

Detailed Comments Report
Draft REGDOC-1.1.1, Licence to Prepare Site and Site Evaluation for New Reactor Facilities
Public consultation: August 11, 2016 – November 14, 2016 **Feedback on comments:** Dec. 7 to 29, 2016

Table A: Comments on Request for Information

	Reviewer	Section or Para. #	Reviewer's Comment and Proposed Change	Response
I.	No comments specific to the Request for Information were received.			

Table B: Comments on Draft REGDOC-1.1.1, Licence to Prepare Site and Site Evaluation for New Reactor Facilities

	Reviewer	Section or Para. #	Reviewer's Comment and Proposed Change	Response
1.	Bruce Power, NB Power, CNL	General	We appreciate the CNSC's efforts to update and consolidate its document suite and welcome the opportunity to provide feedback from a licensee's perspective. The high-level observations in the letter – and the detailed, supporting comments in Attachment A – emerged from a collaborative review among Bruce Power, Ontario Power Generation, New Brunswick Power, Canadian Nuclear Laboratories and the Canadian Nuclear Association.	Thank you. The CNSC appreciates the effort of the nuclear industry to provide and consolidate comments.
2.	Canadian Nuclear Association	General	The Canadian Nuclear Association (CNA) is pleased to have the opportunity to comment on REGDOC-1.1.1. Our members include the operators of Canada's existing Nuclear Power Plants and the CNA is aware that those members intend to submit a list of detailed comments. Our submission will be limited to highlighting a few key points.	

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3.	A. Bruce Power, NB Power	General	Collectively, industry finds the scope of this document to be overly ambitious, which hinders its clarity and effectiveness. Within its 129 pages, this draft establishes requirements and guidance to secure a license to prepare a site for a new reactor. It also details the CNSC's expectations for the evaluation of a site for a new nuclear power plant or a small modular reactor facility. It then goes further and provides information needed for future phases such as construction, operation and abandonment. In doing so, the document strays from its central focus to guide applicants through the process of securing a licence to evaluate and prepare a site for new build.	<p>The text has been restructured where appropriate, to refine the overall effectiveness of the document and the clarity of the information. This document:</p> <ul style="list-style-type: none"> - provides the CNSC's requirements and guidance for the evaluation of a site for a new nuclear power plant or a small reactor facility, including the site characterization information needed at the evaluation stage so that it can be updated and applied to future phases - provides requirements and guidance on submitting an application for a license to prepare a site for a new reactor facility <p>Site characterization information is collected at the evaluation stage so that the information can be used, and updated as additional information becomes available, through the future phases of the lifecycle.</p>

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	B. Bruce Power, NB Power	General	<p>Draft REGDOC-1.1.1 provides too much information on future lifecycle phases. We appreciate the CNSC's desire to show applicants how the links in its licensing chain fit together and note that Appendix B combines all phases of the process. Unfortunately, the result is a lengthy document with repetitive information that blurs the requirements for each stage. What licensees required most is a graded approach that provides concise, specific guidance for each phase so they can provide timely and correct information for the particular licence they are currently seeking. This is especially important for new applicants who may not be familiar with Canada's regulatory framework.</p>	<p>No change to text, other than clarification of the text and the application to the lifecycle phases. REGDOC-1.1.1 codifies the licence application requirements, and provides information that will be carried through to all lifecycle phases. For more information, see REGDOC-3.5.1, <i>Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills, version 2</i>.</p> <p>Site evaluation information is carried through to all subsequent facility lifecycle phases, including the licence to operate. In addition, in accordance with CSA Group Standard N288.6, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i>, the site evaluation information is periodically re-evaluated. The re-evaluation should focus on confirmation of the site characteristics, and assessing the effects of the updated information. Design modifications, updates to operations, or both, may be needed.</p>

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	C. Bruce Power, NB Power, OPG, CNL	General / Appendix B	<p>Discussing the requirements of the application to prepare site separately in Part A and Appendix A provides more clarity as to what is required for this specific application. Unfortunately Appendix B seems to confuse matters. In Appendix B, combining all phases of the licensing process in this prepare site and site evaluation document makes a rather lengthy document with considerable redundancy/replication of information including repeating of references and more importantly blurs the requirements for each stage of licensing. Greater clarity is required as to what exactly is required for each stage.</p> <p>Suggested Change: Remove redundancy and duplication</p> <p>Impact on Industry: Licensees require clarity of requirements to ensure correct information is provided to avoid rework, and provide consistency in interpretation. This is especially important for any new applicants who may not be familiar with Canadian regulatory framework.</p>	<p>Changes have been made to the document to clarify the use of site evaluation and site characterization information in construction and operation and more clearly notes the sections of the document applicable to construction and operation.</p> <p>CNSC will consider the comments in view of the best configuration for this material, in order to provide clarity,</p> <p>Refer to the response above regarding the scope of REGDOC-1.1.1 and the applicability of site preparation activities to future lifecycle phases of the facility.</p>
4.	Bruce Power, NB Power, OPG, CNL	General	<p>The document does not make any allowance for the size of the reactor or site (e.g., SMRs) in specifying requirements for environmental assessments.</p> <p>Suggested Change: Provide graded approach depending on the size of the intended site, reactor.</p> <p>Impact on Industry: Burdensome, unnecessary requirements for small reactors.</p>	<p>Text has been clarified as follows: From section 1.2, scope: "All criteria in this document can be applied to a smaller reactor using a risk-informed approach." See also response to comment 3, above.</p>

