REGDOC-2.3.1: ***Conduct of Licensed Activities: Construction and CommissioningPrograms / Réalisation des activités autorisées : Programmes de construction et de mise en service***

Comments received from public consultation / Commentaires reçus dans le cadre du processus de consultation

Comments received for Construction:
• during first round (April 24 to June 24, 2014): 81 comments from seven (7) reviewers
• during feedback period (July 3 to 25, 2014): 3 comments from one (1) reviewer

Commentaires reçus :
• lors de la première période (du 24 avril au 24 juin 2014) : 81 commentaires reçus de sept (7) examinateurs
• lors de la période des observations (du 3 au 25 juillet 2014) : 3 commentaires reçus de un (1) examinateur

Comments received for Commissioning:
• during first round (November 6, 2013 to February 6, 2014): 133 comments from seven (8) reviewers
• during feedback period (February 21 to March 14, 2014): no comments were received

Commentaires reçus :
• lors de la première période (du 6 novembre, 2013 au 6 février 2014) : 133 commentaires reçus de huit (8) examinateurs
• lors de la période des observations (du 21 février au 14 mars 2014) : aucun commentaire reçu

Industry's submissions included an additional column, "Impact on Industry, *if major comment*". This information is shown in red font.

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Construction Document Public Consultation Comments					
1.	General	General	Bruce Power	In our view this document is not yet ready for publication or adoption into a Licence. It was not productive to comment on individual content since in our view the structure itself is questionable. We strongly recommend instead that CNSC organize a workshop(s) for all interested parties including those with extensive experience in these areas to gain the appropriate insights.	While it is unfortunate that Bruce Power chose not to provide comments, other stakeholders have provided informative comments that have resulted in significant revisions to the document. The possibility of a workshop will be considered based on feedback on the revised document.
2.	General	General	Atomic Energy of Canada Limited (AECL)	AECL does not accept the approach of making many of the good practices of the industry, which are beyond the mandate of the CNSC, into requirements. These could be included as guidance. Furthermore, the requirements of existing standards such as CSA N286 must not be repeated or paraphrased in a	Based on this and other comments the document has undergone significant revision. We agree that CSA N286 requirements need not be repeated or paraphrased in a REGDOC, content that is considered "best practice" has

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				REGDOC.	been recast as guidance. Responses provided to other industry comments show the extent of the changes made.
3.	General	General	Bruce Power	Bruce Power is concerned with the content of the proposed Regulatory Document regarding the construction of reactor facilities. While we understand and appreciated the intent, the proposed document attempts to go well beyond regulatory requirements and includes good practices, general management principles, and how to guides for those unfamiliar with nuclear requirements. The result is a general confusion of issues and a lack of clear direction on regulatory objectives. A few examples in "shall" statements include: • communication and relationships among all parties that are open and constructive, and identification of problems before they become serious • control of emergent work • processes to manage claims and disputes. While these activities would be part of normal management systems it is hard to see how they are regulatory requirements. Open and constructive relationships are always desirable but are sometimes not fully achievable and other means may need to be used. This document contains many such examples of this and where it attempts not only to set the requirement but to define the how. The document needs to be refocused to clearly define the regulatory requirements and objectives. Good practices and the suggestion of means to carry out activities must be clearly separated.	See response to comment 2.
4.	General	General	Candu Energy Inc.	As an observation, this draft document represents Canadian good practices for planning, monitoring and conducting construction activities for reactor facilities. However, there are many “shall” statements associated with good practices	We have noted Candu Energy Inc.’s comments. Responses provided to comments on specific sections of the document show the extent of the

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				for project management and licensee/contractor interfaces that are beyond the mandate for regulatory oversight under the Nuclear Safety and Control Act, which could be included as guidance. This regulatory document needs to be revised to clarify and separate regulatory requirements (i.e., "shall" statements) from guidance ("should" statements). Nevertheless, Candu Energy Inc.'s preference would be to remove all guidance statements associated with good practices for project management and licensee/contractor interfaces that are beyond the mandate for regulatory oversight, because these good practices are already reflected in recognized standards, such as those issued by the Canadian Standards Association.	changes made. See response to comment 2.
5.	General	General	Bruce Power	Additionally this document attempts to combine requirements for construction activities that would be part of a new build with those for a construction activity on a currently licensed site. Sites and facilities with an existing CNSC Licence operating to standards such as CSA N286 already have these requirements defined within their approved management system. Attempting to restate or redefine these requirements in this document is unnecessary and greatly confusing. At the time of new construction full management systems such as N286 may not be in place and this guidance is necessary and appropriate for that activity.	This document will also apply to life extension, refurbishment and modification of an existing reactor facility. While it is true that existing CNSC licensees operate under CSA N286 and have these requirements defined within their approved management systems, these management systems were designed to operate the sites and facilities and not necessarily designed for construction activities undertaken for life extension, refurbishment and modifications projects. Recent projects have faced challenges that could have been avoided or mitigated by a management system designed for construction activities. At the time of new construction, the management systems required to execute construction activities will be in place, including all CSA N286 generic requirements and specific construction-associated requirements.

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6.	General	General	Ontario Power Generation (OPG)	The document is good guidance; however, there are many "shall" statements that may be beyond the mandate of the CNSC. While many of the project management issues are good guidance, they should not be requirements. REGDOC should be rewritten to clarify and separate regulatory requirements (shall statements) from guidance (should statements)	See response to comment 2 as to how we have addressed all comments.
7.	General	General	OPG	The document seems to broadly assume construction of a new plant and therefore, focuses on requirements for construction activities. It does not differentiate on what is applicable for a major modification/refurbishment, as compared to new build. Please also see comments on Section 1.2. REGDOC should be rewritten to clarify. Preference is to make document specific to construction of new facilities only.	The document will also apply to life extension, refurbishment and modification of an existing reactor facility. See response to comment 3. The REGDOC has been significantly revised based on the various comments provided such that distinguishing on what is applicable for a major modification/refurbishment, as compared to new build is better defined. General requirements are common regardless.
8.	General	General	OPG	There are four general themes for this document: 1. It is a good guidance document. 2. It tries to regulate good project management or business practices which are not a regulatory function. This is guidance. 3. It mixes modifications and new build/major projects which is inappropriate; there are similarities in approaches but not in degree. 4. There is much redundancy with CSA N286. There is no need to repeat N286 requirements in this REGDOC.	See response to comment 2 as to how we have addressed all comments.
9.	General	General	Candu Energy Inc.	Furthermore, there are overlaps between the requirements in this regulatory document and safety management system standards, e.g., CSA N286-05, "Management System Requirements for Nuclear Power Plants". The text should be	See response to comment 2 as to how we have addressed all comments.

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				reviewed to avoid overlapping requirements, and limit the focus of this document to the specific requirements needed for regulatory compliance and verification of licensed activities.	
10.	General	General	AECL, Candu Energy Inc.	This document is similar to the recent commissioning document in that it imposes requirements on Management System, Training and Aging Management (as examples). Given that there are already existing standards and REGDOCs covering these aspects, this document should not try to override those documents. Some high level guidance strictly related to construction in those areas may be acceptable, however these should not be requirements as they would be already be fulfilled to obtain a construction licence. Suggest revising this regulatory document to limit the focus to regulatory requirements for construction activities.	Agreed. In response to this and other comments we have made considerable changes particularly to the referenced topics. Overlap with CSA N286, and other REGDOCs has been removed. Changes also include recasting requirements as guidance where appropriate.
11.	General	General	AECL, Candu Energy Inc., OPG	This document does not appear to be aligned with the Construction Licence Application Guide (RD/GD-369). Suggest reviewing and revising this regulatory document to align with RD/GD-369, "Licence Application Guide: Licence to Construct a Nuclear Power Plant", since the requirements in this document are intended to be included in a licence condition after the construction licence is issued, and the licence application would be included in the licensing basis.	Disagree; RD/GD-369 is broader in scope as it includes commissioning and operational requirements. The document is aligned with sections 8.1 and 8.2 of RD/GD-369.This REGDOC provides requirements and guidance for the construction program, which is to be submitted in the application to construct.
12.	General	General	Power Workers' Union	1. Overall, the PWU supports the CNSC's initiative for a comprehensive framework for best practices and guidelines for the construction and commissioning of reactor facilities. The PWU notes that much of the guidance contained in the Draft Regulatory Document and in its companion draft regulatory document, *Commissioning of Reactor Facilities,* represents the best practices that the PWU and its licensee employers have adopted in working in past and current projects on	Comment noted. Refer to the response to comment 2 as to how we have addressed all comments.

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				new and existing reactors.	
13.	General	General	Power Workers' Union	2. The PWU supports the development of interface arrangements between various stakeholders and regulatory bodies in respect of construction projects. The PWU and its employers have existing communication pathways, as part of their long-standing collectively bargained relationships. The PWU supports the development of interfaces to resolve conflicts and concerns in the construction and pre-construction process, in addition to the labour relations processes which may be available to unionized workforces.	Comment noted.
14.	General	General	Power Workers' Union	3. The PWU and its members are committed to the development and maintenance of a safety culture for construction and commissioning projects, and to the development of programs and safeguards that support a safe and efficient construction planning and implementation process.	Comment noted.
15.	General	General	Power Workers' Union	4. The PWU notes that the Draft Regulatory Document contains subject matter that is not specific to the construction of reactor facilities and is dealt with in other CNSC documents. For example, the draft Regulatory Document references personnel qualification and training, an area dealt with in Regulatory Document 2.2.2: *Human Performance Management: Personnel Training*. The draft Regulatory Document requires personnel who will be involved in commissioning, operation, maintenance and technical support activities will receive "hands-on" training to gain expertise in their future discipline (p. 5). In the PWU's view, the specific training for personnel who will be involved in commissioning, operation, maintenance and technical support activities is redundant to existing requirements and guidelines. Specific training may	Based this and other comments the document has undergone significant revision. With regards to REGDOC-2.2.2, *Personnel Training*, refer to the response to comments 42 and 43 which deal with how we address this subject.

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				include hands- on training, but such requirements should be left to the licensee, to be implemented in accordance with existing licence requirements, CNSC guidelines, CSA N286-12: *Management system requirements for nuclear facilities*, and the licensee's established programs, processes and procedures for qualification and training of personnel.	
16.	General	General	Power Workers' Union	5. The PWU also supports the need to ensure that existing facilities be operated safely and securely during construction activities. As PWU members are front-line staff in both existing operations and construction projects, the PWU expects to work with licensee employers to develop an appropriate mechanism to ensure the continued safe operation of existing facilities.	Comment noted.
17.	General	General	Power Workers' Union	6. The PWU supports the establishment of a construction program to ensure that planning and work is conducted in an efficient manner. The PWU views the draft Regulatory Document as providing guidance at a high level, with specific requirements, safety measures and construction processes to be handled by the licensee and its primary workforce and contractors and to be tailored to the unique construction requirements of the subject reactor facility. In summary, the PWU supports the CNSC's initiative to provide guidelines and requirements for the construction and commissioning of new and existing reactor facilities, subject to the comments above.	Comment noted.
18.	Preface	Preface	AECL, Candu Energy Inc., OPG	This REGDOC is a companion piece to "Commissioning of Reactor Facilities", which was available for review in November of 2013 and commented on by Industry. Before publication, these two documents will be put together as discrete parts of a larger document entitled REGDOC-2.3.1, "Operating Performance: Conduct of Licensed Activities".	The documents have been consolidated into a single document; Part A is Construction and Part B is Commissioning. The combined document will be circulated to stakeholders prior to publication.

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				Suggest providing the industry with an opportunity to comment on the REGDOC once the two companion documents are consolidated into REGDOC-2.3.1, "Operating Performance: Conduct of Licensed Activities".	
19.	1.2	1.2	AECL, Candu Energy Inc.	Section 1.2, "Scope" states: "This regulatory document is applicable to the activities carried out under a construction licence for a new reactor facility and to a major modification/refurbishment of an existing reactor facility. " The document focuses on requirements for construction activities and doesn't identify which requirements are applicable for a major modification/refurbishment.	CNSC management has determined the document will apply to life extension, refurbishment and modification of an existing reactor facility. See response to comment 3. The REGDOC has been significantly revised based on the various comments provided such that distinguishing on what is applicable for a major modification/refurbishment, as compared to new build is better defined. The revised text is intended to address the Major Comment concerning inconsistencies and additional costs related to contract modifications.
			Candu Energy Inc.	Suggest removing references to major modifications/ refurbishment from this document and put the applicable requirements in a separate document dedicated to major modifications/ refurbishment.	
			AECL, OPG	Delete requirement	
			Major Comment - This regulatory document should focus on New Build Construction. Existing stations are currently following approved procedures for modification/refurbishment and having to comply with all of the requirements in this document can lead to inconsistencies and additional costs related to contract modifications.		
20.	1.2	1.2	J.Froats, University of Ontario Institute of Technology (UOIT)	The scope suggests the document will apply to refurbishment and modification at existing facilities. Later in the document it talks about a construction licence being applicable. Facilities operating under an existing operating licence already have requirements to meet a CSA N286 program and to have programs to define Engineering Change Control and the configuration management implications associated with it. The management of the construction type of activity associated with modification and refurbishment work under a mature operating organization is quite different than during	The REGDOC has been significantly revised based on the various comments provided such that distinguishing on what is applicable for a major modification/refurbishment, as compared to new build is better defined. By removing detailed requirements and placing emphasis on CSA N286 the document now makes it clear that licensees can structure their activities according to their needs, whether it

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				initial construction. It seems to confuse the document by not limiting the scope to the construction phase of the project life cycle and dealing with modification work in the operating cycle framework.	be developing new processes or utilizing existing mature ones. The REGDOC looks for the desired outcomes of construction activities; the means of achieving those outcomes are at the discretion of the licensee and their contractors while being compliant to the requirements.
21.	1.2	1.2	J. Froats, UOIT	Facilities that will undergo refurbishment are covered by an operating licence, the CSA N286 program specified by that licence and will be governed by an Engineering Change Control managed system that will cover modification, modification testing, and all associated processes. It would seem much clearer to separate this type of facility from new construction. Concepts are similar but application is quite different.	Refer to the response to comment 20. To emphasize, the REGDOC does not attempt to dictate application, which is left to the licensee and its contractors.
22.	1.2	1.2	J.Froats, UOIT	Particular emphasis in the construction of a nuclear facility needs to be related to the design assurance aspect of construction. When a component or system is passive in nature, or has aspects that are important to safety but not confirmable by testing there needs to be the additional rigor implied by the document. There are many construction activities on a nuclear site that are conventional in nature (construction of office buildings etc.). It would be useful for the scope of the document to be reflective of the different nature of a construction approach to conventional SSC's and focused primarily on the assurance of nuclear safety sensitive aspects (construction completion assurance as part of the overall design completion assurance program.	In response to the numerous comments regarding duplicating CSA N286 requirements we have removed those duplications; CSA N286 is the primary requirement for construction activities. CSA N286-05 and -12 provide completion assurance requirements for all life cycle phases. CSA N286-12 also introduces graded approach to requirements which can then be applied to the design process which produces the design output documents which dictates the degree of construction rigor based on the safety significance of an SSC or conventional part of the facility.
23.	1.2	1.2	Michael K. Yates, StarCore Nuclear	The words and phrases safety, safety-significant, construction safety, safety function, operations safety, nuclear safety, industrial safety, and important to safety are used throughout the document, and it is not clear whether the terms are	Agreed, the document has been reviewed and simplified to reduce the number of “safety” terms.

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				interchangeable and have the same definition or whether the terms are defined differently, particularly with those terms involving nuclear safety. There are two kinds of safety covered - nuclear safety and construction or industrial safety. Recommend that fewer designations be used, added to the glossary and that the document be edited to incorporate them.	
24.	2.0	3.1	J.Froats, UOIT	Typically, the licensee uses the construction and commissioning phase of a new build project to assimilate an extensive knowledge and understanding. As written the requirement is vague and not likely doable. It may be that some of the expectations apply to various milestones and to varying degrees at each milestone. It is clear that the knowledge requirement must be met prior to the introduction of nuclear materials to the project. It is also true that the way the project is set up will impact a number of the points. It may be more clear to set this up to clearly state what the construction program must contribute to the Design Assurance of the facility and make clear that the licensee must establish appropriate roles and responsibilities between designer, constructor and operator to provide assurance that these obligations are met.	Section 2.0 has been rewritten to focus on the Licensee's role in managing its contractors. Regarding assimilating knowledge and understanding, while they are desirable, knowledge management is not something which can be regulated. However, we have included appropriate wording in the guidance for the modified section on training and qualification; now section 5.1.
25.	2	3.1	AECL, Candu Energy Inc.	The first sentence should be stated as a requirement, and the second sentence and the numbered bullets after the second sentence should be placed under guidance to describe the CNSC expectations for the scope of the responsibilities. Suggest changing text as follows: Requirement The licensee shall have the primary responsibility for the safety and security of its licensed reactor facility, including responsibility for activities carried out by contractors. Guidance	Agreed. Section 2 has been extensively revised. The section now focuses more on the scope of the licensee's responsibilities regarding oversight of its contractors and the supply chain.

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				This responsibility covers all aspects related to the facility's construction and includes: …	
26.	2., Item 1	3.1	AECL, Candu Energy Inc., OPG	More common term is "smart/intelligent buyer." Suggest replacing "intelligent customer" with "intelligent/smart buyer".	No change, "intelligent customer" is the more widely used term and has been adopted and defined by the IAEA.
27.	2., item 2	3.1	AECL, Candu Energy Inc.	Shared goals and processes is a good project management practice. Suggest deleting item 2 or revising the text such that it is expressed as guidance or as an option. **Major Comment -** These statements overlap with the requirements in safety management system standards, such as CSA N-286.	Section 2 has been completely revised; refer to the response to comment 25.
		3.1	OPG	Delete item or take it out of the "shall" umbrella and include in a "should" or "may" clause, i.e. the Guidance portion of the document. **Major Comment -** These statements are too prescriptive and go beyond "what" things get done, and infringe on "how" things get done.	
28.	2.	3.1	AECL, Candu Energy Inc., OPG	Some of the items listed as Licensee responsibilities are not necessarily performed by the Licensee, but the Licensee is responsible to ensure that they are completed. For example: 7. preparing and updating construction program documents 8. establishing construction instructions and procedures 9. performing inspections, tests and verification of items important to safety 10. evaluating inspection findings and reporting the evaluation results to the CNSC Suggest revising items 7 through 10 as follows: 7. ensuring construction program documents are prepared	Agreed, text revised as suggested.

