

2014 June 23

Mr. Brian Torrie  
Director General, Regulatory Policy Directorate  
Canadian Nuclear Safety Commission  
280 Slater Street  
P.O. Box 1046, Station B  
OTTAWA, Ontario K1P 5S9

Dear Mr. Torrie:

**Comments on Regulatory Document REGDOC-2.3.1  
Conduct of Licensed Activities: Construction of Reactor Facilities**

AECL has reviewed REGDOC-2.3.1, *Conduct of Licensed Activities: Construction of Reactor Facilities*, and has met with industry partners, Ontario Power Generation, Bruce Power, and New Brunswick Power to discuss issues, challenges, and impact of this document.

The combined comments on REGDOC 2.3.1 are contained in Attachment A.

There are several major concerns and these are highlighted in bold in the attachment.

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 REGDOC.

If you require further information or have any questions regarding this submission, please contact me as below.

Yours sincerely,



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Attachment

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**Attachment A****Industry Comments on REGDOC-2.3.1, Conduct of Licensed Activities: Construction of Reactor Facilities**

#	Document Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
1.	General comment	The document focuses on requirements for construction activities and doesn't identify what is applicable for a major modification/refurbishment.	Remove references to major modifications/ refurbishment from this document and put the requirements in a separate document dedicated to major modifications/ refurbishment.	Major	This regulatory document should focus on New Build Construction. Stations are currently following approved procedures for modification/refurbishment and adding these additional requirements document can lead to inconsistencies and additional costs related to contract modifications.
2.	General	This document is similar to the recent commissioning document that puts 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 be trying to override those documents. Some high level guidance strictly related to construction in those areas may be acceptable, however; there should not be requirements as they would be already fulfilled to get a construction licence.	Revise this regulatory document to focus on regulatory requirements for construction activities.	Clarification	

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3.	General	This document does not appear to align at all with the Construction Licence Application Guide.	Review and revise this regulatory document to align with Licence Application Guide: Licence to Construct a Nuclear Power Plant, RD/GD-369.	Clarification	
4.	Preface	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.	Ensure that industry has 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.	Clarification	
5.	1.2, para. 1	<b>Document should not be applicable to “a major modification/ refurbishment of an existing reactor facility”.</b>	<b>Delete requirement.</b>	<b>Major</b>	<b>This regulatory document should focus on New Build Construction. Stations are currently following approved procedures for modification/refurbishment and adding this additional requirements document can lead to inconsistencies and additional costs related to contract modifications</b>

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6.	2. para. 1	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.	<p>Suggest changing text to:</p> <p><b>Requirement</b></p> <p>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.</p> <p><b>Guidance</b></p> <p>This responsibility covers all aspects related to the facility's construction and includes:</p>	Clarification	
7.	2., Item 1	More common term is "smart/intelligent buyer."	Change "intelligent customer" to "intelligent/smart buyer"	Clarification	
8.	2., Note 1	<b>Organization may be performing oversight to ensure supervisors are trained and supervision is effective, vs. performing the supervision.</b>	<p><b>Change to</b></p> <p>"...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."</p>	<b>Major</b>	<b>Lack of continuity in this note from what is stated in section 3. Need to allow flexibility for contract supervisors to supervise work, while licensee still ensures that quality is maintained.</b>
9.	2., item 2	<b>Shared goals and processes is a good project management tool. It's not a safety significant activity</b>	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.	<b>Major</b>	<b>These statements are too prescriptive and go beyond "what" things get done, and infringe on "how" things get done.</b>

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10.	2.	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	Change to: 7. ensuring construction program documents are prepared and updated 8. Ensuring construction instructions and procedures are established 9. ensuring inspections, tests and verification of items important to safety 10. ensuring inspection findings are evaluated and reporting the evaluation results to the CNSC	Clarification	
11.	3.	This clause mandates CSA 286-12 when licensee should actually be directed towards the standard in their licence.	Please delete version number for CSA 286	Clarification	
12.	3.1.2	<b>The requirement for agreement upon the interfaces can be interpreted to mean that the CNSC has to agree upon the interfaces between:</b> <ul style="list-style-type: none"> <li>• The licensee and the reactor designer, and/or</li> <li>• the reactor designer, manufacturers, construction organizations and contractors.</li> </ul>	<b>Suggest changing text to:</b>  <b>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.</b>	<b>Major</b>	<b>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.</b>

