until the work is fully implemented	*Some contractors involved in large commissioning project are not familiar with specific nuclear requirement*	Accepted			
2	To be included between paragraphs 3.11 and 3.12	Oversight and quality control of ongoing works should be provided by an organisation which is competent and experienced in the works, clearly identified as responsible for	*Activities performed by utility's staff without proper qualification should be avoided*		Accepted Oversight and control of quality of ongoing		

COMMENTS BY REVIEWER Reviewer: Date: 24/05/2011 Country/Organization: EC				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		quality control, and independent of the organisation in charge of the works.			works should be provided by competent organisation		
3	To be included after paragraph 4.9 (section *Test scope and methods)*	- The safety systems should be tested in conditions representative of real accident conditions, and if that is not possible, specific arrangements should be made for the systems concerned in terms of acceptance tests, quality assurance, etc. - The scope of the tests should include all the components and devices that are used during normal operation and those which could be used under	For completeness of the chapter	Accepted Will be coordinated with comment from France			

COMMENTS BY REVIEWER Reviewer: Date: 24/05/2011 Country/Organization: EC				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		accident conditions, including passive components such as pipes, as they may be clogged, and including manufactured components, with correct documentation, as the quality control at the manufacturing plant may be deficient. - The automatic start-up of systems after a power disruption should be tested during commissioning. - The tests should be designed to detect an unexpected (spurious) actuation of a safety system.					
4	To be included at	- The functionality of any standby component which	For completeness of the para.	Accepted Will be			

COMMENTS BY REVIEWER Reviewer: Date: 24/05/2011 Country/Organization: EC				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
	the end of paragraph 4.33 (bullets 5, 6, 7)	is normally not in operation, must be regularly tested, as a long period of inactivity and the construction of other equipment during this period could alter the test results. - Safety systems should be submitted to overall functional tests as far as possible, to ensure not only the performance of each single component but the performance of the whole system, including the interactions between different components. - The commissioning tests		coordinated with other NUSSC members comments			

COMMENTS BY REVIEWER Reviewer: Date: 24/05/2011 Country/Organization: EC				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		should be designed to take account of the fact that simultaneous tests may have an influence on each other's results.					

CEZ Comments on IAEA Draft Safety Guide DS 446

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejecti on
1/Kaspar	TOC	Table of Content 1. INTRODUCTION • Background • Objective • Scope	It's necessary to determine if TOC should be 2 leveled (I'd prefer) or 3 leveled, but it shall		Will be 2 level TOC. This is Guideline		

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		• Structure 2. COMMISSIONING PROCESS • Commissioning Objectives • Commissioning Programme • Stages of Commissioning • Execution of Commissioning • Regulatory Body role • Operating Organization Role 3. ORGANIZATION & MANAGEMENT • Management System — General — Safety Culture — ~~Graded Approach (~~ There is no requirement about Graded Approach) — Quality Assurance • Organizational arrangements — General — Operating organization — Commissioning organization • Functions and responsibilities — General — Construction group — Commissioning group — Operating group — Other participants in the commissioning activities • Interfaces — General — Interface between construction activities and commissioning	be unified. My proposal of 3 leveled TOC (corresponding with the requirements in the draft) is in the left column.		NS-G-2.9 (not a requirement)		

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		activities — Interface between commissioning activities and operating activities — Interface with Regulatory Body • Systems Transfer & Plant Handover • Resources — Provision of Resources/General — Training and Qualifications • Process Implementation • Measurement, Assessment and Improvement of Commissioning — General — Management of Non-Conformances — Feedback of Experience from Commissioning • Maintenance during commissioning • Emergency Arrangements • Security arrangements 4. IMPLEMENTATION OF COMMISSIONING • General • Commissioning Tests • Preparation for Testing • Testing prerequisites • Testing Stages and Sequence - General/ Sequencing the testing process - Preoperational tests - Initial fuel loading and					

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		subcritical tests - Initial criticality - Low power testing - Power ascension tests • Review, Evaluation and Reporting of Test Results - Review and evaluation of test results - Review of the stage completion - Approvals and Issue of Certificates - Reporting of test results • Handling of Deviations o Modifications o Unexpected test results and occurrences • ~~Safety Assessment & Regulatory Approval~~ (There is no requirement about this topic) 5. DOCUMENTATION • The Commissioning Documentation Arrangements • The Scope and Structure of Commissioning Documentation Appendix – Provisions connected with fuel loading References Annex 1 – Typical listing of commissioning tests Annex 2 - Typical listing of commissioning license documents					
2	Req.2.2	(designers, construction group, license holder, operating and the	Authorities should be communicated with too.	Accepted			

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		commissioning group and authorities)					
3	Req.2.8	— all the tests necessary to demonstrate that the plant meets the design parameters and properties stated in the safety analysis report are performed; — the tests are designated into commissioning stages defined in a logical sequence from non-nuclear testing stages to nuclear testing stages and from individual components and system tests to overall integrated system test stages, with the overall plant test stage at the end. — milestones(witness-points) are identified where the regulatory body authorization is required and proceeding in the process of commissioning is allowed only after this authorization.	For clarity of these points		Accepted Will be properly integrated.		
4	Req.2.10	The commissioning programme	For clarity of this point	Accepted			

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		should include: — the hold points at which reviews and furter analysis are required to check the compliance to safety requirements and witness-points to receive authorization from the regulatory body to proceed with comissioning;		To be coordinated with comment from France			
5	Req.2.13	The programme should also provide a framework for the timely production of all documentation.	For clarity of this point	Accepted			
6	Req.2.14	The commissioning programme should be written in such a form as to enable the objectives and methods of testing to be readily understood by all concerned personnel and to allow control and co-ordination by management.	For clarity of this point	Accepted			
7	Req.2.18	On the basis of the broad range of commissioning practices in different countries, the commissioning process ...	For clarity of this point			Rejected Does not change anything.	

