



Candu Copyright

February 4, 2014

53A-CECC14-0001L

Canadian Nuclear Safety Commission,
P.O. Box 1046, Station 'B',
280 Slater Street,
Ottawa, Ontario K1P 5S9

To Whom It May Concern,

Re: Candu Energy Inc.'s Comments on Draft REGDOC-2.3.1, "Commissioning of Reactor Facilities"

The purpose of this letter is to provide Candu Energy Inc.'s comments on draft REGDOC-2.3.1, "Commissioning of Reactor Facilities".

Candu Energy Inc. is concerned with the content of the proposed Regulatory Document regarding commissioning of reactor facilities. The proposed document extends requirements well beyond those required for commissioning a reactor facility. The intertwining of regulatory requirements to obtain a Construction or Operating licence under the General Nuclear Safety and Control Regulations and Class I Nuclear Facilities Regulations with requirements for commissioning activities of a reactor facility can create confusion for people planning commissioning activities. This document should avoid stating requirements that are already covered in other regulatory documents or codes and standards that are typically included in licences, e.g., management systems, qualifications and training, emergency management and discusses issues such as minimum shift complement.

This proposed Regulatory Document on commissioning of reactor facilities has a large overlap with commissioning requirements in CSA N286-05 and CSA N286-12. This Regulatory Document should be written to clearly describe the regulatory requirements to satisfy the relevant provisions of the Nuclear Safety and Control Act (NSCA) and the regulations made under the NSCA, and allow the licence applicant or licensee to propose a commission program, based on codes and standards, to meet the requirements.

Sincerely,

A handwritten signature in blue ink that reads "Albert Lee".

Albert Lee
Manager,
Project Physics, Licensing & Safety
(905) 823-9040, Ext. 36415

Cc: D. Yang, F. Yee, J. Ballyk, N. Anghelidis

Attachment:

A. Candu Energy Inc.'s Comments on REGDOC-2.3.1, "Commissioning of Reactor Facilities"

Attachment A

Candu Energy Inc.’s Comments on REGDOC-2.3.1, “Commissioning of Reactor Facilities”

#	Document Section/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification
1.	1.2 First paragraph “...the principles set out in this document also apply to commissioning activities related to the life extension, refurbishment and modification of an existing reactor facility.”	<p>The use of the term “principles set out in this document” needs clarification with respect to the application of this document to commissioning activities related to the life extension, refurbishment and modification of an existing reactor facility.</p> <p>The purpose for commissioning is to confirm that systems, structures and components meet their design requirements prior to being placed in service. The main difference between commissioning a new reactor facility and commissioning systems, structures and components in existing reactor facilities after life extension, refurbishment or modification is the extent of the commissioning activities.</p>	Clarify the extent to which this REGDOC should be applied to life extension, refurbishment or modification of an existing reactor facility.	Major
2.	1.2 Second paragraph “Applicable regulatory documents, codes and standards are referenced in this document. “	The list of documents in the References is not a complete set of applicable regulatory documents, codes and standards for commissioning a reactor facility, even with the inclusion of the documents listed under Additional Information		Clarification requested
3.	2, 2nd bullet on page 2 “defines clear responsibilities for commissioning activities and oversight, specifying interfaces between construction, commissioning and operating	There is an important interface between the commissioning organization and the design organization when interpreting the results of the commissioning tests to confirm that the design intent has been demonstrated.	Change text to: “defines clear responsibilities for commissioning activities and oversight, specifying interfaces between design, construction,	Clarification requested

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	organizations”		commissioning and operating organizations ”	
4.	2, First paragraph Page 3 “The licensee shall submit the commissioning program to the CNSC for approval at least one year before commencing commissioning activities.”	<p>It is already a requirement to submit this as part of the operating licence application (Sec 6c of the Class I Facility Regulations).</p> <p>Note that the non-nuclear commissioning program would be submitted with the construction licence application.</p> <p>It should be recognized that the nuclear commissioning program would be revised and updated as more detailed commissioning procedures are developed. Also, experience from non-nuclear commissioning would be used to update the nuclear commissioning program.</p>	Remove this requirement as it is already considered as part of the operating licence application.	Clarification requested
5.	2. Commissioning Program 3rd last paragraph “The licensee shall submit the commissioning program to the CNSC for approval at least one year before commencing commissioning activities.”	CNSC should accept programs not approve them	Replace word (approval” with “acceptance”	Clarification requested