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13.	3.1.3	<p>As written, the requirement is overlapping the requirements in CSA N286-12.</p> <p>Also, it is suggested that item 2.b include the need to control foreign material impacts.</p> <p>For item 3.b, history docket are reviewed once projects are complete, or the equipment is turned over to a Licensee. Licensee doesn't necessarily review contractor purchasing documentation <i>prior</i> 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 met.</p>	<p>Suggest changing text to:</p> <p><b>Requirement</b></p> <p>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.</p> <p>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.</p> <p><b>Guidance</b></p> <p>Examples of contractual obligations where performance has the potential to affect the quality of construction and future operational safety performance include:</p> <ol style="list-style-type: none"> <li>1. for selection of contractors:                             <ol style="list-style-type: none"> <li>a. confirmation that the contractors have the ability to supply the goods or service</li> <li>b. acceptance of the contractor's management system through review of documentation and audit</li> <li>c. confirmation that the contractor understands all regulatory requirements</li> <li>d. resolution of any exceptions the contractor has to the licensee's requirements</li> <li>e. reviews of contractor submissions against requirements</li> </ol> </li> <li>2. for contract management:                             <ol style="list-style-type: none"> <li>a. evidence of a positive safety culture</li> <li>b. evidence that the contractor satisfies all contractual requirements related to health and safety, environment, security, <b>control of materials</b> and quality</li> <li>c. communication and relationships among all parties that are open and constructive, and identification of problems before they become serious</li> <li>d. contract is administered through management of change, performance monitoring and monitoring of work progress</li> <li>e. problem identification and resolution, and effective corrective action programs</li> </ol> </li> </ol>	Major	As written, the requirement could be interpreted to mean that the CNSC has a role in the contractual arrangements from a business perspective which would exceed their regulatory mandate.

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			<ul style="list-style-type: none"> <li>f. control of emergent work</li> <li>g. processes to manage claims and disputes</li> </ul> <p>3. for contractor supply chain (manufacturing and construction) activities:</p> <ul style="list-style-type: none"> <li>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</li> <li>b. review of contractor purchasing documentation to confirm <b>specifications for purchasing have been met</b></li> <li>c. review of contractor manufacturing or construction documentation, including quality plans/ manufacturing and inspection and test plans, and special process procedures</li> <li>d. source verification and audits, during manufacturing and construction, to verify compliance of the contractor or its sub-contractors</li> <li>e. review and disposition of any contractor non-conformances to requirements</li> </ul> <p><b>The above guidance should also extend to the contractor's measures to ensure its sub-contractors meet their respective contractual obligations.</b></p>		
14.	4. Item 3	The requirement "the design is sufficiently complete" is ambiguous and has historically caused significant debate on when it is achieved.	Please modify to state "the design is sufficiently complete as agreed between the licensee and the contractor, and any incomplete areas have been identified."	Clarification	
15.	4., item 14	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	Delete item. Unnecessary, and incidental to safety of the final constructed station	clarification	
16.	4., item 15	The quality of construction cranes, scaffolds, temporary structures and temporary equipment is governed by provincial laws and regulations.	Suggest changing text to: 15. construction processes and equipment, such as cranes, scaffolding, temporary structures, portable equipment, and flammable equipment, meet jurisdictional requirements	clarification	



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17.	4. Para. 4	This paragraph regarding training of personnel involved in commissioning etc. does not belong in a regulatory document on construction of nuclear reactors	Delete paragraph	Clarification	
18.	6.3, Item 5.	Assessment of evacuation times is new and not something Licensees do for existing facilities.	Change to: "Emergency Preparedness shall consider ....evacuation times ...."	Clarification	
19.	6.3, para. 3	Clarification required on how far away is "nearby."  This paragraph should also be considered as guidance and not a requirement	Suggest being more specific. Terms "nearby" and "in close proximity" are open to interpretation. Suggest, "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."		
20.	6.4	Editorial	Change to "such as spent fuel pools"	Clarification	
21.	6.5	Clarity required on what exactly is meant by "controls"	Suggested change: "Fire protection controls, i.e. temporary measures to mitigate potential fires, shall be available until final systems for plant fire detection, ..."	Clarification	
22.	6.7	REGDOC-2.6.3 is not a draft document. It was issued in March 2014.	Remove "draft"	Clarification	

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23.	7.1, Para. 1	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.	<p>Suggest changing text to:</p> <p><b>Requirement:</b> “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.”</p> <p><b>Guidance</b> “To ensure construction sequencing will not be adversely affected by later construction activities, planning, scheduling and work sequencing should identify and include provisions for:</p> <ol style="list-style-type: none"> <li>1. items with long lead times (long-lead items)</li> <li>2. onsite manufacturing, modular assembly and testing activities.”</li> </ol>	Major	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.
24.	7.1, Para. 2	Suggest rewording the requirement and splitting it into a requirement and guidance	<p>Suggest changing text to:</p> <p><b>Requirement</b> “Post-drilling of concrete shall be kept to a minimum.”</p> <p><b>Guidance:</b> “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.”</p>	Clarification	
25.	7.2, para. 2	Suggest rewording the requirement for clarity.	<p>Suggest changing text to:</p> <p>Environmental conditions shall be confirmed to remain within their allowable limits by periodic monitoring.</p>	Clarification	
26.	7.3 para. 3 & 4	These paragraphs are not regulatory requirements.	Remove this text.	Clarification	
27.	7.4, para. 1	Missing lay-up requirement.	<p>Modify as follows:</p> <p>“Fluid and gas piping systems, and associated components shall be <b>laid up</b>, cleaned, flushed and conditioned according to applicable chemistry requirements.”</p>	Clarification	
28.	7.4	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.	Clarification	