COMMENTS BY REVIEWER Reviewer: Kaspar Date: 27/05/2011 Country/Organization: Czech Republic/CEZ				RESOLUTION			
Comment No. / Reviewer	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
						Original text will be kept	
8	Req.2.14	In determining the sequence of testing, the following points should be carefully considered: — some systems should be pretested to be available for the proper testing of other systems;	For clarity of this point			Rejected Does not change anything. Original text will be kept	

FRANCE TITLE : DS446 Commissioning for Nuclear Power Plants - April 2011

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.			This guide gets too much in the details, both from an organizational point of view (responsibilities between licensee, commissioning group, construction group, contractors) and from a technical point of view (annex on typical commissioning tests)	Agreed			
2.			Not enough reference to the management system, but too derived means (administrative procedures…)	Agreed			
3.			Much duplication inside the document. Such duplications should be avoided.	Agreed			
4.			Is the document enough technology neutral (see annex 1) ?	To be discussed			
5.			INSAG is working on a document on licensing the country's first NPP. Commissioning oversight is one topic addressed by this document. How was INSAG input used in DS446	To be discussed			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
6.	1.3	as currently followed in Member States, ~~which will enable commissioning to proceed safely and to a high quality. It will also enable the necessary assurances to be provided~~ to ensure that the plant	Simplification			Rejected No changes from the original text	
7.	2.1	Commissioning is an essential process ~~ensuring~~ <u>for</u> the subsequent safe operation of the plant	Commissioning does not ensure safe operation ; it contributes to but is not enough by itself	Accepted			
8.	2.3	The commissioning has the objective to demonstrate that the NPP as constructed meets the design requirements and the safety requirements as described in the safety analysis report <u>and the license conditions</u>	Clarification	Accepted			
9.	2.3	• to familiarise the NPP's operating, maintenance and ~~technical~~ management staff with the operation ~~and management~~ of the power plant.	Superfluous	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
10.	2.4	The commissioning programme should cover all the activities to be performed on structures, systems and components to bring them to an operating mode and should cover the ~~full~~ widest range of plant conditions ~~required in the design and the~~ considered in the safety analysis report and in the license conditions. It should allow verifying, while remaining in a safe domain, the assumptions made in the safety analysis report and the existence of adequate margins between design and safety requirements and actual performance.	Full range can't be tested, e.g. some accident conditions won't be tested (airplane crash…) or would only have indirect tests.	Accepted			
11.	2.7	• arrival of fuel at the site enacting the safety and security link with fuel storage, including control of building access and relevant systems operation and monitoring.	Clarification	Accepted			
12.	2.7 2nd bullet list	—Milestones, including those where the regulatory body authorization are required to proceed in the process of commissioning	Miliestones are not limited to those of the regulatory body.	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
13.	2.22	However, tests should not be conducted and operating modes or plant configurations should not be established if : - they have not been analysed and found safe, - if they fall outside the range of assumptions made in ~~analysing postulated accidents~~ in the safety analysis report, or - if they might damage the plant or jeopardize safety.	Clarification. Create a bullet list	Accepted			
14.	2.24	—certain systems should be operational to ensure that other systems can be tested without jeopardizing personnel, the plant or ~~nuclear~~ safety;	Superfluous	Accepted			
15.	2.24	— ~~at any given stage, those~~ relevant tests ~~which are to be considered~~ should be grouped together in an integrated systems test step (or sub-stage)~~ and completed before the commissioning programme can safely continue~~.	Initial wording is confusing	Accepted			
16.	2.26	The commissioning programme should be comprehensive, including statutory non-nuclear tests according to national practice, and should have sufficient scope ~~for redundancy in testing~~ to ensure that there have been no omissions in testing complex systems.	Superfluous	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
17.	2.27 c	Such provisions should include conducting a hazard assessment and may require obtaining the prior approval of the regulatory body or ~~and specific written~~ approval from the manager responsible for the operating unit.	It may not be systematic	Accepted			
18.	2.29	~~The commissioning program should be approved by the regulatory body before implementation.~~	Inconsistent with last sentence of 2.28. Regulator involvement is already mentioned in 2.28	Accepted			
19.	2.30	The regulatory body during the commissioning implementation at predefined hold points or milestones, based on the evaluation of test results, appropriate reports prepared by the licensee and onsite ~~supervision~~ inspection activity, should ~~provide authorization~~ decide whether the licensee may ~~to~~ proceed to subsequent (sub) stage ~~or sub stage~~ of the commissioning program.	The authorization may not be provided if the regulator assessment is it is not yet warranted.	Accepted			
20.	2.34	Delete 2.34	Superfluous (self evident after reading 2.31)	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
21.	3.4	The system should cover all items, services and processes related to commissioning, including those important to safety ~~and should include a means of establishing control over all activities during commissioning, thereby providing confidence that they are performed according to the established requirements~~. In establishing and implementing the management system for commissioning ~~determining how the requirements are to be applied~~, a graded approach based on the relative importance to safety of each item or process should be used.	The management system is wider than safety related aspects. The characteristics of a management systems are described in details in other IAEA standards.	Accepted			
22.	3.5	The classification ~~should~~ can provide a basis for determining commissioning requirements, methods, testing, inspections, reviews, qualification of personnel and record requirements.	Classification of SSC does not help a lot in defining commissioning...	Accepted			
23.	3.5	~~Generally the more important to safety a SSC is the more inclusive, restrictive, and specific instructions should be to provide the commissioning results needed for an assigned safety classification.~~	Supefluous	Accepted			
24.	3.6	— The administrative requirements established by the licensee's management.	Clarification	Accepted			
25.	3.9	Delete 3.9	The guidance is more showing a lack of safety culture				