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				and updated 8. ensuring construction instructions and procedures are established 9. ensuring inspections, tests and verification of items important to safety are performed 10. ensuring inspection findings are evaluated and reporting the evaluation results to the CNSC	
29.	2., Note 1	3.1	AECL, Candu Energy Inc., OPG	Organization may be performing oversight to ensure supervisors are trained and supervision is effective, vs. performing the supervision. Suggest changing text to: "...an organization that knows what is required,... provides adequate oversight and/or supervises the work and technically reviews the output before, during and after implementation." **Major Comment -** Lack of continuity between this note and section 3. Need to allow flexibility for contract supervisors to supervise work, while licensee still ensures that quality is maintained.	Section 2 has been revised; refer to the response to comment 25. We have removed the Note. IAEA provides the definitive definition for "intelligent customer". See also response to comment 26.
30.	3.	2	AECL, Candu Energy Inc., OPG	It mandates CSA 286-12 whereas the licensee should actually be directed towards the standard listed in their licence. Suggest deleting the version number for CSA 286	Agreed, the version number has been removed.
31.	3	2	J.Froats, UOIT	The document specifically makes reference to CSA N286-12. Currently operating plants have licences based on CSA N286-05. It would seem appropriate to indicate that a program is required that meets the requirements as outlined in CSA N286 or equivalent and leave the revision as a point of discussion for the issuance of a construction licence.	Refer to the CNSC response to comment 30.
32.	3.1	3.1	J.Froats, UOIT	There is a mix of construction and procurement in this section. It might add clarity to split the structure to have a section on oversight of procurement of equipment and components and reference to a program such as the old CSA	Due to the variety of business modes available to the licensee, the separating procurement and construction is not as straight forward as it used to be. Examples include on-site and off-site

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				N299 (or equivalent) and a separate section on oversight of construction. Many of the points flow from the basic N286 framework so are perhaps redundant. On the other hand, some requirements like assurance that inspection techniques used conform to requirements such as the CQIB program, need for additional rigor in construction completion assurance where downstream commissioning testing cannot provide adequacy of design assurance are not prominently featured. At this point it is not clear (at least to me) how `evidence of a positive safety culture' in contractor organizations would be practically measured. This area is still a developing area for licensee operating organizations.	modular construction, and SMR factory fabricated and fuelled reactors. Regarding CSA Z299, while its use is being resurrected under N299, the CNSC does not specify manufacturing standards. It is left to the facility designers. In addition, foreign and non-traditional reactor vendors may opt for different standards. We have restructured section 3.1 removing duplication with CSA N286 requirements (i.e. completion assurance) and replacing them with performance based requirements and guidance. Measuring safety culture is necessary given the problems experienced in recent reactor construction projects in the U.S. A recent report noted the following examples of poor safety culture: •"…firing a quality insurance supervisor elsewhere in its company who warned a potentially faulty part may have been shipped…" •"…a welder at the factory took a qualification test for another worker in 2010, and that a supervisor knew but did not report it." Although the U.S. has standards such as 10CFR50 Appendix B QA, NUPIC audit program, and the NRC's ITAAC program, there remain challenges. While we agree safety culture is developing area and something not looked at in the manufacturing and construction environment, it

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					must still be addressed.
33.	3.1.2	3.2.2	AECL, Candu Energy Inc., OPG	The requirement for agreement upon the interfaces can be interpreted to mean that the CNSC has to agree upon the interfaces between: • The licensee and the reactor designer, and/or • the reactor designer, manufacturers, construction organizations and contractors. Suggest changing text to: "Before construction starts, the interfaces between the licensee, the CNSC and other regulatory authorities shall be defined, agreed upon and understood such that the CNSC and other regulatory authorities are provided with relevant performance issues that have affected, or have the potential to affect, the quality of construction and future operational safety." **Major Comment -** As written, the requirement could be interpreted to mean that the CNSC and other regulatory authorities have a role in the contractual arrangements from a business perspective which would exceed their regulatory mandate.	Agreed, the text has been revised as suggested with minor modifications.
34.	3.1.3	3.2.3	ACEL, Candu Energy Inc., OPG	As written, the requirement is overlapping the requirements in CSA N286-12. Also, it is suggested that item 2.b include the need to control foreign material impacts. For item 3.b, history dockets are reviewed once projects are complete, or the equipment is turned over to a Licensee. Licensees don't necessarily review contractor purchasing documentation prior to a PO being placed. Hence the focus should be placed on verifying that the specifications used for purchasing equipment, materials and components have been	Agreed, section has been revised, moving the list to guidance. Duplication of CSA N286 requirements have been removed and replaced with a requirement section with guidance. The guidance is structured to provide proactive and reactive attributes for contractor oversight.

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				met. Suggest changing text as follows: Requirement The licensee shall develop measures to ensure that contractors and sub-contractors meet their respective contractual obligations in accordance with an appropriate safety management system. The licensee shall maintain records of its oversight activities and report to the CNSC relevant contractor performance that has affected, or has the potential to affect, the quality of construction and future operational safety. Guidance Examples of contractual obligations where performance has the potential to affect the quality of construction and future operational safety performance include: 1. for selection of contractors: a. confirmation that the contractors have the ability to supply the goods or service b. acceptance of the contractor's management system through review of documentation and audit c. confirmation that the contractor understands all regulatory requirements d. resolution of any exceptions the contractor has to the licensee's requirements e. reviews of contractor submissions against requirements 2. for contract management: a. evidence of a positive safety culture b. evidence that the contractor satisfies all contractual requirements related to health and safety, environment,	

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				security, control of materials and quality c. communication and relationships among all parties that are open and constructive, and identification of problems before they become serious d. contract is administered through management of change, performance monitoring and monitoring of work progress e. problem identification and resolution, and effective corrective action programs f. control of emergent work g. processes to manage claims and disputes 3. for contractor supply chain (manufacturing and construction) activities: a. pre-screening of sub-contractors used by the contractor, to ensure the sub-contractors are acceptable and to incorporate them into the licensee's supply chain program b. review of contractor purchasing documentation to confirm specifications for purchasing have been met c. review of contractor manufacturing or construction documentation, including quality plans/manufacturing and inspection and test plans, and special process procedures d. source verification and audits, during manufacturing and construction, to verify compliance of the contractor or its sub-contractors e. review and disposition of any contractor non-conformances to requirements The above guidance should also extend to the contractor's measures to ensure its sub-contractors meet their respective contractual obligations. **Major Comment -** As written, the requirement could be interpreted to mean that the CNSC has a role in the contractual arrangements from a business perspective which	

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				would exceed their regulatory mandate.	
35.	3.1.3, item 2. b	3.2.3	OPG	Need to control foreign material impacts like corrosion. Change to: "evidence that the contractor satisfies all contractual requirements related to health and safety, environment, security, **control of materials** and quality."	Refer to the response to Comment 34 where we address this issue.
36.	3.1.3, 2. c, d, f, g	3.2.3	OPG	Good project management; not safety significant and ought not to be subject to regulatory scrutiny. Delete items. **Major Comment -** These statements are too prescriptive and go beyond "what" things get done, and infringe on "how" things get done.	Agreed. Refer to the response to comment 34, the section has been revised.
37.	3.1.3, item 3. b	3.2.3	OPG	History dockets are reviewed once projects are complete, or the equipment is turned over to a Licensee. Licensee does not necessarily review contractor purchasing documentation *prior* to a PO being placed	Agreed. Refer to the response to Comment 34 where we address this issue.
38.	4	4	J.Froats, UOIT	This section seems to outline requirements necessary to get a construction licence. It might be better to focus the section on the necessary requirements to obtain a construction licence. In doing so however, the general requirements need to be taken to a more specific level as they change through the construction period. For example bullet 2 requires a site security program be put in place. At the beginning of the construction period, the objectives of a security program are quite different than at the milestone of first nuclear material on site. The same concept is true of fire protection programming.	To address this and other comments on this section we have revised it so that it takes a broader and less specific view to being ready for construction.
39.	4. Item 3	4	AECL, Candu Energy Inc., OPG	The requirement "the design is sufficiently complete" is ambiguous and has historically caused significant debate on when it is achieved.	Agreed, text revised as suggested with the following addition: "and schedules have been prepared for their completion".

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				Suggest revising the text as follows: 3. the design is sufficiently complete, as agreed between the licensee and the contractor, and any incomplete areas have been identified	
40.	4., item 14	4	AECL, Candu Energy Inc., OPG	Too vague – what is the starting point by which we ought to assure infrastructure is in place? Construction will have to have started in order to get the infrastructure in place. Candu: Suggest revising the text as follows: 14. infrastructure support systems – including required electricity, gas and water supply, fire protection, protection or coverage of SSCs after work installation (including maintaining environmental qualification) – are in place at a level commensurate with the progress of construction activities AECL and OPG: Delete item. Unnecessary, and incidental to safety of the final constructed station	Agreed, text revised as suggested.
41.	4., item 15	4	AECL, Candu Energy Inc., OPG OPG	The quality of construction cranes, scaffolds, temporary structures and temporary equipment is governed by provincial laws and regulations. AECL and Candu: Suggest changing text to: 15. construction processes and equipment, such as cranes, scaffolding, temporary structures, portable equipment, and flammable equipment, meet jurisdictional requirements Licensees do not regulate the quality of construction cranes, scaffolds, temporary structures and temporary equipment. Delete item	Agreed, text revised with some editorial changes
42.	5	5.1	J.Froats, UOIT	The issue of qualification relates to the application of the N286 program which requires personnel to be competent. The CSA standard calls for techniques like testing, examination, demonstration of skill as a means of demonstrating	This section has been restructured into requirements and guidance. Duplication with CSA N286-12 requirements has been removed, and wording regarding operational phase

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				competency. How the construction activity is established influences the approach to competency. Operational phase training approaches may be applied to oversight and acceptance roles, but construction work force management will in many cases need confirmation of trade skill while oversight and integration is done by others.	training approaches modified per the comment. The section has also been moved to section 3.3 on programs supporting construction activities.
43.	5. Para. 4	5.1	AECL, Candu Energy Inc., OPG	This paragraph regarding training of personnel involved in commissioning etc. does not belong in a regulatory document on construction of nuclear reactors AECL: Delete paragraph. Candu Energy: Move paragraph to commissioning portion of the combined regulatory document. OPG: Preferably delete paragraph else it should be rewritten.	The subject paragraph has been recast into guidance material. See to the response for comment 42.
44.	6.1	3.3.1?	J.Froats, UOIT	While all the elements listed are applicable, the document does not seem to outline that the objectives and requirements change throughout the construction process which lasts several years. In the beginning the security program in more a commercial `loss control' focus. At the milestone of nuclear material on site the focus will necessarily be different. My view is that the document should include an acknowledgment that program provisions are quite different through the construction phase. Measures absolutely necessary later in the project are not necessary at the beginning.	Agreed. The text has been revised with an overall revision to include the suggested changes.
45.	6.3, Item 5.	3.3.6	AECL, Candu Energy Inc., OPG	Assessment of evacuation times is new and not something Licensees do for existing facilities. Suggest changing text to: “Emergency Preparedness shall consider ....evacuation times ...”.	Agreed. This section has been rewritten. It now has high level requirements and it references REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*. The section on fire protection has also been merged with this section.
46.	6.3, para. 3	3.3.6	AECL, Candu Energy Inc.	The terms “nearby” and “in close proximity” are open to interpretation. Suggest being more specific.	Agreed. The text has been revised as follows, and written as guidance:

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				This paragraph should also be considered as guidance and not a requirement Suggest replacing the terms "nearby" and "in close proximity" with more specific descriptions. Also suggest revising the text as follows: Guidance Sites without an existing nuclear facility nearby should be able to support their emergency response needs independently. If an existing nuclear facility is in close proximity, mutual aid agreements may be put in place to support emergency response. As construction proceeds the licensee should ensure that emergency measures in place are commensurate with onsite hazards.	"The proximity of other nuclear facilities should be considered so that mutual aid agreements may be put in place to support emergency response."
			OPG	Clarification required on how far away is "nearby." Suggest being more specific. Terms "nearby" and "in close proximity" are open to interpretation. For example, replace those terms with "on the same site."	
47.	6.4	3.3.3	AECL, Candu Energy Inc., OPG	Editorial Change text to: … such as spent fuel pools …	Text has been removed from the document.
48.	6.5	3.3.6	AECL, Candu Energy Inc., OPG	Clarification is required for the exact meaning of the term "controls". Suggest changing text to: "Fire protection controls, i.e. temporary measures to mitigate potential fires, shall be available until final systems for plant fire detection, ..."	Agreed. Changes made as suggested.
49.	6.7	5.5	AECL, Candu Energy Inc., OPG	REGDOC-2.6.3 is not a draft document. It was issued in March 2014. Suggest deleting "(draft)" from the reference to REGDOC-	Agreed, text corrected. The reference to REGDOC-2.6.3 is now in section 5.5 as the separate Aging Management section has been

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				2.6.3.	removed from the document.
50.	7.1	5.1	J.Froats, UOIT	Planning and scheduling is important to project success. However, approaches like modular construction should be constructor / licensee choices. As long as appropriate quality controls are applied, so that the outcome meets the design assurance needs, it seems to me that this is an aspect that should not be included as a regulatory requirement. Again, these are simply elements of an N286 program. The issue of drilling of concrete seems to be a detail level that is not consistent with the document. Perhaps it is more valuable to use this section to establish a clear set of regulatory hold points that set clear expectations of prerequisite activity to be completed to remove a hold point.	Based on this and other comments on section 7, we have restructured the section along with sections 8 and 9. Removed: • duplication of CSA N286-12 requirements, and detailed level material • high level sections on maintenance, aging management and monitoring environmental conditions, and housekeeping/FME under one new section on SSC protection. Refocused planning, scheduling and work sequence to verification activities. Establishing regulatory hold points can only be established based on the specifics of the project. For example, hold points for a factory built and fuelled SMR would be different to a traditional reactor construction project.
51.	7.1, Para. 1	5.1	AECL, Candu Energy Inc., OPG	The text includes a requirement that is applicable to regulatory bodies, and recommended good practices. It is suggested that the text be split into a requirement and guidance. Suggest revising the text as follows: Requirement Planning, scheduling and work sequencing shall identify and include provisions for hold and witness points by various parties, such as the licensee, architects/engineers, authorized inspection agencies and the CNSC. Guidance	Agreed. Text revised as suggested.

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				To ensure construction sequencing will not be adversely affected by later construction activities, planning, scheduling and work sequencing should identify and include provisions for: 1. items with long lead times (long-lead items) 2. onsite manufacturing, modular assembly and testing activities. **Major Comment -** As written, the requirement is not technology neutral and enters into the business transaction aspects of the interface between the licensee and the construction contractor.	
52.	7.1, Para. 2	5.1	AECL, Candu Energy Inc., OPG	Suggest revising such that the text is split into a requirement and guidance. Suggest revising the text as follows: Requirement Post-drilling of concrete shall be kept to a minimum. Guidance Consideration should be given to the design of components and plant fixtures, such as the form of cast-in components, so that post-drilling of concrete is kept to a minimum.	Agreed. See response to comment 50 for the restructuring of section 7.
53.	7.2	5.5 bullet 3 and Guidance	Candu Energy Inc., OPG	Suggest revising the requirement for greater clarity and separating the requirement from guidance. Suggest changing text to: Requirement Environmental conditions shall be confirmed to remain within their allowable limits by periodic monitoring. Guidance Examples of environmental conditions during construction	Agreed. Text revised as suggested.

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				work where allowable limits should be specified include temperature, pressure, humidity, dust, dirt, airborne salt, wind, and electromagnetic conditions.	
			AECL, OPG	Suggest rewording the requirement for clarity. Suggest changing text to: Environmental conditions shall be confirmed to remain within their allowable limits by periodic monitoring.	
54.	7.3 para. 3 & 4	5.5	AECL, Candu Energy Inc., OPG	These paragraphs are not regulatory requirements, and if not removed, should be revised such that they are expressed as guidance. Suggest removing this text or revising to express as guidance.	Agreed. Text recast as guidance.
55.	7.4	5.5	AECL, Candu Energy Inc., OPG	These requirements are not considered part of Construction. Delete text from construction part of REGDOC-2.3.1, and move text to commissioning part of REGDOC-2.3.1.	The CNSC considers these measures to be part of the Construction Program, as hydrostatic testing is a construction activity. The text has been recast as guidance under section 5.5, of the combined REGDOC-2.3.1. See also the response to comment 50 for the restructuring of section 7.
56.	7.4, para. 1	5.5	AECL, Candu Energy Inc., OPG	Missing lay-up requirement. Suggest changing the text to: Fluid and gas piping systems, and associated components shall be laid up, cleaned, flushed and conditioned according to applicable chemistry requirements.	Agreed. See response to comment 50 for the restructuring of section 7.

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57.	7.4, item 3	N/A	AECL, Candu Energy Inc., OPG	It is unclear what the term "storage capacities" means. Does it refer to storage of chemicals? Suggest revising the requirement to provide clarification.	The list including this term has been removed from the document.
58.	7.4, item 6	N/A	AECL, Candu Energy Inc., OPG	It is unclear what the term "recycling" means. Does this mean recirculation? Suggest replacing the term "recycling" with "system recirculation."	The list including this term has been removed from the document.
59.	7.4, 8.4, 9., 9.1, 9.2	6.1, 6.2	AECL, Candu Energy Inc., OPG	The term used in CSA N286 for "transfer" is "turnover". Suggest replacing instances of "transfer" with "turnover" as appropriate	Agreed. Instances of "transfer" with "turnover" replaced as appropriate.
60.	8.1, Guidance item 10	5.5	AECL, Candu Energy Inc., OPG	Additional requirements on cleanliness of components are missing. Assurance is needed that components are free of surface FME to avoid issues on restart. (e.g. boiler sulfate issues at Pt. Lepreau post-refurbishment) Suggest revising the text as follows: 10. the compatibility of cleaning methods and materials with the components being cleaned and cleanliness of components after cleaning. The latter includes any remnants of preservatives or cleaning agents on components before installation.	Agreed. Text has been added to the guidance section of 6.5.
61.	8.1	5.3	AECL, Candu Energy Inc.	Most of Section 8.1 belongs in REGDOC-2.5.2, because the technical documents for procurement are an engineering activity, not a construction activity. The right of access to facilities and records for witness points or audit by the CNSC should be kept with this document. Suggest changing text in section 8.1 to: "The licensee shall ensure right of access to facilities and	Agreed. This section has been deleted with the exception of the requirement for right of access which is set out in section 5.3 of the combined REGDOC-2.3.1. Text has been revised as suggested. Remainder of text will be considered for addition to REGDOC 2.5.2 when it is next revised.

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				records for witness points or audit by the CNSC." Suggest moving the remainder of the text in Section 8.1 to a new section in REGDOC-2.5.2. **Major Comment -** Engineering activities should be contained within REGDOC-2.5.2.	
62.	8.1 & 8.2	5.2	OPG	All of Section 8.1 and 8.2 belongs in REGDOC-2.5.2, because the technical documents for procurement are an engineering activity, not a construction activity. Move Sections 8.1 and 8.2 to a new section in REGDOC-2.5.2. **Major Comment -** Engineering activities should be contained within REGDOC-2.5.2.	Agreed in part, see response to comment 61. Section 8.2 has been moved to guidance in section 5.2 of the combined REGDOC-2.3.1
63.	8.2	5.2	AECL, Candu Energy Inc.	The text in Section 8.2 includes a combination of requirements and guidance. Suggest revising the text in Section 8.2 as follows: Requirements Any differences between the original purchasing requirements, the licence-to-construct design basis and the as-built items shall be evaluated, reconciled and reported to the CNSC. Guidance The procurement of long-lead items is entirely at the licensee's risk. Submissions for procurement of items for which the licensee seeks CNSC acceptance, prior to the application for a licence to construct, will be reviewed on a case-by-case basis. When the licensee/applicant proceeds with procurement of long-lead items, the submissions should include the following	Agreed, text revised as suggested with minor edits and moved to section 5.2 of the combined REGDOC-2.3.1.

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				information: ...	
64.	8.2	N/A	J.Froats, UOIT	It is not clear to me why aspects of transport to site is included in this document. Until nuclear materials are involved, transportation seems to be no different to transportation requirements for any non-nuclear project and so should be outside the scope of a nuclear construction standard.	Agreed. Text has been deleted.
65.	8.3	5.4???	J.Froats, UOIT	Whether work is done on site or off site seems to be part of the thought process in this section. Where and how the work is done should be a licensee decision - as long as the method of doing the work meets codes and standards and the CSA N286 framework it should be an acceptable approach.	Agreed. The combined REGDOC-2.3.1 states that the work must meet CSA N286 and other appropriate codes and standards.
66.	8.3.1	5.4	AECL, Candu Energy Inc., OPG	One of the purposes of this section is to eliminate counterfeit items. However this is not explicitly stated. Add that one of the reasons for inspection and identification of components is to eliminate counterfeit items. Candu Energy: Suggest adding the following to 8.3.1: 12. counterfeit, fraudulent and suspect items have not entered the construction site	Agreed. Text is now part of guidance in section 5.4 of the combined REGDOC-2.3.1. See response to comment 50 for the restructuring of section 7. If CSA N286-12 is applied to its fullest extent the issue of counterfeit, fraudulent and suspect items can be managed. Further, REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, now includes "The licensee shall report on the discovery of counterfeit, fraudulent or suspect items during the conduct of licensed activities" (Table A.1, item 15).
67.	8.3.1 8.3.2 8.3.3 8.3.4		AECL, Candu Energy Inc., OPG	The Industry does not consider that the requirements in these sections apply to ALL components that are received. Suggest excluding low cost, easily replaceable components, or limiting it to components used in some sub-set of station	Agreed. The term "components important to safety" has been incorporated into sections 5.4, 5.5 and 5.6 of the combined REGDOC-2.3.1.