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29.	7.4, item 3	What is meant by storage capacity? Does it refer to storage of chemicals?	Clarify requirement.	Clarification	
30.	7.4, item 6	Does this mean recirculation?	Use the term "system recirculation."	Clarification	
31.	7.4/8.4/9./9.1/9.2	The more common term use in the industry for "transfer" is "turnover".	Replace instances of "transfer" with "turnover" as appropriate	Clarification	
32.	8.1, Guidance item 10	Missing additional requirements on cleanliness of components.  Need assurance that components are free of surface FME to avoid issues on restart, e.g. boiler sulfate issues at Pt. Lepreau post refurbishment.	Modify as follows: "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."	Clarification	
33.	8.1	<b>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.</b>  The right of access to facilities and records for witness points or audit by the CNSC" should be kept with this document.	<b>Move Sections 8.1 to a new section in REGDOC-2.5.2.</b>  Suggest changing text in section 8.1 to:  The licensee shall ensure right of access to facilities and records for witness points or audit by the CNSC.	<b>Major</b>	<b>Engineering activities should be contained within REGDOC-2.5.2.</b>

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34.	8.2	The text in Section 8.2 includes a combination of requirements and guidance.	<p>Suggest changing the text in Section 8.2 to:</p> <p><b>Requirements</b></p> <p>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.</p> <p><b>Guidance</b></p> <p>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.</p> <p>When the licensee/applicant proceeds with procurement of long-lead items, the submissions should include the following information: ...</p>	Clarification	
35.	8.3.1/8.3.2	One of the purposes of these sections 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.	Clarification	
36.	Sections 8.3.1, 8.3.2, 8.3.3, 8.3.4	<b>We do not consider that these requirements apply to ALL components that are received. Need to exclude low cost, easily replaceable, components, or limiting it to components used in some sub-set of station systems.</b>	<b>See 8.3.7 “items important to Safety of nuclear facilities” – Suggest similar wording be incorporated in these sections.</b>	<b>Major</b>	<b>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 I don’t think the universal applicability of the requirements is what was intended.</b>

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37.	8.3.7, para. 4	This text belongs under guidance.	Suggest changing text to: <b>Guidance</b> Examples of onsite manufacturing include: 1. concrete production in a concrete batch plant 2. rebar assembly 3. pipe spool fabrication 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 d. electrical modules: electrical modules on a common structural frame	Clarification	
38.	8.3.7, bullet 1.	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"	Clarification	
39.	8.3.7, para. 5	Licensee may only ensure that the rules and procedures are established for onsite testing facilities.	Change to: "Ensure the rules and procedures are established for onsite testing facilities"	Clarification	
40.	8.4, para. 2.	The CSA standard N286 which the industry must comply with, already covers the process for completion assurance and does not require repeating in the REGDOC	Pease delete second paragraph.	Clarification	

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41.	9.1	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.	<p>Suggest changing text to:</p> <p><b>Requirement</b> The licensee shall ensure that a process for turnover of structures, systems and components is established in accordance with an applicable safety management standard.</p> <p><b>Guidance</b> 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.</p> <p>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 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.</p>	Clarification	
42.	9.1 and 9.2	Licensees and CSA N286 use the term "turnover" instead of 'handover'	Replace 'handover' with 'turnover'	Clarification	
43.	11., para. 1	Suggest rewording the requirement to clarify the intent.	<p>Suggest changing text to:</p> <p>The control of construction records shall be established at the beginning of the construction program for input into the schedule for accomplishing construction activities.</p>	Clarification	

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44.	11., Para. 2	Suggest rewording to clarify requirements and guidance.	<p>Suggest changing text to:</p> <p><b>Requirements</b>  “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.”</p> <p><b>Guidance</b>  “Construction records should include photographic and, where appropriate, video records and computer simulations.”</p>	Clarification	
45.	Glossary	Definition of “Construction” in Glossary includes procurement and manufacturing, which are not considered part of construction. The preparation of technical specifications for procurement is an engineering activity.	<p>Suggesting changing text to</p> <p>The process of assembling the components, including on-site manufacturing, carrying out civil work, installing and maintaining components and systems, and performing associated tests.</p>	Clarification	