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
26.	3.12	Delete 3.12	Too vague			Relates to original text	
27.	3.13	There may be other representatives participating in commissioning activities, such as representatives of the designers, the manufacturers~~, and the regulatory body~~.	The regulator oversights activities but does not participate in.	Accepted			
28.	3.13	The designers should also review the commissioning data~~, certify that the performance meets the design intent~~ and be involved in the resolving of problems and defects detected during commissioning stage	Too detailed. The licensee is responsible and the document he asked to its contractors, including designer, is to be flexible. Recommanding designer input in reviewing tests results and resolving deviation is enough.	Accepted			
29.	3.14	There may be many ways in which the construction, commissioning and operating groups could be formed ~~by different organizations~~.	Superfluous. The licensee has overall responsibility.	Accepted			
30.	3.14	If the operating organization decides to contract the commissioning activities to another organization, it should be made clear that the ultimate responsibility for adequate commissioning, and more generally safety, remains with the operating organization.	To focus on commissioning.		Accepted With no "*adequate*" and "*more generally*"		
31.	3.17	Delete first bullet	The guide is on commissioning. The second bullet adequately covers the bullet to be deleted		Accepted. Will be combined.		

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
32.	3.19	When commissioning activities are conducted ~~under the responsibility of the~~ by contractors, the operating organization should…	Responsibility lies with the operating organization.	Accepted			
33.	3.19	the operating organization should make the necessary arrangements to review and approve these activities at all stages, establishing appropriate hold points and milestones.	Clarification	Accepted			
34.	3.21	—to arrange for the required submissions to the regulatory body ~~at the approved stages hold points and milestones and to comply with its requirements~~;	Superfluous	Accepted			
35.	3.21	—…. These procedures should take into account the views and experience of members of the construction, commissioning and operating groups as well as other participants such as those from the designers or the manufacturers~~, the consultants~~;	No need to explicitly mention consultants.		Accepted. Full stop after "…other participants"		
36.	3.22	—to consider the safety aspects of commissioning procedures and their proposed changes;	The initial status has also to be considered	Accepted			
37.	3.22	—to monitor the resolution of those defects or deviations detected during commissioning phase ;	Deviations from procedures or criteria should also be considered	Accepted			
38.	3.24	The commissioning group should be headed by a commissioning manager who has had relevant experience ~~with nuclear power plants~~	Experience in commissioning of plant may be as useful as nuclear experience.		Accepted "*relevant experience and qualification*".		