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				systems. Section 8.3.7 refers to “items important to safety of nuclear facilities”. Suggest similar wording be incorporated into these sections. **Major Comment -** The statements as written have licensees doing a very detailed receipt inspection on every box of light switches. They make every cardboard box subject to being qualified. The section establishes sensible requirements, but It is not believed that the universal applicability of the requirements is what was intended. A graded approach that is commensurate with the safety significance of the items should be reflected in the statement of the requirement.	
68.	8.3.7	5.7	Michael K. Yates, StarCore Nuclear	Recommend that an item "5. other on-site activities to facilitate construction" be added to the list. As written, the list could be read as excluding other viable construction work. Ultimately the constructor and licensee need the flexibility to decide where manufacturing, module assembly or other activities be performed, all in accordance with regulations and other requirements	Agreed. Text added as suggested to section 5.7 of the combined REGDOC-2.3.1.
69.	8.3.7, para. 4	5.7	OPG, AECL, Candu Energy Inc.	This text belongs under guidance. OPG: Suggest changing text from “Onsite manufacturing may include:” to “**Guidance** Examples of onsite manufacturing include:” AECL and Candu: Suggest revising the text as follows: Guidance Examples of onsite manufacturing include: 1. concrete production in a concrete batch plant 2. rebar assembly 3. pipe spool fabrication	Agreed. Text is now part of guidance in section 5.7 of the combined REGDOC-2.3.1. See response to comment 50 for the restructuring of section 7.

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				4. modular assembly, such as: a. mechanical modules: structural equipment on a common structural frame, along with interconnecting piping, valves, instruments and wiring b. structural modules: liner, wall, floor, heat sink floor, turbine pedestal form, stairs, platform, structural steel, and space frame modules; some structural modules may include leave-in-place formwork for concrete c. piping modules: pipe, valves, valve tree, pumps and associated instrumentation and wiring on a common structural frames electrical modules: electrical modules on a common structural frame	
70.	8.3.7, para. 5	5.7	AECL, Candu Energy Inc., OPG	Licensee may only ensure that the rules and procedures are established for onsite testing facilities. Suggest changing text to: "Ensure the rules and procedures are established for onsite testing facilities"	Agreed. Text is now a requirement in section 5.7 of the combined REGDOC-2.3.1. See response to comment 50 for the restructuring of section 7.
71.	8.3.7, para 5, bullet 1.	5.7	AECL, Candu Energy Inc., OPG	Suggest changing the text to encompass the entire concrete and backfill construction Suggest changing text to: "Concrete mix, core extraction and testing for the entire concrete and backfill program in accordance with the technical specifications covering the supply of concrete and backfill"	Agreed. Text revised.
72.	8.4, para. 2.	N/A	AECL, Candu Energy Inc., OPG	The process for completion assurance is covered in CSA N286 (which the Industry is required to comply with) and therefore does not require repeating in the REGDOC. Suggest deleting the second paragraph.	Agreed. Text has been deleted.

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73.	8.4	???	Michael K. Yates, StarCore Nuclear	It is not clear to what the requirement that "Testing and verification of components important to safety shall be performed by a qualified independent party" applies. Recommend that clarifying language be added. There are several situations: a. Testing in a supplier's facility - this testing will done in accordance with the supplier's QA and quality control program, are critical to the supplier's code compliance and warranty obligations and may be witnessed by the licensee, CNSC and independent parties as desired. b. Construction testing - testing of such things as concrete strength and instrument calibration will be performed by independent parties. However, normal construction tests on the site such as meggaring of electrical wiring, hydro tests of systems and loop checks of power and control cables are usually performed by the constructor under his QA and quality control program and witnessed as desired by the same parties as noted above. c. Commissioning testing - the commissioning group will perform tests of components and systems. This group will be under the direct control of the licensee. In the StarCore Nuclear model, the commissioning personnel will ultimately operate the reactor facility for StarCore Nuclear. Involving them directly in the testing is a critical feature in their training. Again, witnessing is available as desired.	Agreed. See response to comment 50 for the restructuring of section 7.
74.	9.1 and 9.2	6.1 & 6.2	AECL, Candu Energy Inc., OPG	Licensees and CSA N286 use the term “turnover’’ instead of “handover”. Suggest replacing “handover” with “turnover”.	Agreed, change made.
75.	9.1	6.1 and 7.1	Michael K. Yates, StarCore Nuclear	This section appears to require a formal turnover of SSCs and areas between construction disciplines. Such a turnover will impede the normal flow of construction work. There will be rules and procedures in place to handle such things as the	The section has been recast as guidance. The requirements for the turnover of SSCs is addressed in CSA N286.

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				release of an embedded plate to the piping contractor for his use in attaching pipe hangers and other like transfers. These and other types of releases will flow with the construction activities and will be documented as they occur. Once the civil work is nearly done, piping, electrical and other trades / subcontractors will be working in the same area. The General Contractor is required to control and coordinate these activities and will do so in an efficient manner.	The transfer of facility configuration information created during construction is now addressed in Section 7.1, of the combined REGDOC-2.3.1which CSA N286 does not completely address.
76.	9.1	6.1	AECL, Candu Energy Inc.	The requirements for turnover are well defined in safety management standards, e.g., Clause 6.9 of CSA N286-05. The current text should be revised to illustrate CNSC expectations under guidance. Suggest revising the text as follows: Requirement The licensee shall ensure that a process for turnover of structures, systems and components is established in accordance with an applicable safety management standard. Guidance Rules and procedures should be established to control and coordinate the handover of completed work and associated facility configuration information from one party to another (for example, from civil to mechanical, piping and electrical) to maintain completed work integrity. Access control for SSCs and working areas shall also be established and implemented for the transfer. Transfer requirements and responsibilities shall be documented. When SSC and areas are to be transferred between parties within the construction organization or contractors, both parties shall jointly check the transferred SSC and area, and the facility configuration information, at the location in question. Configuration of the components and working	Agreed, suggested text incorporated with editing.

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				areas, addressing any identified deficiencies, shall be agreed upon by both parties. After transfer, further work or corrective actions by the previous party should only be done with appropriate authorization by the party to whom the work has been transferred and the licensee.	
77.	9.1	6.1	OPG	Good project management; not safety significant and need not be subject to regulatory scrutiny.	Agreed. Much of the content in this section has been recast as guidance.
78.	11, para. 1	7.1	AECL, Candu Energy Inc., OPG	Suggest revising the requirement to clarify the intent. Suggest changing text to: "The control of construction records shall be established at the beginning of the construction program for input into the schedule for accomplishing construction activities."	To best address this comment, and Comment 79, we have merged the content with section 7.1 of the combined REGDOC-2.3.1and recast content as guidance.
79.	11., Para. 2	7.1	AECL, Candu Energy Inc., OPG	Suggest revising to clarify requirements and guidance. Suggest revising the text as follows: Requirement Construction records shall be compiled, particularly in inaccessible areas or areas that will be subject to intense radiation, to facilitate the planning of work in these areas during commissioning, operation and decommissioning. These visual construction records of as-built conditions shall show identification marks and shall be catalogued with descriptive captions. This will ensure that visual records made during subsequent inspections or maintenance work can be easily compared, and will help in any work preparation. Guidance Construction records should include photographic and, where appropriate, video records and computer simulations.	Agreed. Section 11 has been revised and now forms part of the guidance in section 7.1 of the combined REGDOC-2.3.1.

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80.	Glossary	Glossary	AECL, Candu Energy Inc., OPG	The definition of "construction" in the Glossary includes procurement and manufacturing, which are not considered to be part of construction. The preparation of technical specifications for procurement is an engineering activity. Suggesting changing text to "The process of assembling the components, including on-site manufacturing, carrying out civil work, installing and maintaining components and systems, and performing associated tests."	No change. The definition is intended to be broad in scope. A review of the following standards shows that the scope of construction varies between standards: • CSA N285 Series12: "an all-inclusive term comprising materials, design, fabrication, examination, testing, inspection, and certification required in the manufacture and installation of an item". • CSA N286-12: construction and procurement have stand-alone specific requirements.
81.	Reference	Reference	J. Froats, UOIT	A number of the references have provisions specifically targeted for operational phases of nuclear facilities and should not be directly applied to the construction phase	No change. The references apply to the documents cited in the document. The Additional Information section has suggestions only.
Comments received during feedback period, July 3 – 25, 2014:					
82.	General	General	J. Froats, UOIT	It appears that most of the feedback provided during the preliminary round of consultation is reflective of some of the comments I submitted with respect to the significant differences between a green field build project and the ongoing modification business that follows through the operating phase of the facility. I continue to believe it is important to separate these two periods in the life cycle and provide focus on the aspects in the green field construction that are key to assurance that the plant that is newly built reflects the as designed plant safety requirements with fidelity.	While the document is primarily focused on new reactor facilities (green field), the same challenges are also experienced in major life extension, refurbishment and modification of an existing reactor facility. Experience with the Pickering, Bruce and Point Lepreau projects highlighted the potential benefits of having clear, more specific regulatory requirements. Section 1.2 Scope, 3rd paragraph states "In addition, the principles set out in this document also apply in a graded manner to construction activities related to the life extension, refurbishment and modification of an existing

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					reactor facility."
83.	General	General	J. Froats, UOIT	I also agree with the general feedback that in its' current form, the draft is a mix of requirement, guide, and in some cases practices that are only one way of meeting fundamental requirements. Clarity and focus on requirements in areas important to design assurance (such as prevention of entry of fraudulent and/or substandard materials, clarity of requirement `hold points' for regulatory confirmatory inspection, etc.) would, in my view, greatly add to the clarity of the document as a key element of the Regulatory framework for a new build.	The CNSC reviewed the contents of the document to ensure that no overlap with existing requirements in other areas, including CSA standards. With respect to "prevention of entry of fraudulent and/or substandard materials", the CNSC is currently reviewing its regulatory approach in this area. This work may result in future clarifications to the regulatory framework. Currently, however, existing codes and standards, if fully applied, sufficiently address the issue. Regarding "`hold points' for regulatory confirmatory inspection, etc.", these would be specified in the facility's licence or licence conditions handbooks. CNSC will apply other means to communicate such confirmatory inspection, etc. The dynamics of different reactor technologies and project arrangements will determine such inspections on a case-by-case basis.
84.	General	General	J. Froats, UOIT	Given the significant comment in this area, I would strongly support the Bruce Power suggestion that some form of a stakeholder workshop would be an appropriate next step to discuss scope and content for the document before it goes forward.	The REGDOCs have been substantively revised to address the comments received on the draft document, and are being provided to stakeholders well ahead of the planned Commission meeting to approve the document's publication. Following the review of the CNSC's response to their comments, the CNSC may revisit the need for a meeting with interested stakeholders.
Commissioning Document Public Consultation Comments					

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85.	General	General	Bruce Power, Ontario Power Generation (OPG), Atomic Energy of Canada limited (AECL)	The proposed document extends requirements well beyond those required for commissioning and seems to confuse what would be required 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. For example, the document has requirements for management systems, qualifications and training, emergency management and discusses issues such as minimum shift complement. While there are aspects of these issues that need to be in place during the commissioning of a reactor facility, these requirements are described by other documents such as CSA N286 for management systems, REGDOC 2.2.2 for training and REGDOC 2.10.1 for emergency preparedness and the licensees methods to meet these requirements will have already been reviewed by CNSC staff, for licensing purposes, well ahead of any commissioning activities. AECL added: If changes are made to these documents and not cross-referenced to REGDOC-2.3.1, an error likely situation would be created.	REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. Requirements pertinent to construction activities are addressed separately in *Construction of Reactor Facilities*. The document is not intended to duplicate content better addressed in other documents, but rather to clarify their application to commissioning activities. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCs or CSA standards. As a result, section 3.1 has been edited and section 3.5, Performance measurement, assessment and improvement, has been removed. The remaining requirements in section 3, including training and emergency preparedness, are specific to commissioning, supplementing the requirements in other REGDOCs or CSA standards. In the combined REGDOC-2.3.1 these changes are found in sections 2, 3 and 8.
86.	General	General	Candu Energy	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.	REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. Requirements pertinent to construction activities are addressed separately in *Construction of Reactor Facilities*. The document is not intended to duplicate content better addressed in other documents,

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					but rather to clarify their application to commissioning activities. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCs or CSA standards. As a result, section 3.1 has been edited and section 3.5, Performance measurement, assessment and improvement, has been removed. The remaining requirements in section 3, including training and emergency preparedness, are specific to commissioning, supplementing the requirements in other REGDOCs or CSA standards. In the combined REGDOC-2.3.1 these changes are found in sections 2, 3 and 8.
87.	General	General	Bruce Power, OPG	The scope of the document is also of concern. Bruce Power [and OPG] would strongly object to this document applying to existing facilities as currently written.	As stated in the scope section, "this regulatory document applies to the commissioning of a new reactor facility and commissioning activities related to the life extension, refurbishment and modification of an existing reactor facility". For existing facilities, licensees can propose a customized commissioning program depending on the specific situation. The REGDOC leaves sufficient flexibility for the licensee to develop its commissioning program. CNSC staff will review the proposed program and determine its adequacy in fulfilling regulatory requirements. No change.

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88.	General	General	AECL	AECL notes that the main focus of the REGDOC is on Nuclear Power Plants and that any application to future research reactors would be on a graded approach.	Comment noted.
89.	General	General	AECL	AECL recommends that the document is revisited and prepared in such a manner as to guide the licence holders through the commissioning process, directing them to the appropriate existing site approved documentation.	It is the licensee's responsibility to prepare and propose a commissioning program that meets the requirements of REGDOC-2.3.1. The required site approved documentation is specified in the NSCA and associated regulations.
90.	General	General	Candu Energy	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.	Agreed. The document is not intended to duplicate content better addressed in other documents, but rather to clarify their application to commissioning activities. REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCS or CSA standards. Section 3.1 has been edited and section 3.5, Performance measurement, assessment and improvement, has been removed. The remaining requirements in section 3, including training and emergency preparedness, are specific to commissioning, supplementing the requirements in other REGDOCs or CSA N-series standards. In the combined REGDOC-2.3.1 these changes are found in sections 2, 3 and 8.
91.	General	General	Bruce Power,	Bruce Power [and OPG] notes that it is also highly undesirable to have multiple requirements contained in	The document has been reviewed and revised to remove requirements that are directly

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			OPG	different regulatory documents and standards that occasionally do not align. This has been noted in other proposed CNSC regulatory documents as well. It would be much more palatable to licensees if the CNSC focused the regulatory documents to the topic at hand and merely referenced other requirements that are contained in other documents instead of trying to repeat or redefine them.	covered by other REGDOCs or CSA standards. Section 3.1 has been edited and section 3.5, Performance measurement, assessment and improvement, has been removed. The remaining requirements in section 3, including training and emergency preparedness, are specific to commissioning, supplementing the requirements in other REGDOCs or CSA standards. In the combined REGDOC-2.3.1 these changes are found in sections 2, 3 and 8.
92.	General	General	Bruce Power. OPG	Bruce Power suggests documents like this one for commissioning should be prepared via the Canadian Standards Association process, rather than being developed in isolation by CNSC staff. The CSA ensures through the approved Canadian Standards process that the broad range of required expertise is brought to bear in the discussion and that input from all relevant jurisdictions is incorporated. OPG added: … as well as providing opportunities for public review.	The REGDOC has been developed under the CNSC mandate in accordance with the NSCA. CNSC provides industry and stakeholders ample opportunity to comment on the document through the CNSC's Regulatory document development process.
93.	General	General	Bruce Power, OPG, AECL	The document contains a lot of subject matter that is not directly commissioning related and would be dealt with through licensing processes. Furthermore, there is overlap with requirements contained in other REGDOCs. Remove essentially all of Section 3 as it deals with management system. This information is required to get a licence and covered under CSA N286 requirements. Training and emergency preparedness are also covered in N286 and other REGDOC documents. Review this REGDOC and remove any requirements contained in other REGDOCs.	REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. The document is not intended to duplicate content better addressed in other documents, but rather to clarify their application to commissioning activities. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCs or CSA standards. As a result, section 3.1 has been edited and section 3.5, Performance measurement,

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				Another example is to remove section 3 which is covered by the licensees' management system which is a requirement of the licensees' application. **Impact on industry:** Issues such as emergency preparedness, training, management system and minimum complement should not be covered by a commissioning document. Recent REGDOCs are consistently being written with overlapping requirements and in many cases conflicting or different requirements. The document should focus on commissioning only and be focused for new facilities or rewritten to allow a graded approach and guidance for other applications.	assessment and improvement, has been removed. The remaining requirements in section 3, including training and emergency preparedness, are specific to commissioning, supplementing the requirements in other REGDOCs or CSA standards. In the combined REGDOC-2.3.1 these changes are found in sections 2, 3 and 8.
94.	General	General	Candu Energy	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.	The REGDOC was developed to address a gap in commissioning requirements within the Canadian regulatory framework. REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. Requirements in REGDOC-2.3.1 supplement the existing requirements in CSA N286-05 and its successor, CSA N286-12. Section 2 of REGDOC-2.3.1 requires that "The licensee shall establish and implement a program for the commissioning of a reactor facility". This program, proposed by the licensee, must meet the commissioning requirements set out in REGDOC-2.3.1 as well as the relevant general provisions of the Nuclear Safety and Control Act (NSCA) and the regulations made under the NSCA.
95.	General	General	AECL, Bruce	The document (especially the appendices) is written with too much detail and reference to CANDU. The scope of the	The document itself is intended to be

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			Power, OPG	document covers all power and heat reactors including SMRs. The appendix information needs to reflect the scope of the document (i.e., be more technology neutral).	technologically-neutral. However, CANDU is the predominant technology in Canada. In order to aid licensees by using relevant examples, the guidance set out in the appendices may contain some CANDU-specific references. As other technologies (including SMRs) become more widely used, the document may be revised if necessary. The level of detail provided in the document, including CANDU-specific references, was reviewed in light of this input, and was determined to be appropriate.
96.	General	General	OPG, AECL	The terms "Licensee" and "Operating Organization" are not used consistently and context can be confusing (e.g., first paragraph and last sentence in 2nd last paragraph of 3.2). Suggest the term "licensee" be used when defining responsibilities for work typically governed by the construction license and "operating organization" be used when describing responsibilities governed by the operating license or accepting transferred systems.	Agreed. The 2nd last paragraph of Section 3.2 has been revised and the term "operating organization" has been replaced with "licensee". The document was also reviewed to ensure the terms are used consistently.
97.	General	General	Bruce Power	We would also like to note that the CNSC Regulatory Framework Plan, in some cases such as Electrical System Design, appears to be planning to duplicate requirements that already exist in current CSA Standards.	This comment is beyond the scope of this document. However, during development, the requirements set out in CNSC regulatory documents are reviewed against potential duplication with other REGDOCs or CSA standards, and are intended to be in addition to the ones that exist elsewhere in the regulatory framework.
98.	General	General	OPG	The proposed document extends requirements well beyond those required for commissioning and seems to include existing requirements to obtain a Construction or Operating	CNSC staff seeks to ensure clearly defined scopes for all documents. Regulatory documents are periodically revised to ensure

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				licence under the *General Nuclear Safety and Control Regulations* and *Class I Nuclear Facilities Regulations* as requirements for commissioning activities of a reactor facility. For example, the document has requirements for management systems, qualifications and training, emergency management and discusses issues such as minimum shift complement. While there are aspects of these issues that need to be in place during the commissioning of a reactor facility, these requirements are described by other documents such as CSA N286 for management systems, etc. Licensee methods to meet these requirements will have been reviewed by CNSC staff for licensing purposes well ahead of any commissioning activities.	consistency. REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. The document is not intended to duplicate content better addressed in other documents, but rather to clarify their application to commissioning activities. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCs or CSA standards.
99.	General	General	OPG	The scope of the proposed REGDOC-2.3.1 is not entirely clear. OPG would strongly object to this document applying to existing facilities as currently written. The interpretation of requirements as written could lead to uncertainty in refurbishment scope and potentially result in significant negative impact on cost and schedule. Commissioning activities associated with life extension, refurbishment or major modifications should be risk-based, focusing on modified systems, or those where the design basis may have been impacted.	As set out in the scope, "this regulatory document applies to the commissioning of a new reactor facility and commissioning activities related to the life extension, refurbishment and modification of an existing reactor facility". For existing facilities, licensees may propose a customized commissioning program that is appropriate to the specific situation. The REGDOC was developed to provide flexibility for the licensee to develop a commissioning program appropriate to the circumstances of the project. No change.
100.	General	General	Dr. Barbara Feldman	To the Canadian Nuclear Safety, I should very much like to provide the following comments regarding the Commissioning Of Reactor Facilities. I think it is absolutely essential to first of all try to reduce Ontario's power by at least 20% through rationing or other ways of cut back. This has been SUCCESSFULLY done in	This comment is beyond the scope of this document.