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5.	Bruce Power, NB Power, OPG, CNL	General	<p>Draft REGDOC-1.1.1 duplicates requirements already found in existing CNSC Regulatory Documents, most notably REGDOC-2.9.1, <i>Environmental Protection, Environmental Principles, Assessments and Protection Measures</i>. Several examples are cited in later comments. This document would be more effective if it only identified requirements that are supplemental to the Environmental Assessment (EA) process and allowed applicants to refer back to their EAs rather than repeat the requirements.</p> <p>Suggested change: Remove redundancy and duplication, referring to REGDOC-2.9.1 sections on environmental risk assessment, environmental assessment and environmental monitoring</p> <p>Impact on Industry: Creates potential for confusion of requirements</p>	<p>Text has been revised as appropriate. REGDOC-1.1.1 is consistent with REGDOC-2.9.1 and provides further, more detailed requirements for NPPs and small reactor facilities for</p> <ul style="list-style-type: none"> - initial site evaluation supporting the application for a licence to prepare site - preparing at site evaluation for continual re-visiting of site characteristics over the entire lifecycle of the facility - environmental assessments under the NSCA and under CEEA 2012 <p>Applicants are encouraged to cross-reference any information submitted to the CNSC.</p>
	Canadian Nuclear Association	General	<p>Although CAN members appreciate the detailed nature of the document, we feel it should only identify requirements that are supplemental to the Environmental Assessment (EA) process, referencing back to EA guidance documents rather than reiterating requirements.</p>	

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	Bruce Power, NB Power, OPB, CNL	General	<p>Overlap of requirements between existing regulatory documents (for example REGDOC 2.9.1, RD 346) and REGDOC 1.1.1. Emphasis on meeting all requirements of a running plant for new build is too cumbersome as presented in this document.</p> <p>Suggested Change: Streamline requirements for new build with reference to later/applicable licence requirements via existing suite of regulatory documents. Present strategy for a graded approach to implement requirements.</p> <p>Impact on Industry: Creates uncertainty with prospects of new build or attracting investors. Duplication of efforts for various licences.</p>	
	Canadian Nuclear Association	General	<p>CAN members have noted that the document contains heavy overlap with other regulatory documents and provincial and federal requirements, particularly REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures. To enhance clarity of the applicable requirements, our members recommend including with these proposed requirements references to all other relevant regulatory documents in the existing suite wherever possible instead of reiterating licence requirements.</p>	

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6.	Bruce Power, NB Power,	General, s. 7 & 12	Draft REGDOC-1.1.1 overlaps responsibilities between the CNSC and other government bodies to regulate safety. This is seen in Section 7, <i>Operating Performance – Conduct of the Licensed Activity</i> in the area of industrial safety during construction and again in Section 12 – <i>Emergency Management and Fire Protection</i> . The need to meet redundant requirements imposed by the CNSC and other provincial or federal safety agencies will create confusion and force licensees to replicate research and submissions.	<p>No change. While REGDOC-1.1.1 documents requirements and guidance in the areas of CNSC's mandate, efforts are made to be consistent with requirements and guidance from other regulatory bodies, and to avoid duplication of regulatory oversight.</p> <p>However, applicants must adhere to all applicable federal, provincial, territorial and municipal laws, as documented in CNSC REGDOC-3.5.1, <i>Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills, version 2</i>:</p> <p>“Applicants must also be aware of, and comply with, other federal, provincial or territorial, and municipal legislation that may also apply to their projects. ...”</p> <p>And as stated in the Preface of every regulatory document, “Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee’s responsibility to identify and comply with all applicable regulations and licence conditions.”</p>
	Bruce Power, NB Power, OPG, CNL	General	<p>Overlap of responsibilities between CNSC and provincial authorities to regulate safety, in particular, industrial safety during construction (i.e., section 7 Operating Performance)</p> <p>Suggested Change: Separate the defined authorities’ responsibilities.</p> <p>Impact on Industry: Redundancy of meeting both the CNSC and provincial safety requirements or concerns with the alignment between various interpretations.</p>	
7.	Canadian Nuclear Association	General	Draft REGDOC-1.1.1 should also present an implementation strategy that accounts for the development timelines for a new site, noting that some elements may not yet be available at the preliminary stages of a new build.	Text has been revised for clarity. REGDOC-3.5.1 provides options available to applicants regarding the conduct of the EA and licensing processes. CNSC staff note that the development timelines can be very different, on a project-by-project basis.