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
39.	3.26	Delete 3.26	Too much detailed.	Accepted			
40.	3.27	~~The commissioning manager should prepare sub-organizational charts showing the allocation of responsibilities for staffing and systems to each test team leader. These charts should be made available to other groups in order to help ensure the~~ effective co-ordination of work should be ensured between test teams.	Too much detailed.	Accepted			
41.	3.28	In addition to the overall commissioning planning and scheduling, The detailed planning and scheduling function should be managed in the commissioning group	To include both idea of overall and detailed planning	Accepted			
42.	3.29	~~Responsibility for~~ commissioning activities may be assigned to a contractor, the construction organization or the operating organization.	Responsibility lies with the operating organization.	Accepted			
43.	3.29	Whatever the arrangement, the organization or individual ~~responsible~~ performing for commissioning should be accountable to the organization or individual responsible for compliance with the licence	Responsibility lies with the operating organization.	Accepted			
44.	3.29	—confirming that the plant has been tested within the design limits ~~only~~;	Superfluous	Accepted			
45.	3.30	A gradual handover of systems and components of the plant from construction group ~~and~~ to operation group	Typo	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
46.	3.31	Delete 3.31	Superfluous and weakens the guidance. As a result, it would be more appropriate to have the following paragraphs in one or several annex(es).	Accepted (However is affects the original version that is agreed not to change a lot)			
47.	3.32	The responsibilities of the construction group in relation to the commissioning process should <u>generally</u> include the following	To take into account deletion of 3.31	Accepted			
48.	3.32		Might be more appropriate as/in an annex	Accepted			
49.	3.32	Delete "— to issue certificates of completion of installation construction giving the necessary assurances to the commissioning group;"	Duplicates another bullet	Accepted			
50.	3.33		Might be more appropriate as/in an annex	Accepted			
51.	3.33	The responsibilities of the commissioning group should <u>generally</u> include the following	To take into account deletion of 3.31	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
52.	3.33 bullet list		The bullet list is very long. It should be re-organized by grouping item dealing with similar topics and rationalize to reduce the level of details.	Accepted			
53.	3.33	—to ~~certify~~ document he commissioning programme has been satisfactorily completed;	Certificate is a mean.	Accepted			
54.	3.33	—to establish procedures for analysing the results of tests, to resolve or have resolved any deviation detected, and producing test reports ~~and test certificates~~.	Resolution of deviation is a major point. Certificate is a mean.	Accepted			
55.	3.34		Might be more appropriate as/in an annex	Accepted			
56.	3.34	The responsibilities of the operation group ~~at the plant~~ in relation to the commissioning process should generally include the following	To take into account deletion of 3.31	Accepted			
57.	3.34	—to ~~ascertain~~ satisfy themselves that the systems which are transferred comply with specified performance requirements, the design intent and safety requirements ~~and that the means to operate the systems are available~~;	Means to operate are a required specification….	Accepted			
58.	3.34	—to ~~become~~ increase competent in the methods of operation of the plant;	Incompetent personnel can't be allowed to operate the plant, even during commissioning	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
59.	3.35		Might be more appropriate as/in an annex	Accepted			
60.	3.35	—to provide support for evaluation and assessment of tests results, including any deviation	Assessment of deviation is a major point.	Accepted			
61.	3.37	The interface between these activities should be adequately managed to ensure the protection and safety of the plant and personnel and to allow for adequate ~~ensure that the~~ commissioning programme ~~is not impaired~~.	Adequate commissioning is the goal, not adequate implementation of the commissioning programme (which my be inadequate)	Accepted			
62.	3.40	All the organizations involved in the commissioning process should develop an appropriate ~~achieve and sustain the same level of~~ safety culture, ~~which should be an inherent feature of the operating organization~~ commensurate with the task they perform.	It can't be expected that every person and organization to have the same level of safety culture.	Accepted			
63.	3.41	Clear and well understood lines of authorization and communication between construction and commissioning activities should be established and documented ~~so as to manage a rigorous work prioritization policy. The lines of communication should support the commissioning schedule and should comply with the agreement on the scope of activities in both organizations, in particular at the interfaces~~.	Superfluous	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
64.	3.42	The construction group may ~~have responsibility~~ be the lead group for some activities during the commissioning programme. This ~~responsibility~~ should be defined well in advance of commencement of this programme in order to prevent misunderstandings. ~~The activities of the construction group during the commissioning phase should be properly scheduled so as to meet the requirements for construction and commissioning.~~	Responsibility lies with the operating organization. Duplicates earlier guidance.	Accepted			
65.	3.43		Might be more appropriate as/in an annex	Accepted			
66.	3.43	—procedures for performance of works on systems under ~~the~~ commissioning ~~responsibility~~	Responsibility lies with the operating organization.	Accepted			
67.	3.44	Delete 3.44 and replace it by : "3.44 Specific attention should be paid to systems which have been partly installed and, as a consequence, have only been partially commissioned. Commissioning tests should be designed and implemented to allow for the adequate commissioning of the full system."		Accepted			
68.	3.45		Might be more appropriate as/in an annex	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
69.	3.46	There should be plans to include operating personnel in commissioning activities at the plant at all levels, thus providing the operating staff with an opportunity to become familiar with and gain experience of the plant~~. This approach to training and preparation of the operating staff during commissioning will contribute towards the assurance of safety during~~ valuable for the initial operation of the plant.	Too much details	Accepted			
70.	3.47	Procedures for operating and periodic testing should be used as far as the conditions of the plant will allow in the commissioning phase so as to validate them, eventually with success criteria more numerous or more challenging that the ones later used during operation ~~prior to the initial loading of the core~~.	Commissioning tests may go further than periodic test as it enable to get baseline data as well as verifying criteria that may be beyond safety criteria (in relation to the specifications written in the contract with the manufacturer).	Accepted			
71.	3.48	Personnel should adhere to normal operating rules such as those relating to access to the control room, control of information, control cabinets and switchboards, communications with the control room about abnormalities and changes in plant configuration. ~~The need for adherence to normal operating rules should be re-emphasized to personnel after the core has been loaded~~	Superfluous. Adherence is expected.	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
72.	3.49	Where appropriate, hold points should be established in order to assess test results before regulatory authorization ~~is~~ may be given to proceed.	Authorization may not be granted.	Accepted			
73.	3.49	Add a sentence "During commissioning, the regulatory body should perform inspections to verify that the commissioning activities conform to applicable requirements."	Inspections are to be added.	Accepted			
74.	3.50	—— the adequacy of safety significant operating procedures and instructions~~, especially main administrative procedures, normal operating procedures and~~ including emergency operating procedures and accident management procedures;	To refocus on safety issues	Accepted			
75.	3.50	~~— the arrangements to ensure quality for all commissioning, operation and maintenance activities;~~ ~~— the records and reporting system;~~ — the radiation protection programme; — onsite emergency preparedness; — the arrangements for commissioning and operating activities (including periodic testing, maintenance, inspection and surveillance);	Simplification by regrouping bullets	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
76.	3.50	~~— the measures for accounting for fissile and radioactive materials;~~ —the fulfilment of the applicable requirements in respect of safeguards and accounting for fissile material.	Simplification by regrouping bullets	Accepted			
77.	3.50	~~— the adequacy of support for technical procurement, safety and other matters at the operating organization or at the site if appropriate~~;	Too much detailed	Accepted			
78.	3.50	—the adequacy of the arrangements for security ~~physical protection important to safety~~;	Physical protection is only one matter. Overall security is the issue	Accepted			
79.	3.51	—the updated final safety analysis report and updated OLC.	To add OLC	Accepted			
80.	3.54	Delete 3.54	Responsibility for safety always lies with the operating organization. It is just that arrival or fuel changes the risks generated by the plant. There is thereof actual risks as they were before only potential risks…	Accepted			
81.	3.55	Delete 3.55	Too much detailed		Accepted Will be shortened to one, first sentence		