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				the state of Montana. I believe it is highly untenable to use the still incredibly toxic method of nuclear power, when there is no know way of disposing this waste, endangering generations to come. A small nuclear accident, from either earthquake, or terrorist act, would cause incredible damage to this relatively small area of Canada where much farming is sustained and where the population is high. It would also pollute the entire St. Lawrence watershed. Generations to come, would look upon our poor foresight of these events with undaunted shame. I urge you to instead work to create whole communities that are have power independence from nuclear, as well as fossil fuels, as has already been accomplished in Germany.	
101.	General	General	John Froats	The generation of a document focused on the Commissioning aspects of Nuclear Reactor in Canada is an important one and will fill an existing gap. I am fully supportive of either a CNSC REGDOC or CSA Standard or a combination of the two, which covers the commissioning area. The draft is a good first pass and is useful to generate discussion and feedback to further develop the document. Once fully developed, it will fill a void in the current framework.	Comment noted.
102.	General	General	John Froats	The document suggests it is intended to cover power reactors, small reactors, and research reactors and can be applicable to modification testing in existing power plants. The document is almost entirely focused on new power reactors and gives little guidance in the other areas.	The document is focused on power reactors in order to meet current licensing needs. The document is applicable to all types of reactors, with a number of examples in the appendices being CANDU-specific. The document was drafted to be as technologically-neutral as possible, with the understanding that CANDU is the predominant technology in Canada. As other technologies (including SMRs) become more widely used,

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					the document may be revised if necessary.
103.	General	General	John Froats	The document uses shall and should language. It is my view that the use of `shall', ought to be used for the principle to be met or the fundamental requirement to be met and then should to apply to supporting information about how that might be met. The language appears to be mixed in some places in the document.	The document has been revised to ensure that "shall" is used to denote a requirement while "should" is used for guidance purposes only.
104.	General	General	John Froats	1. The document refers to CSA N286-12 as the basis of the quality management aspects of commissioning. It repeats some of the management and organizational thinking in the CSA N286 Standard yet does not cover the connection to design. In the area of organizational structure, it appears to be based on an assumed structure as opposed to establishing what an organization must accomplish. As such it is overly restrictive in this area. 2. It does not recognize that current licences use CSA N286.05.	1. The design aspect is covered under construction requirements. An organizational structure is specified in the document, but a licensee may propose an alternative structure that meets the fundamental requirements. 2. Requirements in REGDOC-2.3.1 supplement the existing requirements in CSA N286-05 and CSA N286-12. Going forward, CSA N286-12 will be the only applicable standard. Licensees are currently transitioning to the use of the 2012 edition of N286. This document has been drafted in anticipation of this transition.
105.	General	General	John Froats	The terms validation and verification are used throughout. They are not defined in the document. If the definitions used in the CSA document series (or similar) are the basis, then it appears the terms are intermixed in several places.	Document has been revised to ensure the terms are used correctly.
106.	General	General	John Froats	Some areas that have caused historical problems in the execution of nuclear project commissioning aren't really addressed in the current version. Interface with design, rigor in the dispositioning of areas where commissioning testing is thought to be too demanding or risky to execute, compliance with the written program and adequacy of documentation all need additional emphasis.	Design is referenced a number of times in the document. Section 4.5 has been revised as follows to specifically reference the interface with design: "Formal reports for each test shall be prepared by individuals responsible for the tests, and approved by the commissioning **and design**

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					organizations". Text was also added to sections 4.1and 4.2 to address when testing is impractical: (section 4.1) "Where it is deemed impractical to fully test the functionality of a safety related SSC for all design basis events, gaps in testing shall be identified and documented. Additional compensatory measures (such as computer simulation, additional verification or third party review, etc.) shall be documented to compensate for the gaps in the commissioning assurance provided by testing." (section 4.2) "The combination of testing and other means of assurance, where testing is impractical, shall be such that risk to the public and environment is assured to be within the licensing envelope of the facility." Compliance with the program and the adequacy of documentation is generally not specified as a requirement in a REGDOC, but is verified by the CNSC through their compliance activities.
107.	General	General	John Froats	Some practices like wire by wire checking, use of type testing, analysis or 3rd party review in lieu of testing are not mentioned or addressed.	A reference to wire by wire checking was added in section 5.2. The following text was added to section 2 to allow flexibility for alternatives to testing; "The extent and depth of the commissioning program is dependent on many things. In situations where the commissioning requirement may not be applicable, the licensee may make a justification for not meeting the

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					requirement or propose an alternate method of compliance, which will be reviewed by CNSC staff."
108.	General	General	John Froats	The document seems to be slightly contradictory in places with respect to the need to test for design Basis event response. In some places it indicates testing is not required for events that may pose risk to the facility. In other places specific tests like loss of offsite power are specified.	Text was added to sections 4.1and 4.2 to clarify what to do when testing is impractical or poses a risk: (section 4.1) "Where it is deemed impractical to fully test the functionality of a safety related SSC for all design basis events, gaps in testing shall be identified and documented. Additional compensatory measures (such as computer simulation, additional verification or third party review, etc.) shall be documented to compensate for the gaps in the commissioning assurance provided by testing." (section 4.2) "The combination of testing and other means of assurance, where testing is impractical, shall be such that risk to the public and environment is assured to be within the licensing envelope of the facility." Loss of offsite power tests are listed as recommended tests in the Appendices. Tests may be designed to test this function without posing a risk to the facility, but in any case, the licensee would evaluate these tests based on the above requirements.
109.	General	General	John Froats	The appendices seem to cover initial commissioning of a CANDU power reactor. Some guidance for the approach / scope of other facilities the document suggests it is intended for would be valuable.	REGDOC-2.3.1 is based on the IAEA NSG-2.4 and CSA 286 documents, and addresses requirements specific to commissioning. To make the content, in particular the guidance on Commissioning activities and sequencing, more relevant to the Canadian context,

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					CANDU-specific examples are used to illustrate application of the requirements. The document was drafted to be as technologically-neutral as possible, with the understanding that CANDU is the predominant technology in Canada. As other technologies (including SMRs) become more widely used, the document may be revised if necessary. The document is suitable for application to other facility types, and is intended to be applicable to currently operating facilities, in a risk-informed graded approach.
110.	General	General	John Froats	The commissioning completion assurance process is touched on in a number of areas, but needs some additional focus so requirements are clear.	Document has been reviewed in this regard. No further changes are considered necessary.
111.	General	General	John Froats	Interface with regulatory agencies often uses terms like `sufficient notice'. The interface requirement should be supported with what is typically expected in terms of review times – or at least a descriptor of when and how the framework is established.	Agreed. Section 2 of the REGDOC has been revised as follows to expand on review times: "The licensee shall submit the commissioning program in advance of commissioning activities within an agreed lead time to ensure sufficient time for regulatory reviews and for any concerns raised during the review process to be adequately addressed. The lead time will be related to the size of the facility and the extent of the commissioning proposed. For a new build power reactor the lead time will typically be in the order of one year."
112.	General	General	John Froats	Since the document has a lot of content focused on the management of the commissioning phase, it may make the document more readily useable if it were structured along the model of the management system required by licence for the facility – typically the N286 structure. Where a specific	Comment noted. The document is structured to first focus on management requirements, then the specific requirements for the program and testing, followed by testing phases and regulatory hold points. This structure reflects

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				aspect needs emphasis, it could be amplified against the framework for all of the management of the facility.	the process that has been followed in recent commissioning activities and has fulfilled the needs of licensees and CNSC staff.
113.	General	General	John Froats	The document acknowledges IAEA NG-G-29, Commissioning for Nuclear Power Plants. In the IAEA document there is reference to IAEA NS-6-2.3, Modifications to Nuclear Power Plants. The CNSC REGDOC states that it may be applied to modifications, but does not provide references to other documents outlining the application and does not develop this aspect of application in the document. Note that some guidance on commissioning is contained in CSA N286 series documents.	As stated, IAEA document NS-G-2.9 already references IAEA document NS-G-2.3, so a direct reference is not needed. The key commissioning requirements or guidance contained in IAEA NS-G-2.3 are already covered by this REGDOC 2.3.1 or other regulatory documents. A specific reference to NS-G-2.3 is not required.
114.	General	General	Bruce Power	The terms "Licensee" and "Operating Organization" are not used consistently and context can be confusing. e.g. first paragraph and last sentence in 2nd last paragraph of 3.2 Suggest the term "licensee" be used when defining responsibilities for work typically governed by the construction license and "operating organization" be used when describing responsibilities governed by the operating license or accepting transferred systems.	Agreed. The 2nd last paragraph of Section 3.2 has been revised and the term "operating organization" has been replaced with "licensee". The document was also reviewed to ensure the terms are used consistently.
115.	General	General	John Froats	Use of Terms Verify and Validate These terms are not currently defined in the document. It appears that they are used in some cases in a non-consistent fashion.	Document has been revised to remove any ambiguities in the use of the terms. It should be noted that the intended meaning of these terms is as defined in the Canadian Oxford Dictionary. It is CNSC practice not to redefine terms that are used in accordance with their generally accepted definition.
116.	Preface	Preface	John Froats	Use of Shall, Should, May and Can The definitions are clear and aligned with the definitions used	The document has been revised to ensure that "shall" is used to denote a requirement while

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				in CSA and thus the quality management programs currently in licences. There are places in the document where the application in these terms, appear to be used in a non-optimum fashion.	"should" is used for guidance purposes only.
117.	1.1	1.1	Frank Laratta	My name is Frank Laratta and I worked for AECL in Mississauga on the reactor overpower trips for many years until my retirement in 2004. I have advanced an argument in a CNS paper this year that "trip setpoint values cannot and must not be pre-determined by safety analysis ALONE. Only the functionality of `setpoints` with respect to signals monitored can be pre-determined. I have received no comment (favourable or unfavourable) from the industry. Further, individuals all decline any dialogue or response. It seems that all nuclear standards give human guidance to designers and operators but advance no technical requirements on setpoints or instrumentation. The instruction for comment on **REGDOC-2.3.1** is as follows: *"This regulatory document also sets out requirements and guidance to ensure that commissioning activities meet applicable codes, standards, and design requirements, and that the reactor facility is capable of operating safely and reliably over its lifetime."* What does one do if the "*applicable codes, standards, and design requirements"* are themselves flawed, misinterpreted or lacking in some way? I will make detailed comments and send them to CNSC. I have commented, without being asked, on ``**RD-310:**	Comment noted. All comments received during public consultations are considered and addressed before finalizing draft documents. Note also that all documents or standards include a rigorous review of their accuracy before implementation, and are developed including a formal public consultation prior to publication. The comment does not provide any specific comments or suggestions for the content of the document.

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				Safety Analysis for Nuclear Power Plants`` and sent CNSC but have thus far not received feedback a few days ago. I am the process of reviewing **RD-337**, which is much larger but i will not send comments unless I know they will be received. I did also review but did not send to anyone: **Application of the CNSC Risk-informed Decision Making Process to Category 3 CANDU Safety Issues Development of Risk-Informed Regulatory Positions for CANDU Safety Issues** This latter document is, in my mind, closest to the problem to which I am referring. I should tell you that related American and international documents are also: 1. vague and full of motherhood statements, e.g. "as low as reasonable possible" without establishing "what" is possible 2. lack objective criteria where they should exist, e.g. safety analysis and setpoint criteria	
118.	1.2 1st para.	1.2	Candu Energy	1. 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. 2. 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. Clarify the extent to which this REGDOC should be applied	1. The term "principles" has been removed from the document. 2. The document is intended to apply to new and existing facilities. As always, if some of the requirements do not directly apply to a certain situation, the licensee may propose that the requirement is not applicable or propose an alternate method of compliance, which will be reviewed by CNSC staff. Guidance has been added to section 2 to clarify this.

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				to life extension, refurbishment or modification of an existing reactor facility.	
119.	1.2 1st para.	1.2	OPG, AECL, Bruce Power	1. The principles for commissioning a new reactor facility should not be the same as return to service after life extension. Commissioning activities in life extension are limited to those SSC's which have been modified or placed in a condition where design intent must be re-demonstrated. Regulatory document applies only to commissioning new reactor facilities or clarify that principles apply to those SSC's which have been modified or placed in a condition where design intent must be re-demonstrated. Suggest that N286 requirements for commissioning apply to existing facilities. Suggest that REGDOC-2.3.1 be used as guidance for existing facilities. **Impact on industry:** Interpretation of requirement as written can lead to uncertainty in return to service scope and potentially result in increased cost and schedule. 2. The requirements and guidance specified in REGDOC-2.3.1 is excessive. A notable number of the requirements compromise the regulator's independence and the regulator's oversight role. 3. When the regulator approves specific acceptance criteria (which would be contained in a specific document), it is no longer clear who exactly is responsible for their contents – the licensee or the regulator.	1. The document is intended to apply to new and existing facilities. As always, if some of the requirements do not directly apply to a certain situation, the licensee may propose that the requirement is not applicable or propose an alternate method of compliance, which will be reviewed by CNSC staff. 2. The REGDOC has been developed under the CNSC mandate in accordance with the NSCA. 3. The document indicates that acceptance criteria **may** need to be approved before testing. This was included to give CNSC staff the flexibility to request approval of certain key criteria, such as for approaching criticality. Section 3.2 of the document clearly specifies that "The licensee is responsible for safety and security and shall oversee the organization, planning, execution and assessment of the commissioning program."
120.	1.2 2nd para		AECL, Bruce Power	The 3rd sentence adds confusion to scope of REG DOC. The list of applicable regulatory documents, codes and standards referred to appear to be in the Reference section on page 35; but this is not clearly stated. Why is this reference made? Does it mean that only the listed documents are what is being referred to in the 1st sentence that states "is not	Agreed. The 3rd sentence has been deleted.

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				intended to override the requirements of other regulatory documents, codes and standards"? Meaning, does this "not intended" statement only apply to the listed documents? Delete 3rd sentence. Paragraph two should read: 1.2, Scope; 1st Para This regulatory document applies to the commissioning of a new reactor facility. Rather, it aims to provide a framework within which these can be applied to provide assurance that commissioning is effectively managed. If recommended deletion not made, a clarification as to the relationship between the Reference part of document referred to in 3rd sentence and the reference to "the requirements of other regulatory documents, codes and standards" in the 1st sentence.	
121.	1.2	1.2	Alikhan Consulting Inc.	In the first paragraph, commissioning of refurbished reactor facilities is mentioned in passing. Given the current and future emphasis on refurbishing existing reactor facilities, the scope of this document should address both new and refurbished units with necessary guidance included in Section 2, "Commissioning Program".	Guidance has been added to section 9 of the combined REGDOC-2.3.1 to clarify the applicability of the document to refurbished units.
122.	1.2 2nd para.	1.2	Candu Energy	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	The Reference list only contains the documents that are expressly mentioned in the document. The Additional Information section is not intended to be exhaustive but merely point the licensee to the most prominent guidance documents.
123.	1.2	1.2	John Froats	The document currently does not give guidance for application in the operating and decommissioning phases of the nuclear facility life cycle. It may be that these phases	The scope makes no reference to the operating and decommissioning phases of the nuclear facility life cycle. These phases are addressed

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				could be dealt with in another document. They should either be described in more detail or excluded from the scope.	by the licencing process.
124.	1.2	1.2	John Froats	Facilities that will undergo refurbishment are covered by an operating licence, the CSA N286 program specified by that licence and will be governed by an Engineering Change Control managed system that will cover modification, modification testing, and all associated processes. It would seem much clearer to separate this type of facility from new construction. Concepts are similar but application is quite different.	The document is intended to apply to new and existing facilities. Guidance has been added to section 9 of the combined REGDOC-2.3.1 to clarify the document's application to refurbishment situations.
125.	2	9	AECL, OPG, Bruce Power	The term "program" is currently used to refer to governance associated with a specific function (e.g., Configuration Management Program, Maintenance Program). The content of Section 2 appears to refer to a specific commissioning plan for a reactor unit and/or associated equipment. Suggest using "Commissioning Plan" to delineate from governance for operating nuclear power plants.	The word "program" adequately describes the requirements to be put into place for commissioning. Commissioning is more than a list of tests to be carried out, it includes many programmatic elements that must be incorporated such as quality management and training. The term "program" is also consistent with IAEA document NS-G.2.9
126.	2	9	John Froats	In essence, this section can be distilled to a statement that the Licensee shall establish a commissioning program based on CSA N286 or equivalent. It repeats concepts and requirements outlined in the CSA N286 document already in the license. Typically a licence even at the construction stage would specify a N286 based program.	The licensee must generally establish their commissioning program based on CSA N286. Section 9 of the combined REGDOC-2.3.1, however, provides specific requirements that are not listed in CSA N286. The document has been reviewed and revised to remove requirements that are directly covered by other REGDOCS REGDOCs or CSA standards.
127.	2	9	John Froats	5th bullet indicates it *verifies* safety analysis assumptions. Is it not more correct to say underlying assumptions must be verified as part of a commissioning assurance program and that commissioning testing verifies expected performance of SSC's?	The 4th bullet covers the verification of SSC performance. The 5th bullet requires the verification of safety analysis assumptions.

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128.	2	9	John Froats	11th bullet uses the term verify in respect to procedures. It should indicate to the extent practical and outline how to deal with cases when it is not practical. Perhaps it is really a validation exercise or a confirmation of effectiveness and verification is done by other means.	It is up to the licensee to make alternate proposals if it considers the verification procedures are not practical. Practicality considerations have been addressed by adding the following text: Section 10.1 of the combined REGDOC-2.3.1: "Where it is deemed impractical to fully test the functionality of a safety related SSC for all design basis events, gaps in testing shall be identified and documented." Section 10.2 of the combined REGDOC-2.3.1: "The combination of testing and other means of assurance, where testing is impractical, shall be such that risk to the public and environment is assured to be within the licensing envelope of the facility."
129.	2	9	Alikhan Consulting Inc.	1. The full scope of the commissioning program should include the physical plant, the procedures, people, and the applicable management system. Specific guidance on the scope of the commissioning program should include new and refurbished plants along with caveats for practicality considerations. See Section 5.2 of Ref. 1 (copy attached) for specific guidance. 2. Also add another bullet to the list: • Ensures that applicable management system is duly assessed, approved and issued to perform commissioning and operating functions.	1. The commissioning program includes all of the suggested components. Guidance was added to section 9 of the combined REGDOC-2.3.1 to address commissioning program scope. See also response to comment **Error! Reference source not found.**. 2. Management system requirements are covered by CSA N286 and current licensing activities.
130.	2	9	John Froats	At the top of page 3 the document has a shall statement indicating that the program shall be submitted one year before commissioning activity commences. This doesn't reflect	Agreed. Proposed text added with some minor revision.