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8.	Bruce Power, NB Power, Canadian Nuclear Association	General	Draft REGDOC-1.1.1 requires assessments and analysis based on a detailed reactor design well before an applicant might reasonably be expected to have chosen a design. A general understanding of the technology to be used should be sufficient at these early stages and reflected in the requirements in this document.	<p>No change. The Request for Information that was posted with the draft REGDOC-1.1.1 for public consultation specifically stated:</p> <p>“The application for an LTPS is not dependent upon detailed design information or specifications of a facility design; however, it must provide enough information to demonstrate that releases of nuclear and hazardous substances will be within limits claimed in the environmental assessment taking into consideration specific site characteristics, and meet all applicable regulatory requirements.”</p> <p>REGDOC-1.1.1 provides information regarding the use of a bounding approach in the application for a licence to prepare site and in the environment assessment.</p>
	Bruce Power, NB Power, OPG, CNL	General, s.17	<p>This application guide calls for assessments and analysis based on a detailed reactor design well before an applicant might reasonably be expected to have chosen a design. For example, Section 17 requires safety or accident analysis of events/ accidents and characterization of site impacts based on the design, etc. At this stage in the lifecycle, the final design may not yet be known.</p> <p>Suggested Change: Ensure there is a consistent use of language throughout the document, similar in tone and substance to that used in Section 4.1, to recognize that a final design may not yet be established at the site preparation and evaluation stage. Requirements need to match the level of detail that is available to applicants at the various stages in the lifecycle.</p> <p>Impact on Industry: This application guide requires too much assessment, analysis, characterization, etc. based on detailed design. An applicant may not have this information available at the time of application. A general understanding of the technology to be used should be sufficient and the requirements need to reflect that.</p>	

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9.	Bruce Power, NB Power	General	<p>Bruce Power also has concerns with the forcing of requirements from the regulations in to the CNSC's Safety and Control Areas. As per our earlier feedback on REGDOC-1.1.3, <i>Licence Application Guide: Licence to Operate a Nuclear Power Plant</i>, our concern stem from the fact that certain clauses of the regulations are noted in multiple Safety and Control Areas. For example, <i>General Nuclear Safety and Control Regulations</i> Section 3(1)(d) is quoted under six different Safety and Control Areas. Similarly, Section 3(f) of the Class I Nuclear Facility Regulations, which covers proposed work health and safety policies and procedures, is also reference under six different Safety and Control Areas. This will result in the unnecessary duplication of information within an application.</p>	<p>No change. The CNSC has developed the Safety and Control Area framework and uses it extensively. The framework provides a comprehensive and understandable structure for the information required by the CNSC for licensing and compliance activities.</p> <p>The CNSC does not require licensees or applicants to structure their own documents according to the CNSC's SCA framework. The licensee or applicant may organize the information for their application within their own structure, and simply provide the CNSC with a mapping of the required information to the SCA framework."</p>
10.	Bruce Power, NB Power, OPG, CNL	General	<p>Bruce Power also notes that draft REGDOC-1.1.1 does not cover the following requirements from the Regulations: Class I Facilities Regulations 3(i), General Nuclear Safety and Control Regulations 3(1)(g)(h)(i)(l), 12(a)(b)(d)(e)(g)(h)(i)(j)(k).</p> <p>Suggested Change: Add guidance on the missing requirements.</p> <p>Impact on Industry: This leaves the industry and the CNSC open to potential court challenges with regard to the issuance of site preparation licences that are missing information required by the regulations.</p>	<p>Thank you. All regulatory requirements for a Licence to Prepare Site have been reviewed and requirements have been added to the specific sections where needed.</p> <p>Paragraph 3(i) of Class I was already listed in the relevant legislation, but has now been added to the list of requirements for section A.6.10 (was 15.1), Security.</p> <p>GNSCR 3(1)(g) and (h) are referenced in section A.6.10 (was 15.1), Security.</p> <p>GNSCR 3(1)(l) is included in section A.7 (was 14.3), Other Matters of Regulatory Interest.</p> <p>GNSCR 3(1)(i) and 12(1)(a) through (j) have been</p>