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
82.	3.56	The transfer of documentation is a key feature in the handover process. ~~Documentation should be transferred in system packages and over a reasonable period of time in order for the plant personnel to be able to make a comprehensive review of every package. Account should be taken in these transfers of how the responsibilities for testing after fuel loading, at initial criticality, at low power and at power escalation are assigned.~~	Too much detailed	Accepted			
83.	3.58	~~Engineering~~ Competent (or suitably qualified) personnel should be designated to conduct the review to be carried out by the operating organization receiving the handover package.	To offer flexibility	Accepted			
84.	3.61	Delete 3.61	Too much detailed	Accepted			
85.	3.63	Delete 3.63	Superfluous (see 3.23 and 3.24)	Accepted			
86.	3.65	~~In addition, provision should be made for~~ training of personnel who participate in the commissioning process should include relevant ~~in certain~~ aspects of the plant site and methods of working.	Clarification	Accepted			
87.	3.66	—the criteria for and importance of reporting incidents and deviation;	Deviations are also to be reported	Accepted			
88.	3.66	—environmental protection and ~~management and~~ waste management.	Typo	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
89.	3.67	Delete 3.67	Contradictory with 3.65 (which des not discriminate among personnel)	Accepted			
90.	3.68	Delete 3.68	Duplicates an item in 3.66	Accepted			
91.	3.69	Delete 3.69	Not specific to training in relation to commissioning				
92.	3.70	~~Aspects of~~ As for safety culture ~~should be included in the training programme. It should be emphasized in the training programme that individuals should be aware of the significance of their duties and the possible consequences of mistakes arising from misconceptions or lack of diligence.~~ Commissioning and construction personnel…	Superfluous	Accepted			
93.	3.75	Delete 3.75	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		
94.	3.76	Delete 3.76	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		
95.	3.77	Delete 3.77	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
96.	3.78	Delete 3.78	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		
97.	3.79	Delete 3.79	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		
98.	3.80	Delete 3.80	Not specific to commissioning Reference to other IAEA standards in 3.73 is enough		Accepted Will be rephrased with reference to GS-R-3, GS-G-3.1 and GS-G-3.5		
99.	3.85	Add "Recommendations and guidance on maintenance activities can be found in Ref. [8]."	To take into account next comment (deletion of 3.86)	Accepted			
100.	3.86	Delete 3.86	Too much detailed and already covered by 3.85	Accepted			
101.	3.88	In preparing emergency arrangements for the commissioning phase, account should be taken of the fact that construction related ~~non-nuclear~~ hazards may still exist ~~such as fire could arise while the nuclear fuel is on the site~~.	To get a broader perspective	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
102.	3.93 to 3.95	Delete 3.93 to 3.95	Too vague. Not specific to commissioning		Accepted. Security arrangements have to be addressed. Will be done in more precise matter.		
103.	4.1	Delete 4.1	Not true. Maybe sometimes true for tests at the plant. See also 4.5		Accepted Will be rephrased		
104.	4.2	For implementation of commissioning activities ~~the management~~ personnel, ~~operating personnel and specific training personnel should~~ may need to be licensed by the ~~nuclear~~ regulatory authority according to ~~provisions of applicable norms and~~ national regulations.	Simplification	Accepted			
105.	4.4	The commissioning program should be implemented ~~ensuring the compliance of the activities carried out with the established~~ consistent with requirements of the management system. In this end all contractors, and subcontractors, involved in the commissioning process should ensure that their own arrangements ~~to ensure quality~~ meet the requirements of the management system.	Simplification	Accepted			
106.	4.5	~~According to different technology and possible construction processes~~ there could be tests on SSC performed off-site	Simplification	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
107.	4.8	The safety objectives are ~~mainly~~ linked with ~~the identification of the~~ safety criteria and characteristics mentioned in the (preliminary) safety analysis report ~~functions of the SSC to be tested and the related safety requirements~~.	Clarification	Accepted			
108.	4.14	All commissioning tests should be performed in accordance with ~~authorized~~ written procedures. The preparation of test procedures, including their verification and approval, should be implemented according to the management system ~~defined by an administrative procedure~~. The level of review should reflect the importance to safety of the system and the nature of the test.	Reference to the management system is more appropriate	Accepted			
109.	4.14	The procedures that are established should ~~provide for timely reporting to~~ allow commissioning to proceed safely ~~and efficiently~~.	Safety is the focus, not speed.	Accepted			
110.	4.16	The test procedures should be subject to a thorough verification involving ~~and approval process in which the regulatory authorities and~~ the operating organization ~~should participate~~.	The regulator may not review test procedures	Accepted			
111.	4.17	~~This will permit the operating personnel to become familiar with them.~~	Superfluous	Accepted			
112.	4.20		Might be more appropriate as/in an annex	To be discussed			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
113.	4.20 f	f. *Acceptance criteria*- The acceptance criteria should be stated and this statement should wherever possible be quantitative as well as qualitative (for fuel loading, for example). Origin of the criteria should be mentioned	It its useful to know where the criteria comes from to verify its adequacy and assess potential deviation.	Accepted			
114.	4.24	Delete 4.24	Somehow duplicates 4.22	Accepted Will be combined with 4.22			
115.	4.25	~~The administrative procedure should be developed by the commissioning organization to~~ The management system should provide guidance to the commissioning personnel…	Reference to the management system is more appropriate	Accepted			
116.	4.26	The ~~commissioning~~ management system should ensure that the calibration intervals are not exceeded for the testing equipment and measurement tools and ensuring that any new such equipment and tools are obtained with the appropriate calibration certificate.	Reference to the management system is more appropriate	Accepted			
117.	4.26	~~Any measurement and test equipment purchased by the commissioning organization shall be required to be supplied with the certification enabling the calibration of the equipment to be traceable to national standards.~~	Superfluous (duplicate first sentence of 4.26)	Accepted Will be adjusted			
118.	4.28	Delete 4.28	Not specific to commissioning. (duplicate first sentence of 4.26)	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
119.	4.29	• ~~surveillance tests necessary to demonstrate the proper operation of interlocks, set points, and other protective features, systems, and equipment required by the specifications.~~	This is part of commissioning	Accepted Will be simplified			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
120.	4.29	• ~~all records for the temporary changes are made~~ • required personnel available and briefing is completed • ~~briefing performed~~ • testing and measuring devices are adjusted, calibrated and checked • ~~procedures checked for their validity~~ • field inspections have been made to ensure that the equipment is ready for testing, including inspection for proper fabrication and cleanness; • communication tools are available and checked for operability • ~~availability of approved test procedures developed according to the design and with verified validity taking into account potential changes taken place during construction~~ • written authorization, as required, should be issued prior to the commencement of the performance of the test or commissioning stage • necessary documentation (state that all documentation showing the readiness for the test to be performed shall be issued and approved) is available	Simplification by regrouping bullets				