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				graded approach for varying types of facilities and appears to give some special status to the period of one year. Would it not be more appropriate to state this in a fashion such as: "The Licensee shall submit the Commissioning Program in advance of commissioning activities with enough lead time to ensure regulatory reviews have sufficient time and any concerns raised during the review process can be adequately addressed. The Regulator will establish a clear lead time required. The lead time will be related to the size of the facility and the extent of the commissioning proposed. For a new build power reactor the lead time will typically be of the order of one year."	
131.	2	9	John Froats	The last bullet in the section indicates that the FSAR report shall be updated. It would be strengthened if it was accompanied by a statement of "by the milestone of XXXX unless otherwise agreed to by the regulatory authority."	This wording was however it was determined that it is most appropriate to leave an open timeline. This affords greater flexibility to both CNSC staff and licensees.
132.	2, 2nd bullet on page 2	9	AECL, OPG, Bruce Power, Candu Energy	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, commissioning and operating organizations "	Agreed. Change made.
133.	2, First paragraph Page 3	9	Bruce Power, OPG, AECL	It is already a requirement to submit this as part of the operating licence application (Sec 6c of the Class I Facility Regulations) Remove this requirement as it is already considered as part of the operating licence application. **Impact on industry:** This is an unnecessary duplicate requirement.	Section 6c of the *Class I Facility Regulations* is a separate requirement for submission of the final safety analysis report (FSAR) and therefore there is no duplication. The requirement in section 2 is to ensure the FSAR is updated based on the commissioning results.

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				CANDU Energy added: Note that the non-nuclear commissioning program would be submitted with the construction licence application. 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.	
134.	2, Bullet 4	9	Candu Energy	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.	Comment noted. Guidance information has been added to section 9 of the combined REGDOC-2.3.1 to assist licensees in categorizing SSCs important to safety, depending on the scope of commissioning.
135.	2, Last paragraph Page 3	9	Bruce Power, AECL	Since any design requirements must be proven to be met during commissioning and the design meeting the requirements must be analyzed to be safe, it is not clear what types of updates are anticipated. Please clarify the types of safety analysis report updates expected. Would these included system design and functional description updates or safety analysis updates or something else?	All types of updates required by the final safety analysis report are intended to be covered by this statement. It would include updates on system design, functional description and safety analysis, as well as any other updates that may be identified during commissioning activities.
136.	2	9	Bruce Power, OPG, AECL	1st bullet – should be removed. The licence will ensure all activities are conducted under a Management Program. Please also refer to comment 1. Delete the 1st bullet	The bullet has been deleted. Management system requirements for commissioning are defined in section 2. See response to comment 140.

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137.	2	9	Bruce Power, OPG, AECL	13th bullet – should be removed. The licensee's Management System and Training program Licence condition will ensure all personnel participating in licensed activities are trained and qualified Please refer to comment 1 Delete the 13th bullet.	The bullet has been deleted. Training and qualification requirements are defined in section 8.2 of the combined REGDOC-2.3.1. See response to comment 153.
138.	2 3rd last para	9	Candu Energy, Bruce Power, OPG, AECL	CNSC should accept programs not approve them Replace word (approval" with "acceptance"	Agreed. Section 9 of the combined REGDOC-2.3.1 has been reworded and "approval" has been removed.
139.	Pg 2 Section 2, Bullet 4	9	Bruce Power, AECL	Define the meaning of 'SSCs Important to Safety'	Definition has been added to the Glossary.
140.	3.1	2	Candu Energy, OPG, AECL, Bruce Power	**"…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." **Impact on industry:** Conflict between licence requirements makes the requirements unclear and could increase the probability of non-compliances and regulator and licensee effort required to resolve administrative concerns. The suggested wording is clearer in terms of the applicable management system requirements and also helps maintain	Agreed. The requirements have been reworked and are now section 2 of the combined REGDOC-2.3.1 The reference to CSA N286 has been moved to guidance.

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				currency of the REGDOC should CSA N286-12 be substantially revised or superseded.	
141.	3.1	2	John Froats	1. The first paragraph establishes CSA N286-12 as a `shall' requirement. It should indicate that this version or equivalent (such as N286-05) is acceptable. 2. It also fails to establish the linkage to the CSA N286.7 requirement for analytical support tools.	1. The requirements have been reworked and are now section 2 of the combined REGDOC-2.3.1 The reference to CSA N286 has been moved to guidance. The reference to any particular version of N286 has been removed. 2. Agreed. Reference to CSA N286.7 has been added to section 4.3 Acceptance Criteria.
142.	3.1	2	John Froats	While implied, it may be important to indicate that regardless of the organizational structure and division of responsibility, QA programs of those providing design, procurement, construction or commissioning when integrated with the Licensees program must as an entity comply with the Licensees obligation for an N286 program.	Section 8.1 of the combined REGDOC-2.3.1 guidance has been revised as follows to reinforce that the overall responsibility for the management system is with the licensee: "If the licensee decides to contract the commissioning activities to another organization, it should be made clear that the ultimate responsibility for commissioning and safety remains with the licensee." The licensee shall provide its requirements to its contractors.
143.	3.1	2	John Froats	Guidance provided is mixed. In part of the guidance paragraph, it indicates the concepts should be applied to a broad set of objectives beyond safety and environment. It also indicates graded approaches can be used but provides no guidance. This may be an area in the document where additional guidance could be provided based on type of facility. While I agree that the CSA N286 management practices have application in all aspects of the business, it is not clear that this statement adds clarity in this document that is primarily focused on assurance of safety and environment protection.	The requirements have been reworked and are now section 2 of the combined REGDOC-2.3.1 The reference to CSA N286 has been moved to guidance.

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144.	3.2	8.1	John Froats	1. In paragraph 2 in this section, design and procurement organizations are omitted (I think in error). 2. It is important to establish the expectation that commissioning results shall be agreed as adequate by the design organization. 3. The term responsible needs to be carefully defined and used. The Licensee can hold other organizations responsible (accountable for various activities BUT must always hold overall accountability for the safety of the facility.	1. The key organizations for commissioning activities are listed in this section. Procurement and design are addressed in section 5.2 of the combined REGDOC-2.3.1. 2. Design has been added to the test result approvals required in section 10.5 of the combined REGDOC-2.3.1. 3. The responsibilities of the licensee are clearly listed at the beginning of this section. The overall accountability of the licensee for the safety of the facility is set out in the first paragraph of this section: "The licensee is responsible for safety and security and shall oversee the organization, planning, execution and assessment of the commissioning program."
145.	3.2	8.1	John Froats	The second last bullet on page 3 could benefit from a statement of what needs to be done when commissioning testing cannot be done to demonstrate all aspects of design are in fact met. Elsewhere in the document, it indicates facility safety would not be jeopardized for purposes of testing. I agree totally with that principle. A clear statement of what is expected when there are gaps needs to be made (gaps need to be dispositioned, typically with a barrier in place of the absence of effective testing such as third party review).	Agreed. The document was revised and the following text was added to section 10.1 of the combined REGDOC-2.3.1. "Where it is deemed impractical to fully test the functionality of a safety related SSC for all design basis events, gaps in testing shall be identified and documented. Additional compensatory measures (such as computer simulation, additional verification or third party review, etc.) shall be documented to compensate for the gaps in the commissioning assurance provided by testing."
146.	3.2	8.1	John Froats	Guidance The last bullet on page 4 indicates a `should' for the area of minimum staffing requirements. It might be clearer to state	Staffing requirements are addressed by the following bullet in the requirements part of this section:

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				that `the basis for minimum requirements for facility staffing as defined in the licence shall be documented and demonstrated as adequate. Methods employed should be reference to the CNSC guide documents or equivalent.	"ensure that there will be a sufficient number of qualified workers to operate the facility"
147.	3.3	12	John Froats	This section establishes `shall' requirements for walk-downs and for ownership once turned over. The statements do not appear to follow the risk informed principle established earlier in the document. For example, walk-downs of conventional plant systems not significant for safety might have a different process defined. If Operations found a system with many deficiencies, they may decide to hand it back to commissioning in totality. As long as the interface and ownership is rigorously controlled it is not clear why hand-back should be prohibited.	Agreed. The sentence "After the transfer, any turnback for rework/repair shall remain under the ownership of the operating organization." has been deleted. The transfer of ownership is covered by the first paragraph of section 12 of the combined REGDOC-2.3.1.
148.	3.3	12	Candu Energy, Bruce Power, OPG, AECL	"**Prior to fuel-in-core testing, all systems shall be under the control of the operating** organization." Suggest changing to: "Prior to fuel-in-core testing, *all reactor safety and control* systems shall be under the control of the operating organization." **Impact on industry:** It is not practical that all systems will be under the control of the operating organization at the time initial fuel in core testing.	It is agreed that it is not practical that all systems will be under control of the operating organization at the time of initial fuel-in-core testing. However, limiting the systems to only reactor and safety control systems is inadequate since it does not include many important subsidiary systems such as fire protection, ventilation, and communication systems. The SSCs important to safety, as defined in REGDOC-2.5.2, adequately encompass the appropriate systems. Therefore, the requirement has been changed to "Prior to fuel-in-core testing, all SSCs important to safety shall be under the control of the operating organization." It is recognized that there may be some instances where this is still impractical, but any exceptions must be justified by the licensee.

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149.	Pg. 5, Section 3.3,Para 3	12	Bruce Power, AECL, Candu Energy, OPG	N286 12 uses the term turnover. Are handover and turnover interchangeable? Change Handover to Turnover to be consistent with CSA terminology	Agreed. Change made.
150.	Pg. 5,Section 3.3 ,Para 5	12	Bruce Power, OPG, AECL, Candu Energy	This is already covered by the first sentence in section 3.3. Suggest removing the sentence: "After the transfer, any rework/repair shall remain under the ownership of the operating organization."	Agreed. The sentence has been deleted.
151.	Pg. 5, Section 3.3	12	Bruce Power, OPG, AECL, Candu Energy	The sentence is incomplete. Suggest changing text to: "The transfer of SSCs shall be documented."	Agreed. Change made.
152.	3.4	8.2	John Froats	If the licence is based on a CSA N286 program, the requirement for systematic basis for competency is already clear. Perhaps all that is needed is a statement that this shall apply to the commissioning phase. The list provided does not list quality management structure, organization etc.	Specific reference has been made to REGDOC-2.2.2, *Personnel Training*. The guidance list has been expanded to include commissioning structure and organization.
153.	3.4	8.2	Bruce Power, OPG, AECL	This section is redundant with the requirements of CSA N286-05 and -12. Section 5.3 Personnel are competent at the work they do. This requirement is already incorporated into PROLs; therefore duplicative and redundant REG DOCs should not be created. Remove reference to training requirements in this REGDOC. **Impact on industry:** Introduction of this requirement would result in licensees having to create a separate, parallel training program specifically for commissioning. This would negatively impact line management oversight and	Specific reference has been made to REGDOC-2.2.2, *Personnel Training*. Overlaps with the requirements of CSA N286-05 and -12 have been removed.

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				responsibility for training. This would add cost and could potentially undermine safety since a truly systematic approach is not employed to identify required training.	
154.	3.5	8.3	John Froats	As in 3.4 the requirement in this section is already explicit in CSA N286.	Agreed. Changed requirements in section 2 of the combined REGDOC to reference CSA N286
155.	3.5	8.3	John Froats	Use of should and shall in this section are not consistent with the use in CSA N286. For example, CSA indicates records shall be retained. It needs to be reviewed for consistent use of terms.	Agreed. The section has been revised to ensure consistency with CSA N286-12.
156.	3.5	8.3	John Froats	The term `as applicable' used in the last paragraph of this section does not provide guidance. It is a "should" statement so non mandatory. Perhaps the statement should tie OPEX reporting for the Commissioning phase to the licence requirement as defined in CSA N286 series to make it clear that there is an expectation of sharing of significant events.	Agreed. The paragraph has been deleted.
157.	3.5,para. 1	8.3	Bruce Power, Candu Energy, AECL, OPG	The requirement is too specific and does cover all situations. Change to" Commissioning activities that do not conform to requirements shall be addressed through the corrective action program."	This paragraph has been deleted and replaced with a reference to CSA N286-12.
158.	3.5, Guidance	8.3	AECL, Bruce Power, Candu Energy, OPG	Clarification is required as to the intent of statement "treated as events by the licensee" in the 2nd paragraph of the Guidance section. Candu Energy added: 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.	The 2nd paragraph has been deleted.

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				OPG added: Change section to read, "Non-conformances of safety significance should be treated as adverse conditions under the licensee's corrective actions program."	
159.	3.6	N/A	Bruce Power, OPG, Candu Energy, AECL	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 See comment 1	Redundant requirements have been removed from this section and a reference to draft REGDOC-2.10.1 has been added.
160.	3.6	N/A	John Froats	The second paragraph ties the emergency management requirement to the arrival of nuclear fuel on site. It may be more appropriate to tie it to something like nuclear regulated substance on site. There may be cases where D2O or other regulated substances arrive on a site prior to nuclear fuel. It seems that the principal would need to be that emergency provisions are in place to deal with potential impacts of nuclear substances on people and/or the environment at all times, commensurate with the risks posed by the nuclear substances.	Reference to draft REGDOC-2.10.1 has been added to the section to cover all nuclear material. The 2nd paragraph defines timelines specifically for nuclear fuel.
161.	3.6	N/A	John Froats	The last paragraph in the Guidance part of this section puts forward the idea that the emergency response provisions should be able to protect personnel in parts of the plant that are still in the construction and/or commissioning phase. I absolutely agree with that point. The converse is also true: the emergency provisions must take into consideration hazards related to the construction activity. Perhaps this should be explicitly stated as well.	The section addresses both construction and commissioning hazards. The last paragraph has been edited for improved readability.
162.	4.1	10.1	John Froats	In section 4.1, it is important to establish expectations around what has to be done if safety system functionality cannot be fully tested. This has been the cause of some events in the nuclear sector over time. Something like: 1. Where it is deemed impractical to fully test the	1. Agreed. The following text has been added to section 10.1 of the combined REGDOC-2.3.1: "Where it is deemed impractical to fully test the functionality of a safety related SSC for all

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				functionality of a safety related SSC for all design basis events, gaps in testing must be clearly identified and documented. Additional compensatory measures (such as computer simulation, additional verification or third party review, etc.) shall be documented to compensate for the gaps in the commissioning assurance provided by testing. 2. For passive components where testing is not practical or possible, additional focus must be placed on the rigour of manufacturing and procurement and construction conformance to demonstrate adequacy for service	design basis events, gaps in testing shall be identified and documented. Additional compensatory measures (such as computer simulation, additional verification or third party review, etc.) shall be documented to compensate for the gaps in the commissioning assurance provided by testing." 2. Manufacturing, procurement and construction are addressed in Part A: Constructionof Reactor Facilities.
163.	4.2	10.2	John Froats	In section 4.2, the last sentence on page 7, states "The commissioning program shall have provisions to ensure that there have been no emissions in testing complex systems." This seems contradictory to the idea that it is impractical to test all aspects of system performance as some will place the reactor at risk. It might be better if this were stated something like: "The combination of commissioning testing and other means of assurance where testing is impractical, together, shall be such that risk to the public and environment is assured to be within the licencing envelope of the facility. A means of providing assurance that the collective commissioning program meets that requirement shall be provided (This might be a report or a third party assessment or a series of audits or other means)"	Agreed. Suggested text has been added with some revision.
164.	4.2	10.2	John Froats	In section 4.2 on page 8, the concept is put forward that a full suite of testing shall be performed for each reactor at each facility. In some cases historically `type tests' have been accepted on a first unit and then a sufficient set of lesser complexity tests were programmed to demonstrate the outcome of the `type testing' remained valid. Perhaps the concept here should be that full testing shall be conducted on each unit at each facility unless it can be demonstrated to the	This is covered by the 1st paragraph of section 10.2 of the combined REGDOC-2.3.1. Specific situations will be addressed during the development, review and acceptance of the commissioning program. Any gaps will be addressed through safety analysis. Text has been added to the Guidance in section

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				regulatory authority that either the testing benefit is out-weighed by the impact of the testing, or that the required assurance can be provided by a combination of smaller tests and / or other means	9 of the combined REGDOC-2.3.1 to clarify any exceptions to the commissioning program.
165.	4.2, Top of Page 8	10.2	Bruce Power, OPG, AECL	Safety analysis and design analytical tools are required to be validated prior to use under existing regulatory requirements (CSA N286.7). See comment 1 regarding duplication Suggest deleting this requirement **Impact on industry:** see comment **Error! Reference source not found.**.	Although analytical tools are validated according to CSA N286.7, during commissioning the tests must confirm this validation. As such, the word "support" has been replaced with "confirm".
166.	4.2, Top of Page 8	10.2	Candu Energy	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."	See response to comment 165.
167.	4.2, Middle of Page 8	10.2	OPG, Bruce Power, AECL	Approval by Authorized Personnel (Shift Manager, Control Room Shift Supervisor/Controlling Authority) is current practice for such tests. It is not clear how requiring CNSC approvals for testing increases the level of safety. CNSC staff may not have specific knowledge of the state of the unit at the exact time of the test and such involvement could jeopardize the regulator's independent oversight function. Such approvals blur the lines of responsibility for safe operation and imply the regulator is responsible for safety of	Agreed, "…and obtaining the required approvals from the CNSC" has been removed from the second bullet in the middle of Page 8. This statement is not needed here as any required CNSC approvals will be specified within the licensing basis in this case. The licensee is responsible for safe operation of the facility and any social, reputation, health and safety, and financial penalties due to any

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				the test. Suggest removing "…and obtaining the required approvals from the CNSC" from the second bullet in the middle of Page 8. **Impact on industry:** Clarification requested. The biggest impact on licensees will be the lack of clarity with respect to responsibility for safe testing. When the regulator gives approval for specific tests, the regulator assumes responsibility for a safe outcome. If the testing outcome is detrimental, who would bear any social, reputation, health and safety, and financial penalty associated with the negative outcome?	detrimental testing outcomes.
168.	4.2, Guidance Section, Pg. 8	10.2	Bruce Power, OPG, AECL	What is meant by off-site tests? Does "offsite tests" refer to tests completed outside the construction area, the protected area, the site, or somewhere else? OPG added: Clarify which tests are being referred to as "offsite tests".	"Offsite tests" refer to tests performed outside the physical domain of the facility for which a licence is granted.
169.	Pg. 7, Sect 4.2,Paragraph 3	10.2	Bruce Power, AECL, OPG	Covered by previous paragraphs document. Delete.	The document has been reviewed and this requirement is not duplicated.
170.	4.3	10.3	John Froats	1. At the top of page 9, the document indicates that CNSC acceptance criteria important to safety "may" need CNSC approval. It does not provide rational or criteria as to when this would be expected. 2. It seems to me, that, the more important aspect of the program is that the Design Authority must agree to the criteria and accept the results. This appears to be a missing concept in the document.	1. CNSC will inform the licensee as to what approvals are required, depending on the commissioning program and reactor technology. "Approval" has been changed to "acceptance". 2. All information submitted to the CNSC is expected to have gone through the licensee's approval process. Section 4.5 has been revised

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				3. My view is that the regulatory body should accept or approve the program and inspect and audit for compliance and adequacy and not be active in the process of approval of specifications. Requirements must be clear in the REGDOC.	to require design organization approval of test reports. "Formal reports for each test shall be prepared by individuals responsible for the tests, and approved by the commissioning and design organizations." 3. Comment noted. The document has been written to allow the CNSC to select those specifications it wishes to approve.
171.	4.3	10.3	John Froats	In the second paragraph on page 9, the last sentence focuses on the need to ensure that the analytical tools used in support of the design and commissioning program have to be in compliance with regulatory requirements and this "should" be documented. It seems to me that the Facility Licence will contain the Licence requirement that analytical tools "shall" be compliant with CSA N286.7 (or equivalent). It appears that this sentence is redundant and uses "should" where it is really a "shall" requirement of the typical licence.	Agreed. Last sentence deleted. Reference to CSA N286.7 included in as last paragraph.
172.	4.3, Top of pg. 8	10.3	Candu Energy	**"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.	Agreed. Sentence deleted.
173.	4.3	10.3	Candu Energy	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	Agreed. "Approval" has been replaced with "acceptance".