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	Canadian Nuclear Association	General	The REGDOC does not fully cover all regulatory requirements from the General Nuclear Safety and Control Regulations and Class I Facilities Regulations. This leaves the industry and the CNSC open to court challenges by NGOs in regards to the issuance of site preparation licences due to missing information that is required by the regulations.	added to section A.6.1 (Management system). These requirements support the entire licence application.
11.	Bruce Power, NB Power, OPG, CNL	General	Clarification: The site evaluation is a precondition for submission of application for site preparation; however, they appear in reverse order in the title and in the document.	Document has been restructured as suggested. In addition, text has been revised to add clarity.
12.	Bruce Power, NB Power, OPG, CNL	General	Opportunity to amalgamate both RD-346, Site Evaluation for Nuclear Power Plants and RD/GD-369, Licence Application Guide, Licence to Construct a Nuclear Power Plant into REGDOC 1.1.1 Suggested Change: Amalgamate documents. Impact on Industry: Opportunity to define requirements and how to apply/demonstrate meeting these in a single document.	No change to this document. The CNSC has developed a regulatory framework where documents are reviewed and revised periodically; for example, RD/GD-369 is being updated as REGDOC-1.1.2.
13.	Bruce Power, NB Power, OPG, CNL	All requirements	Clear identification and numbering of the requirements in the text will contribute to better quality in the preparation the applications and efficiency of the evaluation of applications by CNSC staff, as it allows for their traceability. Suggested Change: Add REQ# to the requirements in the document. Impact on Industry: Additional administrative burden for preparation of applications.	No change. It is not CNSC practice to use numbering for requirements. Requirements are identified by the use of "shall" statements.

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14.	Bruce Power, NB Power, OPG, CNL	All requirements	<p>The document will benefit from clear acceptance criteria to all requirements, in a way that a proponent seeking a licence to prepare a site could evaluate the conformance of their application. This is an obstacle in evaluation of the quality of applications.</p> <p>Suggested Change: Add clear acceptance criteria.</p>	<p>No change. Acceptance criteria for site characterization are site- and jurisdiction-dependent. The evaluation of effects is project-specific.</p> <p>Acceptance criteria include dose limits, safety goals and environmental release limits. External events and meteorological characteristics are factors to be considered in the design, and an accompanying safety analysis needs to demonstrate that these acceptance criteria are met.</p>
15.	Bruce Power, NB Power, OPG, CNL	General	<p>The document refers to many USNRC and IAEA (e.g. on pages, 39, 44, 49, 50, 55) documents, but does not clarify how conformity with these documents supports proponents application. For example, document suggests graded approach and in the same time USNRC documents typically include prescriptive requirements.</p> <p>Suggested Change: Detail any relation other than informative between licence application and the documents in question.</p>	<p>No change. USNRC and IAEA documents provide additional guidance and information that should be considered in developing the application and supporting safety and control measures.</p>
16.	CELA, Greenpeace	General	<p>In our view, the draft regulatory guide ignores lessons from the Fukushima disaster and the declining and unacceptable suitability of existing nuclear stations in Canada.</p>	<p>No change. When published, REGDOC-1.1.1 will replace RD-346, <i>Site Evaluation for Nuclear Power Plants</i>. It incorporates lessons learned from the Fukushima nuclear event of March 2011.</p>

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			<ul style="list-style-type: none"> • These post-Fukushima siting requirements do not apply to existing facilities. The CNSC has provided no justification for not subjecting existing facilities to post-Fukushima siting guidance. 	<p>REGDOC-1.1.1 addresses lessons learned from the Fukushima nuclear event of March 2011, findings from INFO-0824, CNSC Fukushima Task Force Report, and the subsequently issued action plans. Current licensees are required to consider multiple and simultaneous reactor accidents. In addition, the emergency planning basis must address the requirements of REGDOC 2.10.1, Nuclear Emergency Preparedness and Response, version 2.</p> <p>For existing reactor facilities, REGDOC-1.1.1 would also be considered as part of the suite of modern codes and standards during a periodic safety review.</p>
			<ul style="list-style-type: none"> • The guidance provides no clear deterministic criteria for judging the suitability of a nuclear site over its life span. 	<p>Licensees must demonstrate that the safety case remains valid over the lifecycle of the nuclear facility.</p> <p>Site evaluation information is carried through to all subsequent facility lifecycle phases, including the licence to operate. In addition, in accordance with CSA Group Standard N288.6, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i>, the site evaluation information is periodically re-evaluated. The re-evaluation should focus on confirmation of the site characteristics (in particular, external events), and assessing the effects of the updated information. Design modifications, updates to operations, or both, may be needed.</p> <p>Subject to the Commission's review and approval of any specific site or project, the CNSC will not impose specific thresholds in relation to population numbers, characteristics and density, and in relation to capacity to implement offsite emergency response in either qualitative or quantitative terms.</p>