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
121.	4.35	A review should therefore be undertaken before the commencement of this stage to ensure that the tests have been carried out on those systems and components required for this stage ~~for which the construction group is responsible~~	Superfluous	Accepted			
122.	4.39	Delete 4.39	Too much detailed. And restrictive (may be valid for other kind of tests)	To be discussed			
123.	4.43	Delete 4.43	Verification should have been done earlier….		Accepted Will be "**use and validation"** of the procedures		
124.	4.45	it should be confirmed that the reactor is in a suitable condition to be started up and that all prerequisites for permitting the reactor to receive fuel in the vessel and to go critical have been met (see also the Appendix).	To include fuel loading	Accepted			
125.	4.47	~~The beginning of initial fuel loading is the commencement of operation; from this point onwards the relevant safety requirements for plant operation apply [1]. Responsibility for meeting these safety requirements should usually rest from this juncture with the plant manager~~.	The first sentence is wrong. Safety requirements on operation apply as soon as fuel is on-site. Responsibility lies with the operating organization, which usually delegates it to the plant manager	Accepted			
126.	4.47	~~These prerequisites should be satisfied well in advance of the initiation of fuel loading~~	Superfluous.	To be discussed			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
127.	4.48	~~Operators of the loading machine should be licensed in accordance with local regulations.~~	Already covered by 4.2	Accepted			
128.	4.49	Attention should be paid to adequate monitoring of neutron flux to prevent ~~for the timely indication of potential~~ inadvertent criticality and, if prevention fails, for the timely indication of such criticality.	Prevention is the first issue	Accepted			
129.	4.51	Delete 4.51	Too much detailed.	To be discussed			
130.	4.53	~~At~~ By the end of fuel loading, the position of each core element should be independently confirmed and documented.	It should be done progressively, not only at the end.	Accepted			
131.	4.62	~~Appropriate tests of fuel handling equipment should be completed and radiological surveys and functional tests of radiation protection equipment should be made.~~	Too much detailed	Accepted			
132.	4.67	A review should be carried out at the end of the stage to confirm whether the operational limits and conditions are adequate ~~and practicable~~	Covered by adequacy.	Accepted			
133.	4.68	After ~~the~~ each test completion the test results should be reviewed to provide assurances that the test was performed as intended and that test results ~~testing performed~~ demonstrates that the performance of the systems	Clarification	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
134.	4.69	The evaluation process should assure that the interpretation of test data is appropriately reviewed by competent persons who have the technical expertise to determine that the operational characteristics of ~~the component, structure, system (CSS)~~ SSCs and/or process is performing satisfactorily.	To be consistent with IAEA terminology	Accepted			
135.	4.69	The evaluation of the test results should include a comparison with the acceptance criteria and an analysis of any deviation detected ~~should be carried out by the commissioning group, the designer and the regulator. The objective is to clarify that the design intent has been met.~~	To insist on deviation assessment. To avoid getting too detailed on who does what (see 3.22 and 3.44)	Accepted			
136.	4.70	~~All test reports for the stage should be completed and all test certificates should be signed before this review.~~	Too detailed	Accepted			
137.	4.73	Progress to the next stage should only be permitted by the operating organization when the completed review of the current stage has been approved by the operating organization ~~as~~ and, where relevant, in accordance with the requirements of the regulatory body.	There may not be requirement of the regulatory body	Accepted			
138.	Title before 4.74	Approvals and Issue of ~~Certificates~~ test reports	Avoid the use of "certificate"	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
139.	4.74	Documents should be prepared and issued during the progress of the commissioning activities to ~~certify~~ document the performance of the tests and provide phase clearances for the continuation of commissioning programme.	Avoid the use of "certificate". Test or phase certificate may be mentioned as a footnote	Accepted			
140.	4.74	Regulator's approval should be obtained when necessary ~~clearing major stages indicated in the Commissioning programme~~.	Approval of regulator may be not only on major stages	Accepted			
141.	4.75	Delete 4.75	Too much detailed	Accepted			
142.	4.76	Delete 4.76	Too much detailed	Accepted			
143.	4.77	Delete 4.77	Too much detailed Already covered by rewording of 4.74	Accepted			
144.	4.78	The commissioning group should report the test results to the relevant ~~operating organization and, as required, to other~~ participants in the commissioning programme.	The commissioning group is within the operating organisation	Accepted			
145.	4.78	Although it may be expedient to prepare summary reports for a quick assessment of the test results, a formal comprehensive report should nevertheless be ~~submitted~~ established containing all the required information	Clarification	Accepted			
146.	4.79	Formal reports for each test should be prepared ~~by the individuals responsible and should be~~ reviewed and approved according to the management system.	To put emphasis on the management system.	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
147.	4.80	The operating organization should establish procedures for dealing with these situations, within the frame of its management system.	To put emphasis on the management system.	Accepted			
148.	4.83	These changes to the procedures or documents should be performed according to the management system ~~authorized by means of a change notice.~~	To put emphasis on the management system.	Accepted			
149.	4.85	Any changes to the ~~approved~~ test procedures should be controlled according to the management system ~~by means of an appropriate administrative procedure~~.	To put emphasis on the management system.	Accepted			
150.	4.88	In spite of adherence to appropriate ~~good~~ design, ~~approved~~ construction and commissioning procedures~~,~~ and ~~good~~ work methods, unexpected test results or occurrences may arise	Simplification	Accepted			
151.	4.88	—A review should be carried out to understand the cause(s) of the event and to decide on the corrective actions to be taken.	Understanding root cause is generally necessary to identify appropriate corrective action		Accepted **To identify** the causes		
152.	5.1	The structure, content, extent and control of commissioning documents should therefore be described in the management system of the operating organization ~~approved by the operating organization~~.	To put emphasis on the management system.	Accepted			
153.	5.2	— evidence to the various participants that the design intent has been met, that deviations, if any, have been assessed and ~~or~~ that appropriate modifications have been made;	To insist on deviation management	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
154.	5.2	— assurance to the operating organization that commissioning is proceeding safely ~~in accordance with all requirements~~;	Clarification	Accepted			
155.	5.3	The preparation, review, approval and control of commissioning documentation should be in accordance with the management system ~~the documentation control requirements~~. [Ref. GS-R-3].	To put emphasis on the management system.	Accepted			
156.	5.3	All commissioning documentation including latest approved issues, completed test documents and test reports ~~and test certification~~ should be retained in an appropriate location ~~the Commissioning Documentation Centre or Commissioning Archive, whatever appropriate~~, for both control and archival purposes.	Simplification	Accepted			
157.	5.4	~~Commissioning documents are normally provided by the commissioning group. The commissioning group should ensure that~~ methods for the preparation, safe keeping, retrieval and review of documents should be ~~are~~ specified.	Simplification	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
158.	5.4	~~For document control purposes, an integrated and consistent referencing procedure should be established covering all commissioning documents. Special methods of identification of important documents with self-checking features to facilitate reviews and audits of records should be considered.~~ Document control procedures should be in place to ensure that those persons participating in a commissioning activity are provided with approved procedures.	Too detailed	Accepted			
159.	5.6	Delete 5.6	Superfluous	Accepted			