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6.	Pg 2 Section 2, Bullet 4 outlines the testing and verification activities that must be performed to ensure that structures, systems and components (SSCs) important to safety are built as designed and meet the requirements of the facility design and safety analysis	The use of the term “SSCs important to safety” needs careful consideration. For new reactor facilities this term is defined in Section 7.1 of RD-337 (and REGDOC-2.5.2). This term is also defined in RD/GD-98 for reliability program purposes. Existing reactor facilities will have a different list of SSCs important to safety than new reactor facilities. Hence the scope of commissioning after life extension, refurbishment or modification of an existing reactor facility may not encompass the same set of SSCs.		Clarification requested
7.	3.1 “...using a management system meeting the requirements of CSA N286-12”	Introducing this specific requirement could create a conflict with Power Reactor Operating Licence (PROL) requirements since an additional reference to management system requirements is made in the PROL.	Suggest changing word to “All commissioning and related activities performed by the licensee shall be developed and implemented in accordance with the management system requirements referenced in the facility licence.”	Major
8.	3.3 Transfer of SCCs and the reactor facility “Prior to fuel-in-core testing, all systems shall be under the control of the operating organization”	It is not practical that all systems will be under the control of the operating organization at the time initial fuel in core testing.	Suggest changing to: “Prior to fuel-in-core testing, <i>all reactor safety and control</i> systems shall be under the control of the operating organization.”	Major

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9.	Pg 5, Section 3.3,Paragrah 3 Before the transfer takes place, representatives of the organizations involved in the handover process shall carry out facility walk downs of all systems.	N286 12 uses the term turnover. Are handover and turnover interchangeable?	Change Handover to Turnover	Clarification requested
10.	Pg 5,Section 3.3 ,Paragraph 5 After the transfer, any turnback for rework/repair shall remain under the ownership of the operating organization.	This is already covered by the first sentence in section 3.,3	Suggest removing the sentence: “Before the transfer takes place, representatives of the organizations involved in the handover process shall carry out facility walk downs of all systems.”	Clarification requested
11.	Pg 5, Section 3.3 “The transfer of shall be documented.”	The sentence is incomplete	Suggest changing text to: “The transfer of SSCs shall be documented.”	Clarification requested
12.	3.5” Non-conformances of safety significance should be treated as events by the licensee, and resolved via a corrective action program in a graded manner”	Clarification is required as to the intent of statement “treated as <u>events</u> by the licensee” in the 2 nd paragraph of the Guidance section. Non-nuclear commissioning under a construction licence would be covered by some reporting requirements under licence conditions. Nuclear commissioning under an operating licence would be covered by some reporting requirements under a licence condition that refers to S-99 or its replacement.		Clarification requested

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13.	Pg 6, Sect 3.5, Paragraph 1 “Commissioning activities that do not conform to requirements shall be identified, and corrective actions shall be employed for their resolution.”		Suggest changing text to: “Commissioning activities that do not conform to requirements shall be identified, and addressed through the corrective action program.”	Clarification requested
14.	3.6 Emergency Management	This section does not belong in this RegDoc. The Construction and Operating Licences will include Emergency Management Licence Conditions citing RegDoc 2.10.1. All EP requirements should be contained in RegDoc 2.10.1	Delete Section 3.6.	Clarification requested
15.	4.2, Top of Page 8 “...and shall support analytical tool validation.”	Safety analysis and design analytical tools are required to be validated prior to use under existing regulatory requirements (CSA N286.7). Data obtained from commissioning tests provide additional sources of data to supplement the validation of analytical tools.	Suggest changing text to: “...and shall provide additional data to supplement analytical tool validation.”	Clarification requested
16.	4.3 “Acceptance criteria shall be classified as either important to safety or not important to safety”	It is unclear what is intended by this statement. Since the intent of the commissioning is to confirm that the design requirements have been met, the acceptance criteria should be associated with the design requirements. The safety significance of the acceptance criteria may vary from no safety significance to highly safety significant.	Suggest deleting sentence	Clarification requested