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			<ul style="list-style-type: none"> The CNSC's policy on the assessing accident consequences in environmental assessments is unaligned with social expectations, real-world experience and emergency planning requirements 	<p>No change. The province or territory considers social factors and societal expectations in setting the EPZs; however, "societal expectations" are not within the mandate of the CNSC.</p>
			<ul style="list-style-type: none"> The guidance lacks requirements for the applicant to provide proof that provincial authorities have established laws, policies and regulations to limit population growth and land-uses that would impede emergency measures. 	<p>Population growth and land-use are under provincial jurisdiction; however, the CNSC does assess whether the safety case remains valid over the life of the nuclear facility. See also response to comment #48.</p>
			<ul style="list-style-type: none"> The guide fails to acknowledge an inappropriate site could significantly increase the disruption of Canadian society in the event of a major accident. It thus has a responsibility under the Nuclear Safety and Control Act (NSCA) to assess site suitability. 	<p>Licensees must demonstrate that the safety case remains valid over the lifecycle of the nuclear facility.</p> <p>Considerations of future land use should include expected or credible changes to the current land use, using the list of "characterization information" provided in the guidance section. For example, possible future municipal development on adjacent property, based on the uses permitted in the official plan. This information is site-specific, but the guidance provides a list of considerations.</p>

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17.	CELA, Greenpeace	General comment on existing site suitability standards	<p>There is a lack of clarity on how the CNSC is evaluating the site suitability of existing nuclear stations. The assumptions underpinning the site suitability assessments must be clarified and potentially modified in light of Fukushima.</p> <p>Internal documents acquired by Greenpeace through Access to Information legislation indicate that even CNSC staff may be unclear on how site suitability is assessed for existing nuclear stations. Specifically, CNSC staff debating the life-extension requirements for the Darlington stated that the role of Integrated Safety Review is not “to rule definitively on the suitability of the site nor to definitely interpret results from DNNP [new reactor environmental assessment] work. I think it is the EA’s job...”</p> <p>However, the CNSC’s 2016 submission to the Convention on Nuclear Safety (CNS) indicates that it uses the accidents assessed during initial environmental assessments to evaluate site suitability. To our knowledge, this has never been stated explicitly during an environmental review process. As well, to the best of our knowledge, this use of environmental assessments to judge the site suitability of existing nuclear stations has never been explicitly documented in CNSC guidance. Again, this points to a lack of clear justification, transparency and intelligibility of the CNSC’s site suitability for existing nuclear stations.</p> <p>This use of environmental assessments is also problematic because CNSC environmental assessment policies related to accident assessments aren’t aligned with public</p>	<p>No change.</p> <p>When published, REGDOC-1.1.1 will replace RD-346, <i>Site Evaluation for Nuclear Power Plants</i>. It incorporates lessons learned from the Fukushima nuclear event of March 2011.</p> <p>As stated previously, site evaluation information is carried through to all subsequent facility lifecycle phases, including the licence to operate. In addition, in accordance with CSA Group Standard N288.6, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i>, the site evaluation information is periodically re-evaluated. The re-evaluation should focus on confirmation of the site characteristics (in particular, external events), and assessing the effects of the updated information. Design modifications, updates to operations, or both, may be needed.</p> <p>No change. REGDOC-1.1.1 addresses lessons learned from the Fukushima nuclear event of March 2011, findings from INFO-0824, <i>CNSC Fukushima Task Force Report</i>, and the</p>