COMMENTS BY REVIEWER Reviewer: F. Féron Page Country/Organization: France /ASN Date: 31 May 2011				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
160.	5.7	The Commissioning Management System Manual (MSM) (sometimes referred to as the Commissioning Manual) should form the part of the suite of commissioning documentation, set out the management organisation and documentation processes ~~agreed between the Operating organisation and the Commissioning group. The Commissioning MSM applies to the testing and commissioning of new nuclear power plant and encompasses then span of activities from the completion of erection through plant completion and commissioning to establish the power plant in commercial operation.~~ The Commissioning MSM should detail the commissioning management structure to permit commissioning activities to be logically planned and safely executed.	Too detailed	Accepted			
161.	5.8	The MSM should provide the basis for the planning and execution of the testing and proving of plant items and systems, as a coordinated activity <u>within the operating organization and</u> between the Operating organisation <u>and its relevant contractors</u> ~~and Commissioning group and to enable the Commissioning group to meet their contractual commitments for the plant within their supply~~	Gives a broader scope, larger than the commissioning group.	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
162.	5.9	The Commissioning MSM, referring as appropriate to the (main) management system, should comprise the following items of the commissioning process:	To make a link with the licensee general management system	Accepted			
163.	5.9	• Responsibilities of the participating organisations in relation to ~~the testing and~~ commissioning of power plant • The commissioning ~~testing~~ programme	Testing is part of commissioning	Accepted			
164.	5.9	Add a bullet "management of deviations detected during commissioning"	To insist on deviation management	Accepted			
165.	5.11	Delete 5.11	Superfluous (introduction to the following paragraphs)	Accepted			
166.	5.12 and title before 5.12	~~Overall Plant Commissioning Program (OPCP)~~ 5.12 ~~This document~~ The Overall Plant Commissioning Program (OPCP) gives a general presentation of the Commissioning Program for the whole plant,	Simplification	Accepted			
167.	5.13 and title before 5.13	~~System Commissioning Programs (SCP)~~ 5.13 ~~These documents~~ System Commissioning Programs (SCP) are related to a System (or group of Systems or particular commissioning scope).	Simplification	Accepted			
168.	5.14 and title before 5.14	~~Stage Commissioning Programs (SCP):~~ 5.14 These ~~documents~~ Stage Commissioning Programs (SCP) are related to a Commissioning Stage (or sub-stage)	Simplification	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
169.	5.16	Arrangements should be made, within the frame of the management system, to ensure that these procedures are reviewed and approved before issue, and that their subsequent amendment is controlled.	To put emphasis on the management system.	Accepted			
170.	5.17	The preparation of test procedures, including their verification and approval, should be defined within the management system ~~by an administrative procedure~~.	To put emphasis on the management system.	Accepted			
171.	5.18	Based on the tests scheduled in the ~~approved~~ commissioning programme	Superfluous	Accepted			
172.	5.18	The detailed content of the test procedures are in paragraphs ????	Reference missing	Accepted			
173.	5.19	Formal reports for each test should be prepared ~~by the individuals responsible~~ and should be approved according to the management system processes ~~by the commissioning group~~	To put emphasis on the management system.	Accepted			
174.	5.22	Documents should be prepared and issued during the progress of the commissioning activities in order to ~~certify~~ report on the performance of the tests and to provide the required ~~authorizations~~ inputs for the continuation of the programme	Avoid the use of "certify". Authorization may be too strong	Accepted			
175.	5.23	Delete 5.23	Too much detailed. Furthermore, duplicate prior guidance	Accepted	Will be combined and simplified in light of previous comments		