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				on the safety, design and performance requirement. The CNSC should be accepting the acceptance criteria as part of accepting the commissioning program. Delete paragraph.	
174.	4.3, Bottom of pg. 8	10.3	Bruce Power, AECL, OPG	Will lead to a tiered system for acceptance criteria with no improvement in safety. Suggest deleting sentence.	Agreed. Sentence deleted.
175.	4.3, Top of Page 9	10.3	Bruce Power, OPG, Candu Energy	It is not clear what safety objective is met by obtaining CNSC approvals of acceptance criteria for individual tests. Licensees have qualified and competent teams of staff dedicated to adequately commissioning prior to turnover to Operations. Such approvals compromise the regulator's independence and blur the lines of responsibility for safe operation. Delete first paragraph on Page 9. **Impact on industry:** This item introduces a conflict with the oversight role of the CNSC. Delays could be introduced that jeopardize overall commissioning performance since some commissioning tests are highly time-dependent. The delay would be justified if there were a safety benefit associated with it. Due to the vague statement included in the REGDOC Guidance for acceptance criteria, it is not clear that any delays would have a positive safety impact. It is expected that the issuance of a licence would cover any CNSC approval as the construction and commissioning program is part of the applications.	The document has been reviewed and "approval" has been replaced with "acceptance". CNSC acceptance will not be needed for all acceptance criteria. CNSC staff will identify criteria requiring acceptance prior to the commencement of commissioning activities.
176.	4.4	10.4	John Froats	The third paragraph in this section states "The test procedures, including acceptance criteria, shall be reviewed, verified and approved by design, commissioning and operating organizations." The statement infers a review verify	Comment noted. Document has been changed so that the requirement is for approval by the licensee.

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				and approve function in three organizations. I think this has the potential to dilute accountability and confuse the organizations (and is perhaps overly restrictive). It is more typical to see processes that have the design authority prepare commissioning requirements and approve them. The Commissioning organization typically prepares and approves the testing program and procedures. The design organization has a `review and concur' function with the commissioning activity and then a `must accept' the outcome. The operations organization more typically has a `review and concur' function. The roles may be different depending on what the licencee is doing inside the licensee company and what is external. The requirement should be established in a manner that preserves clear accountability while recognizing that role execution can be done in several different ways.	Section 10.4 of the combined REGDOC-2.3.1 has been generally revised to simplify requirements and eliminate duplication and redundancy.
177.	4.4	10.4	John Froats	The 5th paragraph establishes that changes to test procedures shall be addressed according to the operating organizations change control procedures. This appears to be based on the assumption that commissioning is governed by the operating organization. This might be the case, but I could see where the procedure set governing commissioning might be the design organizations. The principle is key – there must be a change control process for approval and acceptance or deviations during the commissioning phase	Section 10.4 of the combined REGDOC-2.3.1 has been generally revised to simplify requirements and eliminate duplication and redundancy. The process for addressing deviations has been changed to: "Test procedures shall establish actions for deviations from procedures, where test results fall outside the acceptance criteria or if unexpected events occur."
178.	4.4	10.4	John Froats	The 7th paragraph in this section again introduces the concept of in line CNSC approval for commissioning testing. As stated earlier, I am of the view that approval of the program, inspecting and auditing is appropriate as regulatory over-site. At the program level hold points requiring Regulatory approval should be clear. Having a `shall statement' that is followed by a non-quantifiable statement such as informed in a timely manner do not lend themselves to clarity in expectations. If such a statement needs to be in the document,	Section 10.4 of the combined REGDOC-2.3.1 has been generally revised to simplify requirements and eliminate duplication and redundancy. Paragraph moved to section 11 of the combined REGDOC-2.3.1 , and simplified as follows: "The CNSC may choose to witness some commissioning tests. In such cases, the licensee

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				there should be a quantifiable aspect of it. Something like, when inspectors are stationed onsite, a minimum of 24 h notice should be provided. When inspectors are not on site, notice should typically be 24 h plus travel time would add to clarity of expectation.	shall inform the CNSC so that staff can attend."
179.	4.4	10.4	John Froats	The last sentence before guidance states that competent personnel and controls shall be in place to validate test procedures. The sentence does not state expectations for procedural verification – it may be that the term validation is used when verification is really what is meant.	Paragraph removed. This requirement is generally covered in CSA N286-12.
180.	4.4	10.4	John Froats	The guidance section in 4.4 provides content that is really focused on minimum content of the program document. If the commissioning program falls under the N286 umbrella many of the points are already covered in the management program in the licence.	Comment noted. However, supplementary guidance was considered useful.
181.	4.4	10.4	John Froats	Nowhere in this section or in the document, is it explicitly stated that the licensee must establish ways to ensure that the program is being followed (complied with). Again, this is really implicit in the CSA N286 program – but if the intent is to highlight areas that warrant extra attention, this would be one that would be a good one to consider for the list.	Agreed. Section 8 of the combined REGDOC-2.3.1 was revised to address this comment.
182.	4.4	10.4	AECL, Bruce Power, OPG, Candu Energy	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. Delete everything after the first sentence. **Impact on industry:** This is an unnecessary duplication of requirements which will lead to confusion. In addition this restricts industry options in how Licensees choose to implement test programs and increases costs significantly.	Comment noted. Section 10.4 of the combined REGDOC-2.3.1 has been generally revised to simplify requirements and eliminate duplication and redundancy. The requirements of section 10.4 are as follows: "All commissioning tests shall be performed in accordance with the commissioning program using procedures reviewed, verified and approved by the licensee. Test procedures shall establish actions for deviations from procedures, where test results

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					fall outside the acceptance criteria or if unexpected events occur. Tests shall only resume after any existing issue is dispositioned (e.g., through design change, change in operating requirements, or change in operating modes) by the commissioning organization and approved by the relevant parties."
183.	4.5	10.5	Candu Energy	A graded approach as outlined in N286 should be allowed. Change expectations for formal reports to allow a graded approach to reporting to be consistent with N286.	Graded approach is covered by the reference to N286-12 in the preface of the combined REGDOC-2.3.1 and does not need to be explicitly defined here.
184.	4.5	10.5	John Froats	The section does not currently address the need that the Design Authority shall agree (accept) the results of the Commissioning testing	Agreed. Added design to the approving organizations in the third paragraph.
185.	4.5	10.5	John Froats	It is not typically practical to have all documents updated at the time of turnover to Operations. Perhaps a more practical, and effective requirement would be something like: the Commissioning organization shall set clear objectives for the state of documentation at the time of turnover to operations. These objectives should reflect that documentation outstanding elevates the risk of human error and as such should be minimized. A date shall be established by which the design basis set of information and operating and training information is updated to reflect all of the results of the commissioning program.	Agreed. Removed "… during the commissioning process…" to allow flexibility in updating documentation. The following text has been added to the Guidance of section 10.5 of the combined REGDOC-2.3.1. "The licensee should establish clear objectives for the state of design, operational and safety documentation at the time of turnover to operations. Documentation should be updated in a timely manner to reflect test results and resolution of deviations, in order to minimize the risk of human error. The CNSC will monitor the status of documentation as a part of ongoing compliance verification."
186.	4.5	10.5	Bruce Power, OPG, AECL	A graded approach as outlined in N286 should be allowed. Change expectations for formal reports to allow a graded	Graded approach is covered by the reference to N286-12 in the preface of the combined REGDOC-2.3.1and does not need to be

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				approach to reporting to be consistent with N286. **Impact on industry:** Conflicts with requirements of CSA N286.	explicitly defined here.
187.	Section 4.5,para. 4	10.5	AECL, OPG, Bruce Power	Updating all documentation during the commissioning process is not practical. Some updates will be done in a timely fashion following commissioning in accordance with the licensee's commissioning program. Modify to state "The reactor facility design, operational and safety documentation shall be updated to reflect test results and resolution of deviations" **Impact on industry:** Will put unnecessary timing limits on updates of documentation.	Agreed. Change made as proposed. The following text has also been added to the Guidance to address timelines for documentation updates: "The licensee should establish clear objectives for the state of design, operational and safety documentation at the time of turnover to operations. Documentation should be updated in a timely manner to reflect test results and resolution of deviations, in order to minimize the risk of human error. The CNSC will monitor the status of documentation as a part of ongoing compliance verification."
188.	4.6	10.6	John Froats	The second paragraph establishes `shall' requirements for approvals for the commissioning organization. This assumes a certain organizational structure and functionality which may not always be the case. The program level will set authorities and interface requirements. Depending on the organizational structure at the facility design, commissioning and operating licence authority roles may factor into who approves changes. The document suggests commissioning organization with licensee oversight but is silent on the role of design. Licensee oversight would need to be defined – what is the scope and role of the oversight function.	Agreed. The text has been revised as follows, to make the approvals more general: "For modifications to the sequence of a test within a hold point or across hold points, reviews shall be performed and approvals obtained from the appropriate organizations." Design is referenced a number of times in the document. The following text was added to section 10.5 of the combined REGDOC-2.3.1to specifically reference the interface with design: "Formal reports for each test shall be prepared by individuals responsible for the tests, and approved by the commissioning and design organizations."

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189.	4.6	10.6	Candu Energy, Bruce Power, AECL	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 commissioning. This administrative burden could distract from the safety-important items the regulator would oversee. Define major modification. OPG's suggested change: Delete sentence, "The CNSC should be informed in advance of any major modifications to test procedures."	The text has been removed. Any changes to test procedures will be reviewed by the CNSC at the regulatory hold points.
190.	4.6	10.6	John Froats	In the guidance section, the last statement is a `should' inform CNSC in advance of any major modifications to test procedures. Major is not defined. These changes often happen in real time, sometimes on weekends and during night based commissioning activity. The statement as worded is subject to wide interpretation. If the program document establishes when regulatory witnessing is required it would seem that this statement is not required.	The text has been removed. Any changes to test procedures will be reviewed by the CNSC at the regulatory hold points. CNSC witnessing will be as specified in section 5.
191.	4.6, 2nd last para	10.6	AECL, OPG, Bruce Power	Second sentence" Proposals for modifications should assess the impact on other systems as well as safety implications for the commissioning program or individual tests." is covered by the first sentence. Delete "Proposals for modifications should assess the impact on other systems as well as safety implications for the commissioning program or individual tests."	Comment noted. The guidance wording was retained but the paragraph was revised as follows: "Proposals for design modifications to address a deviation should consider regulatory requirements and the stipulations of the operating organization, including the impact on other systems as well as safety implications for the commissioning program or individual tests."
192.	5	11	Alikhan Consulting	Written request to the CNSC for approval to proceed beyond a regulatory hold point should also include a formal statement	Comment noted with no change. Sections 2 and 8 of the combined REGDOC-2.3.1 address

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			Inc.	about the integrated management system. Add a bullet: • The integrated management system (processes, procedures and practices) has been duly assessed, approved and issued to cover subsequent phase(s) of commissioning and operation.	management system requirements that apply for all phases of commissioning.
193.	5	11	John Froats	In the bulleted points perhaps the second bullet should be Phase B: prior to leaving the reactor GUARANTEED shutdown state	Agreed. Change made.
194.	5	11	John Froats	In the guidance section, the concept of establishing regulatory hold points is clearly established. Perhaps the same clarity should be included for tests requiring regulatory witnessing (if any).	Agreed. Added requirement on witnessing as follows: "The CNSC may choose to witness some commissioning tests. In such cases, the licensee shall inform the CNSC so that staff can attend."
195.	5	11	John Froats	Just prior to the beginning of section 5.1 there is a bulleted list identifying specific requirements for requesting regulatory approval to proceed beyond a regulatory hold point. As well as non-conformances, the state of documentation and outstanding work should be quantified and shown to be consistent with expectations established in the Commissioning Program (quantified, entered into the work control system(s), completion dates consistent with program expectations)	The first bullet in the list - all related project commitments tied to the regulatory hold point have been completed - adequately covers the proposed changes at a high level. Project commitments include the state of documentation and outstanding work (quantified, entered into the work control system(s), completion dates consistent with program expectations).
196.	5.1	11.1	John Froats	The document is silent on the requirement for wire by wire checking (or software verification and validation) of the active parts of Special Safety Systems prior to fuel load (or Guaranteed Shutdown removal). It has been typical that additional emphasis is placed on key system (essential to overall safety of the facility) configuration when first starting up. In this state, many of the processes and response dynamics have yet to be commissioned and additional	Wire by wire checking is addressed in Appendix A by the following bullet: • wiring continuity and electrical protective devices checked A bullet regarding software verification and validation has also been added to Appendix A.

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				assurance of functionality of Special Safety systems functioning exactly as designed is typically sought. It is my view that this concept should be embedded somewhere in the document.	
197.	5.2	11.2	John Froats	The 2nd bullet on page 17 states "availability of the automatic shutdown systems shall be confirmed where possible" seems weak. Perhaps a better statement might be: "Availability of the shutdown systems shall be assured before a reactor state is entered that may require the system to actuate to prevent damage to the fuel and/or the facility. Where full testing of the functional part of the system and credited trips is not possible before entering a specific reactor state, the gap in assurance normally provided by a full testing program shall be compensated by other means such as; partial testing, wire by wire checking, additional analysis and modelling additional verification, etc. Testing to fill the gaps shall be scheduled at the first opportunity when plant systems enable conditions to allow testing."	Agreed. The suggested wording has been incorporated into the Guidance of section 11.2 of the combined REGDOC-2.3.1. The words "where possible" have been removed from the high-level requirement in order to strengthen it.
198.	5.2	11.2	John Froats	The last bullet in this section imposes a `shall' requirement on who should supervise fuel loading. It is not apparent as to why this is singled out. It establishes a constraint that may not be appropriate or necessary. N286 establishes personal (and supervision) shall be competent for the work they do. The Commissioning program document will establish who has accountability to do what. I agree that fuel load is an important activity and aspects like control of foreign material entry to the PHT, damage to fuel or fuel channels must all be carefully controlled. Independent review and oversight is a normal part of this activity. The statement may be appropriate, but without a rationale for it being singled out, it is hard to understand.	This requirement was added to the document to ensure appropriate controls for a critical stage of the operation.
199.	5.2	11.2	John Froats	In the Guidance section some points are put forward to guide the fuel loading activity. It seems to me the principle needs to	Agreed. The suggested wording has been incorporated into the guidance part of section

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				be stated clearly: Something like: The processes for loading fuel must provide assurance that fuel and structures are not damaged in the process of fuel load and that the nuclear material in the core is in the specific configuration established by design.	11.2 of the combined REGDOC-2.3.1.
200.	5.3	11.3	John Froats	The first bullet states trip set-points shall be verified. Is the statement really a verify activity, or is the concept that the configuration must be established and confirmed to be as specified? Or is the active word intended to be tested rather than verified? The statement could apply to other sections but is not included elsewhere.	The statement is a verification activity. Although verification of trip setpoints may be done during other phases, they are specified here to ensure they are performed prior to the approach to criticality.
201.	5.3	11.3	John Froats	The third last bullet in this section states" it shall be confirmed that the reactor core is in a proper condition to operate higher power levels". The statement is not clear as is. Is it intended to indicate that there must be confirmation of heat sink availability to envelope the power levels that will be next in the program?	This is a high-level requirement designed to capture all applicable conditions prior to operating at higher power levels.
202.	5.3	11.3	John Froats	In the guidance section, second paragraph, the first sentence contains a `should' be done in accordance with defined procedures. It seems to me this should be is a shall requirement, so needs to be moved from guidance to the main part of the section.	Agreed. The statement "in accordance with defined procedures" has been changed to a requirement.
203.	5.4	11.4	John Froats	1. The first bullet indicating some of the power ascension hold points and tests will require Regulatory approval is a program level requirement – it probably doesn't need to be in this section. 2. In appendixes including what these might typically be for different kinds of reactor facilities might be useful.	1. The reference to the licence has been removed from the bullet. 2. This type of information will be discussed with the applicant on a case-by-case basis.
204.	5.4	11.4	John Froats	The third sub bullet of the second bullet in this section would seem to indicate tests like load rejection and loss of Class 4 power are not necessary. There are many varying views on	Comment noted. CNSC staff will work with licensees on a case-by-case basis to determine if these tests are appropriate for a specific

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				this point. Additional clarity may be needed.	situation.
205.	Appendix	Appendix	John Froats	With the scope of the document being large, small and research reactors with some aspects applicable to modifications in existing plants, content of appendixes that help users understand which aspects apply to their particular technologies would be helpful. At the moment the appendixes focus on large power reactors (with some CANDU specifics) with little if any guidance for other facilities.	The document was drafted to be as technologically-neutral as possible, with the understanding that CANDU is the predominant technology in Canada. As other technologies (including SMRs) become more widely used, the document may be revised if necessary.
206.	Appendix A to D	Appendix A to D	Candu Energy	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?	Appendix titles have been changed in order to be consistent with other national and international documents on this topic.
207.	Appendix A	Appendix A	Candu Energy	There are tests in Appendix A (prior to fuel load) that should rather be performed prior to leaving shutdown state (Appendix B) such as: • 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.	Comment noted. These actions should be undertaken before fuel loading. The appendices are intended to provide guidance. This type of information will be discussed with the applicant on a case-by-case basis.
208.	Appendix B	Appendix B	Candu Energy	Depending on the reactor technology it could be ion chambers or fission chambers. Suggest changing text to:	Agreed. Change made.

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				"ion chambers or fission chambers in service"	
209.	Appendix B	Appendix B	Bruce Power, OPG, AECL	Use of the term "power conversion system" will lead to confusion with electrical systems. Suggest using "Secondary Side".	Comment noted. "Power conversion system" is the most technologically-neutral term.
210.	Appendix D	Appendix D	Alikhan Consulting Inc.	Why dynamic tests such as full load rejection and reactor trip tests not specifically mentioned? This is considered necessary to validate analytical tools and to confirm design-expected response of the plant, procedures and staff. See Section 5.2, paragraph 2 of Ref 1(Appendix A here) for further guidance.	Comment noted. These tests are covered by the following bullets in Appendix D: • power manoeuvre tests as would be required during normal operation • reactor setback and stepback tests as would be required during normal operation
211.	Appendix D	Appendix D	Bruce Power, OPG	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". CNSC staff should not be dictating Commissioning tests via this REGDOC. It would be more appropriate to do through the licensing process in order to take all design conditions into consideration.	The tests set out in the Appendices are provided as guidance only, and are not requirements.
212.	Appendix D	Appendix D	AECL, Candu Energy	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".	The tests set out in the Appendices are provided as guidance only, and are not requirements.
213.	Appendix D	Appendix D	Candu Energy	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	Agreed. Change made.