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			<p>expectations, real-world experience or emergency planning requirements. As noted in its submission to the CNS, the CNSC does not consider worst-case accidents in environmental assessments and only reviews “accident sequences that could occur with a frequency greater than 10^{-6} per reactor-year of operation.”</p> <p>This policy, however, is unaligned with other information that should be factored into assessing site-suitability such as population density impeding the implementation of emergency measures.</p> <p>For example, the 10^{-6} cut-off is also not aligned with the Ontario's current criteria for detailed off-site emergency planning, which remains the standard of 10^{-7} recommended by the RSC in 1996.</p> <p>Moreover, CNSC advised the province of Ontario earlier this year that the “...the purpose of emergency planning is to be prepared for scenarios worse than those of LRF or EA, but how much? International guidance from IAEA de-facto uses a 10^{-8} frequency.”</p> <p>This points to a lack of intelligibility in the CNSC's apparent use of environmental reviews to assess site suitability. Site suitability should assess whether emergency measures can adequately protect the public in the event of worst-case accidents. CNSC environmental assessments, however, don't assess worst-case accidents.</p> <p>Notably, the CNSC's Fukushima Task Force's October 2011 observed that, “it may be useful for the environmental assessment process to</p>	<p>subsequently issued action plans. The changes focused on the need for robust characterization of the site to include:</p> <ul style="list-style-type: none"> • consideration of events to include multiple and simultaneous severe external events that could exceed the design basis • multiple and simultaneous reactor accidents • discussions around emergency planning and preparations for extreme events earlier in a project <p>For more information, see section 3.3, “general criteria for site evaluation” and subsection 3.3.5, “Population and emergency planning considerations”.</p> <p>Subject to the Commission's review and approval of any specific site or project, the CNSC will not impose specific thresholds in relation to population numbers, characteristics and density, and in relation to capacity to implement offsite emergency response in either qualitative or quantitative terms.</p> <p>Considerations of future land use should include expected or credible changes to the current land use, using the list of “characterization information” provided in the guidance section. For example, possible future municipal development on adjacent property, based on the uses permitted in the official plan. This information is site-specific, but the guidance provides a list of considerations.</p>

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			<p>include consideration of severe accidents, should this be regarded as responsive to public concerns” Inexplicably, the CNSC never sought input on whether to change this policy, but notably the CNSC’s policy of excluding worst-case accidents from environmental assessments was a focal point of the 2012 environmental assessment hearings on Ontario Power Generation’s proposal to extend the operational life of the Darlington nuclear station.</p> <p>All this is to say, the CNSC’s policy of excluding worst-case accidents from environmental assessments is unaligned with social expectations, real-world experience and emergency planning requirements. It needs to be reviewed.</p> <p>What’s more, this continued policy raises questions about the acceptability of the CNSC’s current practices for assessing the site-suitability for existing nuclear stations.</p> <p>Recommendation: Please provide the list of requirements and guidance for assessing the site suitability of existing nuclear stations. Please indicate what document says environmental assessments inform site suitability.</p> <p>Recommendation: If the CNSC is to use environmental reviews to assess site suitability for existing or future nuclear stations it needs to change its policy of excluding worst-case accidents from environmental reviews.</p> <p>Recommendation: In light of Fukushima, REGDOC-1.1.1 should be amended to require site-suitability assessments include an assessment of whether in the event of a worst-</p>	

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			case accident emergency measures would be impeded the surrounding area's geography or population characteristics. Such assessments should continue over the life of the facility.	
18.	Bruce Power, NB Power, OPG, CNL	Preface, pg. i, 2nd para.	<p>"Its content also addresses the information needed for subsequent lifecycle phases of construction and operation." This REGDOC is explicitly for the purpose preparing and submitting a site preparation licence. Why would it include information needed for subsequent lifecycle phases?</p> <p>Suggested Change: Keep this application guide simple and focused by deleting extraneous information needed for subsequent lifecycle phases. The wording in the preface has been changed to: "Its content also addresses how site evaluation information obtained during site preparation activities is used and revisited in subsequent lifecycle phases of construction and operation." Other changes have been made in the document to clarify how the site evaluation information is used in subsequent lifecycle phases.</p>	<p>The wording in the preface has been revised to state:</p> <p>"Its content also addresses how site evaluation information obtained during site preparation activities is used and revisited in subsequent lifecycle phases of construction and operation."</p> <p>Other changes have been made in the document to clarify how the site evaluation information is used in subsequent lifecycle phases.</p> <p>See also response to comments #3A through 3C.</p>

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19.	Bruce Power, NB Power, OPG, CNL	Preface, pg. i, 4 th para.	<p>For the first bullet “consideration of events to include multiple and simultaneous severe external events that could exceed the design basis”, there may not be enough detailed design information available at the time of the site preparation licence application to consider such events.</p> <p>Suggested Change: Delete the bullet.</p>	<p>No change. The application for a licence to prepare a site is not dependent upon detailed design information or specifications of a facility design; however, the application must provide enough information to demonstrate that releases of nuclear and hazardous substances will be within limits claimed in the environmental assessment taking into consideration specific site characteristics, and meet all applicable regulatory requirements.</p> <p>REGDOC-1.1.1 provides information regarding the use of a bounding approach in the application for a licence to prepare site and in the environment assessment.</p> <p>Refer to comment 9 for more detail.</p>
20.	Bruce Power, NB Power, OPG, CNL	Preface, pg. i 7 th para.	<p>This is a good statement to include. We suggest adding “explicitly” to provide greater clarity.</p> <p>Suggested Change: For existing facilities: The requirements contained in this document do not apply unless they have explicitly been included, in whole or in part, in the licence or licensing basis.</p>	<p>No change. This is standard text that appears in the preface of every regulatory document.</p>
21.	CELA, Greenpeace	Preface, pg. i	<p>The guide states that post Fukushima siting requirements do not apply to existing facilities. It states: “The requirements contained in this document do not apply unless they have been included, in whole or in part, in the license or licensing basis.” Documents obtained through Access to Information indicate that CNSC staff were debating whether existing facilities should be subjected to new siting requirements. The CNSC, however, refused to release its justification to not apply modernized siting standards to existing facilities. Specifically,</p>	<p>No change.</p> <p>When published, REGDOC-1.1.1 will replace RD-346, <i>Site Evaluation for Nuclear Power Plants</i>. It incorporates lessons learned from the Fukushima nuclear event of March 2011.</p> <p>As stated previously, site evaluation information is carried through to all subsequent facility lifecycle phases, including the licence to operate. In addition, in accordance with CSA Group Standard N288.6, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i>, the</p>