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
176.	5.24	Delete 5.24	Too much detailed. Furthermore, duplicate prior guidance (see 4.74 and following)	Accepted	Will be combined and simplified in light of previous comments		
177.	5.25	Delete 5.25	Too much detailed. Furthermore, duplicate prior guidance (see 4.74 and following)	Accepted	Will be combined and simplified in light of previous comments		
178.	5.26	Delete 5.26	Too much detailed. Furthermore, duplicate prior guidance (see 4.74 and following)	Accepted	Will be combined and simplified in light of previous comments		
179.	5.27	Documents should be prepared and issued for the handover of plant systems in order to ~~certify~~ formalize that the plant system was installed and tested		Accepted			
180.	5.27 bullet list	Delete bullet list	Duplicates 3.57	Accepted			
181.	Appendix		Transform appendix into an annex	To be discussed			
182.	Appendix 1A3	Replace — the minimum number of personnel necessary to load fuel; — identification of the permitted working time of the personnel; By " – organizational aspects (such as number of personnel required…)"	To broaden the topic	Accepted			

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Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
183.	Annex 1 A1		The draft "Reactors are now being designed which include many passive safety features or which do not include some parts of the systems mentioned here. Clearly the commissioning for such reactors will differ in many respects." Are the following paragraph technology neutral?	To be discussed			
184.	Annex 1		This is a long list so it may be understood as being exhaustive ? is this the purpose ?	To be discussed			
185.	Annex 2	Delete annex 2	There is a standard on licensing process…	To be discussed			
186.	/						