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17.	4.3 “CNSC approval of the acceptance criteria important to safety may be needed before performing the commissioning tests. This will depend on the facility-specific commissioning program.”	<p>The intent for CNSC approval of acceptance criteria for commissioning tests is unclear. Since the acceptance criteria need to be defined to enable confirmation that design requirements have been met, the acceptance criteria are based on the safety, design and performance requirement.</p> <p>The CNSC should be accepting the acceptance criteria as part of accepting the commissioning program.</p>	Delete paragraph.	Major
18.	Section 4.4 “Test Procedures “	<p>Apart from the first sentence “All commissioning tests shall be performed in accordance with the commissioning program and authorized written procedures “section 4 is excessively prescriptive and covered by CSA N286 and addressed in the managed systems of the licensees</p>	Delete everything after the first sentence.	Clarification requested
19.	4.5 “Formal reports for each test shall be prepared by individuals responsible for the tests, and approved by the commissioning organization.”	<p>A graded approach as outlined in N286 should be allowed.</p>	Change expectations for formal reports to allow a graded approach to reporting to be consistent with N286.	Major
20.	4.6 Guidance , Major modifications to test procedures “The CNSC should be informed in advance of any major modifications to test procedures.”	<p>What is considered a major modification to test procedures? It is not clear what objective is met by informing the CNSC of test procedure modifications. This could potentially create a large administrative burden on the regulator since, particularly for a new facility, many thousands of tests may be performed during</p>	Define major modification.	Clarification requested

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		commissioning. This administrative burden could distract from the safety-important items the regulator would oversee.		
21.	Appendix A to D	Commissioning Tests have been called in past CANDU commissioning experience, Phase A Commissioning Tests. Appendix C tests have been called Phase B Commissioning Tests and Appendix D tests have been called Phase C Commissioning Tests. What is the rationale for change?		Clarification requested
22.	Appendix A	There are tests in Appendix A (prior to fuel load) that should rather be performed prior to leaving shutdown state (Appendix B) such as: <ul style="list-style-type: none"> • safety-important process cooling systems in service (heat sink systems important to reactor cooling and emergency sources of water); • facility HVAC (“as needed to support safe reactor operation” should be added); • safety system tests should also include Start-Up Instrumentation (SUI); • adjustable reflectors: is it absorbers (AA)?; • some fuel storage and handling tests belong to Appendix B such as spent fuel storage bay cooling and purification systems, etc. 		Major
23.	Appendix B “ion chambers in service”	Depending on the reactor technology it could be ion chambers or fission chambers	Suggest changing text to: “ion chambers or fission chambers in service”	Clarification requested

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24.	Appendix D “digital control computer transfer of control test (CANDU)”	Depending on the reactor technology it could be Digital Control Computers (DCC) or Distributed Control Systems (DCS) transfer of control tests (CANDU).	Suggest changing text to: “Digital Control Computers (DCC) or Distributed Control Systems (DCS) transfer of control tests (CANDU)”	Clarification requested
25.	Appendix D “dual computer failure test (CANDU)”	Depending on the reactor technology it could be dual computer failure test or failure of relevant DCS partitions (CANDU).	Suggest changing text to: “dual computer failure test or failure of relevant DCS partitions (CANDU)”	Clarification requested
26.	Appendix D “performance of the following, at higher power levels: crash cool rundown test”	A crash cool rundown will put the unit through unnecessary stresses. The design intent can be demonstrated via individual Steam Relief Valves testing	Delete ”crash cool rundown test”	Clarification requested
27.	Appendix E	In Appendix E, the responsibilities of either the commissioning organization (preferable) or the operating organization should be to prepare, verify, validate and test (as far as practicable) the operating documentation, which includes: admin procedures, work protection procedures, operating procedures, operating flow sheets, alarm response procedures, safety related test procedures, field procedures (standard operating sequences), field inspection guides, temporary operating procedures, emergency operating procedures, severe accident management guidance.		Clarification requested
28.	Appendix E “ensuring that configuration control is maintained and that the affected systems’ design basis documentation – including the final safety analysis report – has	In Appendix E, the responsibility for the design basis documentation – including FSAR – to be updated, does not belong to the Construction organization but to the Design organization		Clarification requested

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	been updated to reflect any design changes and concessions”			