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			<p>Greenpeace was told: "These records form part of an internal consultation which is ongoing. Until the Regulatory Document is approved by the Commission for final publication, no internal discussions will be released." REGDOC-1.1.1, however, is supposed to provide a post-Fukushima update to the CNSC's siting requirements. The CNSC has subjected existing nuclear facilities to many other new post-Fukushima regulatory requirements. In our view, the CNSC has not provided sufficient justification, transparency and intelligibility related to exempting existing facilities from its post-Fukushima siting guidance for public interveners to meaningfully participate in this consultation. Before proceeding with consultations and approvals on this guide, the CNSC needs to provide its justification and rationale for not applying post-Fukushima siting standards to existing facilities.</p> <p>Recommendation: The CNSC should release its rationale and justification for not subjecting existing sites to modernized siting standards.</p> <p>Recommendation: The CNSC should establish transparent criteria for judging the acceptability of existing nuclear sites.</p>	<p>site evaluation information is periodically re-evaluated. The re-evaluation should focus on confirmation of the site characteristics (in particular, external events), and assessing the effects of the updated information. Design modifications, updates to operations, or both, may be needed.</p>
22.	CELA, Greenpeace	Preface, pg. i	<p>The preface implies that this siting guidance will only be considered when an operator applies to build a new reactor site. This is problematic because population growth, land-use planning, or climate change could significantly impact the acceptability of a site during a reactors operation. A clear example of this is the Pickering nuclear station, which when sited was</p>	<p>No change. See response to comment 3B. Periodic reviews verify that the safety case is still valid.</p> <p>Control of land use and population density around a reactor facility is provincial/territorial jurisdiction; however, the Joint Review Panel for the Darlington New Nuclear Project (DNNP) specified 4 recommendations to which the government of</p>

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			<p>in an area with low-population density, but is now surrounded by millions of people. From a common sense perspective, the Pickering site would not be an acceptable location for building the station today, but there are no criteria in the current guide to prevent this from happening at future nuclear sites.</p> <p>Recommendation: The guide should be revised to require a regular re-assessment of site acceptability over the life of a project.</p>	<p>Canada has agreed with regards to land use around the DNNP (Recommendations 43, 44, 45, and 59)</p> <p>In addition, REGDOC-3.5.1, <i>Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills</i>, version 2 states:</p> <p>"... Examples of information submitted in support of an application to prepare a site are:</p> <ul style="list-style-type: none"> • the characteristics of the site and its environment, which could influence the transfer (to persons and the environment) of nuclear and hazardous material that may be released • the potential effects of external events (such as seismic events, tornadoes and floods) and human activity on the site • the population density, population distribution and other characteristics of the region, insofar as they may affect the implementation of emergency measures and the evaluation of the risks to individuals, the surrounding population and the environment • public information program to keep the public and Aboriginal groups informed of the anticipated effects of the facility's site preparation activities on their health and safety and on the environment • preliminary decommissioning plan • proposed financial guarantee for the activities to be licensed under the licence to prepare site