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				partitions (CANDU)"	
214.	Appendix E	Appendix E	Candu Energy	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.	The Appendices are provided as guidance only. The suggested responsibilities are already covered by the existing bullets in Appendix E.
215.	Appendix E	Appendix E	Candu Energy	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	Agreed. The bullet has been moved to the subsection titled "Other Participants in Commissioning Activities", which includes the Design organization.
216.	Appendix E	Appendix E	John Froats	Appendix E currently omits the Design organization and Design Authority function both of which have key roles in commissioning.	Comment noted. Requirements and guidance regarding the Design authority and organization are covered by RD-337 *Design of New Nuclear Power Plants*.
217.	Definitions	Definitions	John Froats	Validation and verification are terms currently missing in the definitions. The use of shall, should, may and can, are presented clearly up front in the preface. It may be appropriate to include these terms in the definition list as well.	Comment noted. Stakeholders are sufficiently familiar with these terms so that no explicit definitions are required.
COMMENTS ON MERGED REGDOC					
218.		General	John Froats	In the construction part of the document, as a principle, I think it is very important to state that for those activities which are important to design assurance and that for which commissioning is not practicable, special attention needs to be placed on assurance of construction. The past problem	Agreed. Wording was added to section 3.1 of the document. Section 10.2, paragraph 3 addresses the need for other means of assurance when testing is impractical.

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				with Darlington steam room integrity comes to mind.	
219.		General	John Froats	In the section on commissioning, there are lists of requirements. It seems to me that somewhere the underlying principle should be stated. Something like: • Before transitioning from one phase of the commissioning process to the subsequent phase, the licensee must provide assurance that all of the SSC's that are credited in the safety case for that phase, have been installed and confirmed to the extent practicable, to be capable of meeting their designed safety functionality for the safety case applicable to that phase.	Agreed. Section 11 has been revised to add this wording.
220.		General	Industry	The purpose of this document is confusing. It seems to have multiple purposes which make implementation of the document confusing. For example, the documents current purpose is to "set(s) out the requirements and guidance of the Canadian Nuclear Safety Commission (CNSC) for the construction and commissioning of facilities in Canada that use nuclear reactors", however; the preface states that "For proposed new facilities: This document will be used to assess new licence applications for reactor facilities". This adds confusion for the implementation of the document. The purpose of the document needs to be clarified. Given that the purpose is to monitor the Conduct of Licensed Facilities, it should not be used to assess licence applications. Information related to licence applications should be contained in the Licence Application Guide. Considerable overlap with existing requirements specified in other regulatory documents and standards leading to additional complexity and confusion between this document or other documents, resulting in unnecessary regulatory burden with no positive impact on nuclear safety.	CNSC regulatory documents are to be used by applicants when developing their licence application. In addition, they are to be used by CNSC staff in the assessment of the adequacy of licence applications. This document provides further requirements and guidance on the safety and control measures for the activities of construction and commissioning of the nuclear facility. Duplication/overlap with other regulatory documents and industry standards have been minimized to the extent practicable. In some cases, the content addresses aspects specifically pertinent to facility construction and commissioning.

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221.		General	Industry	1. It will likely be difficult to back-fit requirements from this REGDOC to work already done during start of refurbishment for DNGS. 2. Detailed assessment will be needed on areas of relief required if this REGDOC is implemented as a "must do". 3. This REGDOC should be restricted to new construction. 4. In case of DNGS refurbishment, we have been through **a detailed EA evaluation, RD 360, review of new codes and approach to refurbishment**. Now it seems REGDOC 2.3.1 is expected to be followed in addition to the above without any rationale for benefit to nuclear safety or for reporting to the CNSC which is already matured in REGDOC3.1.1. 5. Implementation of this REGDOC only as a guide would be prudent. For example it requires recognition that the Darlington Project has been underway for a number of years and cannot back-fit this REGDOC, but perhaps show it had adhered to RD 360 under which it was originally developed. **6. Also refurbishment is significantly different from new build and the two must be kept separate and clear in this guide.** 7. The refurbishment project at DNGS has been underway for 4 years ahead of this REGDOC, What is the intent on application of this REGDOC to existing refurbishment projects. CNSC has said in response to comments they would be flexible, but this is not reflected in the REGDOC itself. The way the document is written it implies that licensees have to meet guidance resulting in unnecessary burden with no positive impact on nuclear safety. 8. As a guide, the document should not apply to projects (refurb, modifications, etc.) that have already been approved via other regulatory processes, as this will result in	1. – 7. This REGDOC will be used as guidance for existing facilities. In line with the document preface, licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches. 8. CNSC staff acknowledges that refurbishment is different that initial facility construction. There is sufficient clarity on the application of this REGDOC to refurbishment. Section 9 provides further information on commissioning in support of return-to-service following refurbishment or implementation of Integrated Implementation Plans (IIP) from a Periodic Safety Review (PSR).

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				unnecessary costs without any positive impact on nuclear safety. Industry would accept the document as guidance for new build only provided that " shall statements": as documented in our comments are removed and the other issues identified in our comments are addressed .Finally prescriptive details should be removed and the documents focus on high level objectives. These words need to be added.	
222.		General	Industry	1. It appears this REGDOC 2.3.1 was assembled without review of existing licensing basis & the very extensive documentation required to meet N286. This REGDOC produces nothing new of value and repeats or overlaps existing requirements. See TABLE 1 below for examples. It appears there is considerable overlap with existing CSA and regulatory documents, and the licensing basis. This is ahead of the vast Industry internal documentation required to obtain a license and adhere to it. What is prompting such a REGDOC to be introduced for refurbishment? There has to be a rationale to support the additional information requested by the document. 2. The continuous need for information to the CNSC and arbitrary hold points will: •delay work, •increase changes of regulatory non compliances, •cause hold up of work to await approvals at critical times, •introduce hold points where there might be minimal safety impact, and •prevent CNSC staff from doing the necessary independent gathering of information, given the amount of information requested by the current	1. This REGDOC contains information complementary to CSA N286, and elaborates on some topics from the perspective of facility construction and commissioning. While we recognize that there is construction and commissioning experience within the Canadian nuclear industry; there may be newcomers. Clarity of expectations is important. Sections 7 of RD-360, *Life Extension of Nuclear Power Plants* addressed the installation and modification activities involved in the implementation of the Integrated Implementation Plan resulting from the Integrated Safety Review (ISR). Section 8 of RD-360 addressed commissioning activities. These sections were not retained in REGDOC-2.3.3, *Periodic Safety Reviews*. As such, regulatory requirements and guidance applicable to IIPs for existing facilities has been included in REGDOC-2.3.1. 2. Information on the schedule is a requirement of the Class I Nuclear Facilities Regulations (clause 5c, in particular). Regulatory hold points are a normal part of

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				document. If the feedback from the CNSC is not consistent with the project schedule this will result in even more costs to the industry.	construction and commissioning activities. CNSC needs schedule information to coordinate its own resources in order conduct field inspections in a timely manner, and not cause project delays.
223.		General	Industry	This REGDOC needs language in it to recognize that it is a guide and alternatives we might have in place that have the same or similar ways of managing safe refurbishment. It should not regulate good project management practices as this takes away the initiative and the responsibility which rightly belongs with the licensee. Also much of the principles in this REGDOC appear to be practices the industry would need to follow per N286-05 and Industry good practices based on extensive benchmarking and experience. The proposed REGDOC blurs the line on who is responsible for safe operation and refurbishment. REGDOC 2.3.1 appears to have been put together to provide CNSC staff information that places tremendous responsibility on the licensee to provide instead of the regulator independently finding it through inspections and reviews. As this is a refurbishment project. Many of the systems will be left as they were prior to Refurbishment, however the document suggest commissioning approaches that are more appropriate to new construction. How will this be dealt with for refurbishment alone is not clear (example section 3.3.6 fire systems) The application of words such as ‘shall’ and ‘must’ may lead to interpretation that these are likely to become compulsory requirements now or at some future date . Recognize the difference between refurbishment at an existing plant and new construction.	This REGDOC will be used as guidance for existing facilities. In line with the document preface, licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches. CNSC staff acknowledges that refurbishment is different that initial facility construction. There is sufficient clarity on the application of this REGDOC to refurbishment. Section 9 provides further information on commissioning in support of return-to-service following refurbishment or implementation of Integrated Implementation Plans (IIP) from a Periodic Safety Review (PSR).

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				There is far too much prescriptive detail in the REGDOC which leads to unnecessary burden with no impact on nuclear safety. Prescriptive details should be removed and the documents focus on high level objectives.	
224.		Preface – Paragraph 6	Industry	The requirements for licenses to explain why they have not followed guidance implies that the guidance is to be treated as requirements. We believe it should be up to the Licensees to propose its approach without such explanation and for the CNSC staff to determine if it meets requirements or not. As previously commented on for other REGDOC, the way the document is written it implies that licensees have to meet guidance resulting in unnecessary burden with no positive impact on nuclear safety.	See response to comment 221. The preface states: *"Guidance contained in this document exists to inform the applicant, to elaborate further on requirements or to provide direction to licensees and applicants on how to meet more requirements. It also provides information about how CNSC staff evaluate specific problems or data during their review of licence applications. Licensees are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements."* There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches.
225.		Preface – Paragraph 9	Industry	An applicant or licensee may put forward a case to demonstrate that the intent of a requirement is addressed by other means and demonstrated with supportable evidence. We believe it should be up to the Licensees to put forward its case without such explanation and for the CNSC staff to determine if it meets requirements or not. The way the document is written it implies that licensees have to meet guidance resulting in unnecessary burden with	See response to Comment 224.

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				no positive impact on nuclear safety.	
226.		1.2	Industry	1. The scope of this document is too broad. It is trying to be used as a licence application assessment tool, a conduct of licensed activity tool and being used for new build construction, life extension, refurbishment and modifications to existing facilities. 2. Given that there are great differences just between a new build and an existing facility, this makes the implementation of this document very difficult. Focus the scope and provide guidance on the graded manner to be applied for differences between new and existing facilities. 3. Overlap and confusion with other regulatory documents resulting in additional regulatory burden with no impact in nuclear safety.	1. The preface states: *"For proposed new facilities: This document will be used to assess new licence applications for reactor facilities."* As such this REGDOC will be used in assessing new licence applications for reactor facilities. The NSCA, relevant regulations, CNSC regulatory documents, national and international standards, and applicable international obligations are to be used in developing applications. The assessment of the application is done against all regulatory criteria as defined by the *Nuclear Safety and Control Act*, relevant regulations, CNSC requirements and expectations, international and domestic standards, and applicable international obligations. 2. This REGDOC will be used as guidance for existing facilities. In line with the document preface, licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and

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					licensees can provide alternative approaches. CNSC staff acknowledges that refurbishment is different that initial facility construction. There is sufficient clarity on the application of this REGDOC to refurbishment. Section 9 provides further information on commissioning in support of return-to-service following refurbishment or implementation of Integrated Implementation Plans (IIP) from a Periodic Safety Review (PSR). 3. This REGDOC contains information complementary to CSA N286, and elaborates on some topics from the perspective of facility construction and commissioning. While we recognize that there is construction and commissioning experience within the Canadian nuclear industry; there may be newcomers. Clarity of expectations is important. Sections 7 of RD-360, Life Extension of Nuclear Power Plants addressed the installation and modification activities involved in the implementation of the Integrated Implementation Plan resulting from the Integrated Safety Review (ISR). Section 8 of RD-360 addressed commissioning activities. These sections were not retained in REGDOC-2.3.3, Periodic Safety Reviews. As such, regulatory requirements and guidance applicable to IIPs for existing facilities has been included in REGDOC-2.3.1.

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227.		1.2	Industry	The document contains requirements (shall statements) and recommendations/guidance (should statements). It is therefore not clear as to what is meant by the reference to "principles".	Principles are the requirements.
228.		1.2	Industry	1. Early in the document, it states that it applies to new build facilities. Later there is a section (sections) particularly in the commissioning part of the document, that talk a bit about refurbishment and modifications. I think the document might be better structured if the main body focused on the new build and then appendixes focused on the application to various facilities (the risk informed though process) and the application to construction and commissioning aspects of modifications. Some of the principles that apply to the new build also apply to modification work. Refurbishment is a special case that warrants some text. 2. One thought is that the construction and commissioning phase needs to be portrayed as an integral part of the DESIGN ASSURANCE process for the nuclear establishment. The parts of procure, construct and commission phases that are really essential are those that contribute to the assurance that the facility will operate in the face of events and conditions to be within prescribed limits (back to the definition of DESIGN BASIS). There are aspects that cannot be tested – so procurement and construction QA become an essential part of the design assurance. Best practice currently is to use design assurance matrices to plan out the assurance activities so that design assurance is systematically complete.	1. CNSC staff acknowledges that refurbishment is different than initial facility construction. There is sufficient clarity on the application of this REGDOC to refurbishment. Section 9 provides further information on commissioning in support of return-to-service following refurbishment or implementation of Integrated Implementation Plans (IIP) from a Periodic Safety Review (PSR) 2. Agreed. Wording was added to section 3.1 of the document. Section 10.2, paragraph 3 addresses the need for other means of assurance when testing is impractical.
229.		1.2 2nd para	Alikhan Consulting Inc.	The use of graded approach commensurate with risk is a good principle but without specific guidance it may not possible to translate it into a consistent and meaningful outcome.	There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches.

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				Develop specific guidance on how to apply the graded approach in the context of construction and commissioning, unless it is already covered adequately in another document that can be referenced.	Section 9 provides further information on commissioning in support of return-to-service following refurbishment or implementation of Integrated Implementation Plans (IIP) from a Periodic Safety Review (PSR).
230.		2	Industry	This is a requirement of the Regulations and will be also included in the licence. There is no need to repeat this in every REGDOC that is issued First line: The compliance with management system is in the LCH and part of our licensing basis and is also already covered in N286.5. Delete whole section. Why is it repeated here?	It is a small section and important to keep, in particular for newcomers. This REGDOC contains information complementary to CSA N286, and elaborates on some topics from the perspective of facility construction and commissioning. While there is construction and commissioning experience within the Canadian nuclear industry, there may be newcomers. Clarity of expectations is important.
231.		2	John Froats	In section 2 Management System the document points to CSA N286 as the reference. Most support companies typically use ISO 9001 as a base for their QA programming. The reference might be more clear if it indicated the licensee must satisfy an N286 OR EQUIVALENT program and that contracting entities can use other QA programming as long as the sum total of the QA programming is such that the licensee can demonstrate equivalency to an N286 or equivalent overall program.	It is a small section and important to keep, in particular for newcomers. This REGDOC contains information complementary to CSA N286, and elaborates on some topics from the perspective of facility construction and commissioning. While there is construction and commissioning experience within the Canadian nuclear industry, there may be newcomers. Clarity of expectations is important.
232.		3.1	John Froats	Section 3.1 starts to state accountabilities that the licensee has to `ensure' that certain things are in place. When I lecture quality management to graduate level students I emphasize the difference between `ensure' and provide `assurance that'. There is often confusion in these words. Ensure has the connotation of 100% verification, whereas assurance has the	We will review our use of ensure and provide assurance in the document.

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				connotation of due diligence in sampling. My personal view is that this section should indicate that the licensee has the obligation to ensure that the required processes are in place and then the obligation to provide an appropriate degree of assurance that the processes are being adhered to. The later can use audit, sampling and other statistical techniques whereas the former requires 100% checking.	
233.		3	John Froats	The document in section 3 states that the construction entity needs to "understand all regulatory requirements". I don't see this as practical or necessary. At a minimum, I think it needs a qualifier (as applicable to the work they are executing). In practice, as a licencee, I can expect a contractor to have that kind of knowledge base (which few contractors have and it is expensive) or I can specify the requirements clearly in a requirements document. In the end the work has to comply with regulatory requirements – but who has the requisite knowledge and how it is administered can vary quite significantly. This, in my mind is a key problem with the document as it is currently written. The way in which work gets done and the focus of the safety and compliance thinking needs to change as the various phases progress. The document has to acknowledge this. Very effective contractors and subcontractors can do the very high quality trades execution work during the construction phase while knowing very little about the facility – other than the rules they need to comply with to execute their tasks safely. Through the progression of phases, the licensee must assimilate the knowledge, skills and attitudes and belief systems that form the basis of a health operational nuclear safety culture but we need to be careful not to over-specify for the service providers – it is not practical.	The knowledge/safety culture focus is as applicable to nuclear safety aspects of the work the contractor is doing. They need to understand the implications of not following installation procedures, for example (i.e., no short cuts due to time pressures). It is important to be considering operational aspects at the time of construction, i.e., if things are not done right latent conditions are established, conditions that may result in an event during operation. In the CNSC - stakeholder workshop, industry indicated that they had no issue with regards to how the clauses on training were written.
234.		3	Industry	It is well understood already that the licensee will have primary responsibility for safety & security and is an intelligent customer as the licensee remains responsible for	CNSC will retain this section as it contains information complementary to CSA N286, and elaborates on some topics from the perspective

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				the plant. The responsibility & accountability for verification of inspection findings is shared. The licensee carry out the inspections and provide data, however, independent verification by the CNSC is part of the enforcement and regulatory oversight process. The implementation of this means not placing the entire accountability on the licensee to report. The entire guidance section consists of high level statements that are already understood based on many years of operating experience built into training and operating training and practices. This is simply reiteration of basic, common place understanding and need not be repeated here. The overemphasis on licensee having to report with no onus on the CNSC to do independent review is surprising. We expect to be audited as stated further on, but this appears to be deemphasised as opposed to licensee reporting much more. Make clear the need to re emphasis this section and also **how the CNSC plans to use the inspection results reported in this manner if they all meet code or licensing requirements anyway**. This guidance appears to demand far more reporting requirements than normal. The document requires that the licenses provide a significant amount of information which supplants the CNSC on site oversight of the work. This additional information is not justified. It appears to contradict CNSC policy P299.	of facility construction. While there is considerable construction and commissioning experience within the Canadian nuclear industry, there may be newcomers. Clarity of expectations is important. There are three instances of reporting listed in section 3 of REGDOC-2.3.1, in sections 3.1 and 3.2.3. CNSC do not believe this is unreasonable. CNSC staff is concerned with reporting of issues pertaining to contractor performance that has affected, or has the potential to affect, the quality of construction and future operational safety, and that safety-significant inspection findings are evaluated and the evaluation reported to the CNSC. Not all inspection findings need to be conveyed to the CNSC, only those that are deemed to be safety-significant (i.e., where the issue identified could lead to a latent condition, which could manifest itself during reactor operation). Note that REGDOC-3.1.1 only pertains to operating reactors, not to facilities under construction.
235.		3.1	Industry	The document states: “The licensee shall have the primary responsibility for safety and security of all construction activities, including work carried out on its behalf by contractors, and shall maintain an “intelligent customer” capability for all work carried out by contractors that may	Agreed. The term “intelligent customer” has been removed from requirements, although reference to the term was kept in the guidance part.

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				impact upon nuclear safety". The CNSC should not be mandating how the licensee manages work. It should provide requirements that need to be met, however; it should be up to the licensee on how to achieve these requirements (i.e. the CNSC should not be mandating that the licensee be an "intelligent customer"). Remove requirement for the licensee to be an intelligent customer. This is another case of far too much prescriptive detail in the REGDOC which leads to unnecessary burden with no impact on nuclear safety. Prescriptive details should be removed and the documents focus on high level objectives.	"Intelligent customer" is an industry-recognized term, and is found in the UK Office of Nuclear Regulation Technical Assessment Guides and in IAEA documentation (e.g., IAEA Nuclear Energy Series, "Workforce Planning for New Nuclear Power Programmes", NG-T-3.10, 2011.)
236.		3.2/3.2.3	Industry	FOR REFURBISHMENT 2nd paragraph...Maintaining records is part of the requirements of the General nuclear safety and control Act and regulations and has been adhered to as before. The keeping of records during construction, commissioning, operations, is a fundamental part of operating NPPs and is well understood. GUIDANCE EXAMPLES Are all of the examples provided have a regulatory stance that is well known and visible? (see 5th bullet) For the area "selection of contractors" part under 'problem identification & resolution & corrective action programs"..... Who is this aimed at and who will it be done by and who documents it? This is already covered in N286 the ACT and The general nuclear safety and control REGS Simply refer to existing regulatory documents or standards	While there is considerable construction and commissioning experience within the Canadian nuclear industry, there may be newcomers. Clarity of expectations is important There are three instances of reporting listed in section 3 of REGDOC-2.3.1, in sections 3.1 and 3.2.3. CNSC staff do not believe this is unreasonable. CNSC staff has noted a reduction in content on construction and commissioning from the earlier stand-alone versions in the CSA N286 series, to the 2005 edition of N286, to the 2012 edition of N286. As a result, the CNSC will retain the guidance in this regulatory document.

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				i.e. N286	
237.		3.2.1	Industry	This is obvious and is not needed in the document. Delete. There is no need to make a statement that the licensee is required to follow regulations.	This may be obvious to current licensees, but is an important instruction to newcomers. Clear understanding of all requirements and the activities they are applicable to is important.
238.		3.2.2	Industry	While interface arrangements are nice to have, these will essentially be defined by the licence and corresponding LCH. Delete.	These arrangements may very well be referred to in the LCH. However, the arrangements should be clearly documented in the application and in supporting material. CNSC staff will be looking for such information in the application.
239.		3.2.3	Industry	This is already a requirement of N286 and record keeping is required by both N286 and the regulations. Language should use similar wording to N286-12. Suggest that the entire section be replaced by a statement to direct the licensee to follow N286.	While we recognize that there is considerable construction and commissioning experience within the Canadian nuclear industry; there may be newcomers. Clarity of expectations is important Lessons learned from current new build projects worldwide have indicated that appropriate oversight of contractors is essential for constructing the facility according to the design.
240.		3.2.3	John Froats	The document continues to talk about safety culture at the construction stage. I know it is fashionable to emphasize culture, but in the construction phase the culture needed is quite different from the operational phase. During construction the need is conventional safety and quality focus. During the commissioning phase there is always a need to make a cultural shift to reflect the special characteristics of operating a nuclear machine.	It is more than “fashionable”, it is essential that procedures are adhered to, no short cuts are taken, and that there is a questioning attitude in terms of whether re-work is need to correct something. All those involved in the construction activities need to be cognizant of the nuclear safety aspects of their work.

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241.		3.3.1	Industry	Security measures will be defined by the licence and associated LCH. This section does not belong in this document. Delete, this should be part of a licence application guide not a conduct of activity REGDOC. Duplication of requirements for license application process with no impact on public safety.	It is important to present the context of security during facility construction. The content could eventually be included in an updated construction licence application guide.
242.		3.3.1	John Froats	The security section is much improved. I do think that spelling out that there is a significant shift in security processes and thinking at the milestone of first introduction of nuclear materials (fuel or D2O) to the site. Before that point focus is very much more on loss control than nuclear material control.	Comment noted. Discussing the shift in security requirements for the first introduction of nuclear materials is beyond the scope of this document.
243.		3.3.1 – Bullet 5	Industry	Should this not be simply "Cyber Security" which would then cover security of electronic information and electronically controlled systems? Change "IT/Electronic security to "Cyber Security".	Agreed. Change made.
244.		3.3.2	Industry	Safeguard measures will be defined by the licence and associated LCH. This section does not belong in this document. Delete, this should be part of a licence application guide not a conduct of activity REGDOC. Duplication of requirements for license application process adds to regulatory burden with no impact on public safety.	The content could eventually be included in an updated construction licence application guide. However, there is essential information about the design and facility layout that must be provided to the IAEA early in a project. This text helps to ensure that the IAEA is provided with the appropriate information.
245.		3.3.3	Industry	Effect on and from existing facilities should be assessed as part of the licensing process and programs to manage these effects should be defined by the licence and associated LCH. This section does not belong in this document. Delete, this should be part of a licence application guide not a	The content could eventually be included in an updated construction licence application guide. However, it is important to take the effects on and from existing and neighbouring facilities when considering facility construction, and in

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				conduct of activity REGDOC. Duplication of requirements for license application process adds to regulatory burden with no impact on public safety.	emergency response measures in particular.
246.		Section 3.3.3	Industry	The term "nearby" is open to interpretation. Suggest being more specific.	CNSC could replace the word "nearby" with "in the proximity of". However, the distance considered very much depends on the potential hazards from the nearby facility. It would be phrased as "consider the effects of all nearby facilities that could have an effect on the facility being constructed, and on the emergency response measures.
247.		3.3.4	Industry	This section refers to commissioning activities. This should focus on the construction activities and be a graded approach. Personnel engaged in ~~commissioning~~ *construction* activities shall have appropriate training, qualifications and competence to perform their assigned tasks effectively.	Agreed. Editorial change has been made.
248.		3.3.5	Industry	Environmental protection measures should be assessed as part of the licensing process and programs to manage these effects should be defined by the licence and associated LCH. This section does not belong in this document. Delete, this should be part of a licence application guide not a conduct of activity REGDOC. Duplication of requirements for license application process adds to regulatory burden with no impact on public safety.	Agreed. Section has been deleted.
249.		3.3.6	Industry	Emergency management and fire protection should be assessed as part of the licensing process and programs to manage these effects should be defined by the licence and associated LCH. This section should just contain the existing guidance.	It is important to present the context of emergency management and fire protection during facility construction; in particular when the facility is being constructed in the vicinity of an existing nuclear reactor, or a major industrial facility (e.g., refinery, chemical

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				This should be part of a licence application guide not a conduct of activity REGDOC; however, the guidance is relevant. Duplication of requirements for license application process adds to regulatory burden with no impact on public safety.	plant) The content could eventually be included in an updated construction licence application guide.
250.		3.3.6	Industry	FOR REFURBISHMENT Guidance...2nd paragraph: the need for risk and threat assessment. From where does this requirement originate? As far as the basis for security and DBT goes it is ongoing and would be captured as normal part of license requirements unless there is something new intended here.	Comment noted. Section 3.3.6 is for facility construction only. No change.
251.		4	Industry	FOR REFURBISHMENT GUIDANCE, item 2 under **management system**: Control over this is managed by approved suppliers list which requires the contractor to be N286-05 qualified and have a managed system in place which is audited by licensee. Replace section with Refer to N286 in the document. Duplication with N286 resulting in not impact on nuclear safety.	The text will remain as guidance as it addresses more than oversight of contractors and suppliers. Clarity of roles and responsibilities and appropriate staffing and oversight help to identify and correct problems to avoid creating latent conditions, and ensure the facility is constructed as per the design (e.g., no short cuts taken).
252.		5, 5.2	Industry	GUIDANCE: The beginning items in this guidance refer to efficiency requirements. How are these part of the regulatory requirements and how do they impact risk? FOR REFURBISHMENT: The first paragraph is too vague. What is the purpose of this statement? Guidance has a number of "should" as advisory statements. Where these are not safety related, what is the CNSC mandate to provide such advice and how will it be viewed if there is non-compliance?	Lessons learned from current new build projects indicates that up-front planning is essential to ensure that the facility is built as per design, and that short-cuts, that could lead to safety deficiencies, are not taken to meet schedule demands. Regarding guidance, from the preface of this regulatory document: *"Guidance contained in this document exists to inform the applicant, to elaborate further on*

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				Rewrite the section to identify high level objectives This is another case of far too much prescriptive detail in the REGDOC which leads to unnecessary burden with no impact on nuclear safety. Prescriptive details should be removed and the documents focus on high level objectives.	*requirements or to provide direction to licensees and applicants on how to meet requirements. It also provides more information about how CNSC staff evaluate specific problems or data during their review of licence applications. Licensees are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements. "* and *"Should" is used to express guidance or that which is advised.* As such, although guidance is not mandatory, licensees are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements.
253.		5.1	John Froats	Section 5.1 focuses on scheduling. I personally think that while everything in that section is true, it should not be in a document that focuses on assurance of nuclear safety. It is clearer if the obligation for business effectiveness is clearly with licencees – not mixed up with other regulatory obligations.	This section complements clause 5(c) of the Class 1 regulations "(*c*) the proposed construction program, including its schedule;" Scheduling issues may result in short cuts being taken that may result in safety deficiencies CNSC needs to know the schedule for coordination of resources to witness inspections.
254.		5.2	John Froats	The document choses to talk about procurement as part of the construction phase of the life cycle. Most often the phases are split (design, procure, construct, commission, operate,	This small section on long-lead items, that mentions procurement, is appropriate for this REGDOC.

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				decommission). Procurement quality management spans them all. It might make sense to structure the document to have the `procure' part be stand alone.	
255.		5.3	Industry	The licensee cannot provide the assurance requested in the first sentence here. We can as licensee provide or take along CNSC staff for witness points, however we have no legal leverage to provide direct access at all times to vendors facilities particularly if they are abroad. FOR REFURBISHMENT: The GUIDANCE part in this section appears to be a repeat of CSA Z299 requirements which we have to follow anyway. The Licensee cannot always provide the requested Assurance. The document should focus on major components. Including other components other than major component would have a significant burden on industry with no benefit to nuclear safety.	Comment noted. This provision has already been established in section 8.3.1 of RD/GD-369, "Licence Application Guide, Licence to Construct a Nuclear Power Plant" In addition, section 6.1 of the OPG-CNSC protocol for Darlington New Build (http://www.nuclearsafety.gc.ca/eng/resources/protocols/index.cfm) states "CNSC staff also plan to perform inspections of the suppliers, independent of OPG."
256.		5.4, 6.2, 8.3	Industry	It is not appropriate to provide guidance when there is no requirement to be met.	CNSC is of the opinion that the guidance provides clarity and is beneficial to applicants and licensees.
257.		5.5	Industry	FOR REFURBISHMENT Cleanliness at the worksite will be kept as normal practice required at any work site, as it may introduce hazards that may not be accounted for. This also is part of adherence to the licensing basis. FOR REFURBISHMENT : The GUIDANCE section is repeat of basic procedures that are already mandated for use for under the license and should be deleted. Remove requirement. This is another case of far too much prescriptive detail in the	Licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches. CNSC staff acknowledges that refurbishment is

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				REGDOC. Prescriptive details should be removed and the documents focus on high level objectives.	different that initial facility construction. There is sufficient clarity on the application of this REGDOC to refurbishment. Refer to the response to comment 252 regarding the level of detail provided in the guidance section.
258.		7	John Froats	In section 7 the idea of safety culture needs some additional clarity. Safety culture in an operational phase has aspects which need to be developed through the start-up phase – there is a transition that needs to take place.	Safety culture in not mentioned in section 7. However, see responses to comments 233 and 240.
259.		8	John Froats	Section 8 talks about reporting non-conformances. It wasn't clear to me in the reading how it is different from obligations under licence compliance (regulatory reporting) and having a fully effective corrective action program (also a licence compliance requirement.) I may have missed the point.	There currently are no regulatory reporting requirements under the LTPS or LTC, other than that specified in the NSCA and its regulations, REGDOC 3.1.1 does not apply to LTPS or Construction. This section was kept as CNSC is of the opinion that there should be some view on this from the commissioning perspective
260.		Part B: General	Industry	This section appears to be intended for new builds with the exception of Section 9 in the three paragraphs following "**Guidance**". For refurbished units the guidance is too light and non-descript. For example, the document states that the commissioning of a refurbished unit "should be similar, if not identical, to a new facility commissioning program." I do not think this will be the case. For laid up systems or systems which remained in service there will be little to no commissioning. There will be RTS testing, but no commissioning. For example, feedwater will be tested NOT commissioned. Section 6, sub-bullet 10. How do we verify emergency use	Comments received form industry at the June 2015 workshop indicated that they had no concerns with Part B of this REGDOC once it's applicability to existing facilities was clarified. Part B will remain as is as there is sufficient guidance for commissioning for existing facilities.

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				procedures by trial? This is not always practical or warranted. Section 10.4 Test Procedures: why do we need regulatory governance on how to produce a test procedure, including the required sections? Again, this seems too prescriptive when we have well established governance for workplans, procedures, etc. Other than these, all previous comments on this document and need to reiterate that it seems unnecessary in light of the CSA standards	
261.		9**,** Page 20, Paragrap h 2	Industry	See comments and suggestions in above Section 8. A Commissioning Program would be part of a Licensee's Management System and would therefore be part of their Licensing Basis provided as part of a new license application or renewal application. It would not therefore need to be resubmitted for a specific project. Licensees should only be required to submit "Commissioning Plans" for specific projects if they already have a Commissioning Program in place as part of their Licensing Basis.	This information is to be considered in developing a licence application for a licence to construct or a licence to operate. Current licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches.
262.		9, p.19	Industry	The update of FSAR is also standard practice and need not be reiterated here as a 'shall' do. It serves no purpose as if the license facility does not reflect the SAR then it is beyond the licensing basis and should not be operating anyway. Delete this from the REGDOC. It appears to serve no purpose. Many of the existing systems will remain as they were prior to refurbishment and will not have undergone any design	This section is for new facilities, and, as described in the response to comment 261, is to be considered by current licensees.

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				change. These systems will be subject to numerous safety related system tests but will not be treated as systems requiring full commissioning.	
263.		9	John Froats	The section 9 starts to introduce discussion of application of the commissioning approach to other than new facilities. The concepts also can be applied to construction (in a somewhat different manner). Wouldn't it be more appropriate to have an annex or appendix that spoke to the application of the principles embodied in the document to either other types of facilities OR to modifications. Some key principles that I would see warranting explicit discussion: 1. The principle of providing adequate design assurance through the combination of design assurance, procurement assurance, construction assurance and commissioning testing applies equally to a single modification, a set or series of modifications or an aggregate of modifications as it does to a single modification. 2. The extent of one element of the design assurance may be adjusted where other forms of assurance are robust (for example where testing is fully effective) as long as in combination, design assurance is provided 3. For modifications and aspects of SSC's that do not impact design basis (or other parts of the licence basis in which compliance to laws and regulations apply)a graded approach is permitted (for example, in a commercial building on a site that has no potential to impact the nuclear safety design basis, commercial approaches would be sufficient).	1, 2. & 3. Agreed. Wording was added to section 3.1 of the document. Section 10.2, paragraph 3 addresses the need for other means of assurance when testing is impractical.
264.		10.1	John Froats	In section 10.1 it seems that construction and procurement assurance should be added.	Agreed. Wording was added to section 3.1 of the document. Section 10.2, paragraph 3 addresses the need for other means of assurance when testing is impractical.

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265.		Section 10.1 – Paragraph 2	Industry	This paragraph implies that all SSCs have a safety related function and therefore that all SSCs have to follow the same rigorous testing and commissioning process. This should be re-worded to cover only those SSCs that have a safety function.	As per item 3 in section 9, all references to SSCs in the REGDOC are referring to those important to safety.
266.		Section 10.1 – Paragraph 3	Industry	The term "safety-related SSC" is not defined. Please clarify if this term is synonymous with "SSC's important to safety" and if so, use this defined term. If not, please provide the definition for "safety-related SSC" to clearly show how these are different from SSC's important to safety".	Agreed. The term has been removed and replaced with SSCs important to safety.
267.		Section 10.2 – Paragraph 1	Industry	It is not understood why both terms "safety" and "safety-related functions" are used in this paragraph. Please revise to clarify the difference, if there is one. In addition the term "safety-related function" may need defining depending on resolution of comments in the above two rows.	Agreed. The term has been removed and replaced with SSCs important to safety.
268.		Section 10.2, Page 22	Industry	Guidance: SSC tests. As above, see Section 10. This should be re-worded to cover only those SSCs that have a safety function.	Agreed. The term has been removed and replaced with SSCs important to safety.
269.		Section 10.3 – Guidance – Paragraph 1	Industry	The term "acceptance criteria important to safety" is unclear/undefined. Please use more specific words or define the term.	Agreed. The term "important to safety" has been removed from the sentence. The revised sentence states as follows: *CNSC acceptance of the acceptance criteria may be needed before performing the commissioning tests.*
270.		Section 10.3 – Guidance –	Industry	Commissioning Program? Please see comments 226 and 227 above.	Comment noted. See responses to comments 226 and 227.

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		Paragraph 1			
271.		Section 10.4 – Guidance – Paragraph 1	Industry	SSCs. Please see comment 230 above.	See response to comment 230.
272.		10.4	Industry	Page 25: Many of the test procedures have been developed based on OPEX and best industry practices. They contain most of the requirements stated here, however as industry moves forward with new OPEX, we would expect to have freedom to manage this important aspect of testing our systems and not be subject to regulatory mandated and rigid approach which could be detrimental to nuclear safety. Suggest a higher level statement identifying the need for testing to be managed by the licensee and subject to CNSC audit. This is another case of far too much prescriptive detail in the REGDOC. Prescriptive details should be removed and the documents focus on high level objectives.	This information is to be considered in developing a licence application for a licence to construct or a licence to operate. Current licensees are expected to address the content in the REGDOC, and aspects that they incorporate in their safety and control measures (e.g., programs, processes, procedures, instructions) will become part of the licensing basis for the regulated activity. There is considerable flexibility afforded to applicants and licensees, particular when a graded approach may be taken. Applicants and licensees can provide alternative approaches.
273.		11	Alikhan Consulting Inc.	Commissioning Hold Points are extremely important milestones where all commissioning related activities must come together to demonstrate that the plant, people, procedures and the management system are indeed integrated and ready to comply with the specified requirements. Therefore serious consideration should be given to providing comprehensive guidance on how to bring all the documented evidence together for the licensee to confirm and for the regulator to check and accept it in a well-defined, consistent, systematic and easily auditable manner. Ref. 1, Section 8, can be used to develop necessary guidance.	The relevant material from the very useful report has been included in this section.

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274.		11	Alikhan Consulting Inc.	For completeness, there should also be a requirement on the licensee to confirm that all the specified management system procedures have been formally issued. Add the following bullet after the first bullet: • All the specified management system procedures have been formally verified, validated and issued	This information may be found in the guidance part of section 11.
275.		12	Industry	SSCs. Please see comments #'s 230 and 235 above.	See responses to comments 230 and 235.
276.		12	Industry	A facility consists of SSCs. It is thus unnecessary to state that facility turnover includes the transfer of SSCs.	Agreed. The word "facility" has been deleted from the 1st sentence of the guidance section.
277.		Appendix E	Alikhan Consulting Inc.	Training of commissioning staff is a very important element to ensure safe and successful outcome and therefore should be addressed as well. Add a bullet: • Ensuring that commissioning staff is duly trained and qualified to perform their functions, including adequate understanding of plant design, management system procedures, planning and execution of commissioning tests, assessing and documenting test results to comply with the specified design and performance requirements	Comment noted. CNSC staff is of the opinion that there is sufficient information in Section 8.2 of the REGDOC.
278.		Glossary	Industry	"Safety Assessment" definition. Need to define "safety assessment" as noted in the definition of "safety case" to distinguish it from "safety analysis" particularly if they are intended to have different meanings in the context of this REGDOC.	The definition of Safety Assessment from the CNSC Glossary, below, has been added. **safety assessment** *(évaluation de la sûreté)* An assessment of all aspects relevant to safety of the siting, design, construction, commissioning, operation or decommissioning of a nuclear facility."

	Section in Original Version	Section in Revised Version	Organization	Comment	CNSC Response
279.		Glossary	Industry	SSCs definition: See comments 230 and 243. Not all the SSCs contribute to protection and safety otherwise they would all be "SSCs important to safety". Suggest the deletion of "that…safety".	The document has been revised to differentiate between SSCs and SSCs important to safety.