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				<ul style="list-style-type: none"> the proposed protective zone for the purposes of land use planning by the surrounding municipalities (reactor facilities)”
23.	Bruce Power, NB Power, OPG, CNL	S. 1.1, purpose, pg. 1	<p>The purpose does not include any mention of the licence application.</p> <p>Suggested Change: Suggest adding the following wording to the purpose: “This regulatory document provides requirements and guidance for a licence to prepare a site and addresses site preparation and site evaluation for reactor facilities...”</p>	Text in the preface and the introduction has been revised to state “[This regulatory document] sets out requirements and guidance for site evaluation and site preparation. It also includes a licence application guide for a licence to prepare a site..”
24.	Bruce Power, NB Power, OPG, CNL	S.1.2, Scope, pg. 2	<p>The definition of nuclear power plant and small reactor need to be revisited in the context of Small Modular Reactors.</p> <p>Suggested Change: The CNSC should recognize the advanced safety features of SMR designs by creating a new classification for ultra-safe reactors with regulatory requirements tied to their ability to meet defined safety and environmental goals, not the amount of power they can produce.</p> <p>Impact on Industry: Canada's current, reactor-related regulatory framework is based on water-cooled cores and separated into two distinct groups (Large and Small) which nominally discriminate on their thermal power property. Large reactors are pressurized, water-cooled and produce thermal power in the thousands of megawatts. Smaller research or isotope reactors operate at low pressure with thermal power in the range of a few megawatts. These</p>	<p>No change.</p> <p>All applications will be assessed based on the merits of the safety case in its entirety. Claims for advanced safety features will need to be supported by suitable evidence (e.g., OPEX, research & development results, and analysis).</p> <p>As stated in the preface, “A risk-informed approach, commensurate with risk, may be defined and used when applying the requirements and guidance contained in this regulatory document. The use of a risk-informed approach is not a relaxation of requirements. With a risk-informed approach, the application of requirements is commensurate with the risks and particular characteristics of the facility or activity.”</p> <p>All criteria in REGDOC-1.1.1 can be applied to a smaller reactor facility using a risk-informed approach, based on the safety case for the reactor facility.</p>

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			<p>designations have served as an acceptable surrogate for a risk-based system, but this approach will need to become more sophisticated as new designs are introduced. The designs being proposed under the SMR label are varied, but they have several common features that set them apart from current designs. These include:</p> <ul style="list-style-type: none"> •Extremely low risk of failures that could result in the release of radioactive materials to the public. This is the ultimate measure of safety for a reactor facility and new SMR designs are predicting release frequencies two to three orders of magnitude better than current designs. While those projections have to be proven, those are levels of safety virtually unheard of in human designs of any sort. •A limited potential for the spread of contamination should a release occur. Generally, contamination would be contained to the facility site. •Very limited operator intervention to control reactor operations since the designs are largely passive in their operating nature. •A relatively simple decommissioning process at the end of a reactor's life. SMR designs allow for the quick removal of all long-lived radioactive material compared to the current designs. <p>While some SMRs with these features will fit into the existing group of smaller research or isotope reactors, most will be above the category's thermal limit despite their simplicity and advanced safety. It is time to replace the thermal power surrogate for risk/safety with a class of</p>	

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			<p>licence based on actual measures of safety. High-level requirements for this group of ultra-safe reactors might include:</p> <ul style="list-style-type: none"> •Safety features that are passive in nature and do not require operator interaction to place the reactor in a safe state. •Accident release frequency better than once in a 100 million per reactor year. •Very low environmental emissions during operation. •Contamination spread of less than 3 km, even under accident conditions. •Decommissioning and removal of all active components 5-10 years after the end-of-operation. 	
25.	Bruce Power, NB Power, OPG, CNL	S. 1.3.1, pg. 2-3	<p>This section lists licence application requirements from the construction, operation and abandonment sections of the Class 1 regulations. These don't belong in a guide for how to apply for a site preparation licence.</p> <p>Suggested Change: Delete licence application requirements from the construction, operation and abandonment sections of the Class 1 regulations from this REGDOC.</p> <p>Impact on Industry: Including these requirements in this guide will cause confusion and waste licensee and regulatory staff effort.</p>	Text has been revised to clarify that sections 3 and 4 of the <i>Class 1 Nuclear Facilities Regulations</i> are required, but references to sections 5, 6 and 7 have been removed. The <i>Cost Recovery Regulations</i> are referenced in section 2.4, Overview of site preparation.

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26.	Bruce Power, NB Power, OPG, CNL	S. 1.3.1	<p>The REGDOC currently references sections 6 and 7 of the Class I Nuclear Facilities Regulations. These sections do not apply for site preparation.</p> <p>Suggested Change: Either delete references to sections 6 and 7 of the Class I Nuclear Facilities Regulations or clarify that these requirements should be taken into consideration during the environmental assessment, site preparation and design phases of a new Nuclear Power Plant project.</p> <p>Impact on Industry: Sections 6 and 7 of the Class I Nuclear Facilities Regulations cannot be applied to a site preparation licence. It is noted that this should be considered during any environmental assessment. However, this should also be noted in the REGDOC.</p>	
	Bruce Power, NB Power, OPG, CNL	s. 1.3.1, pg. 3	<p>This section does not list the cost recovery fees, which are explicitly mentioned in section 2.</p> <p>Suggested Change: Add the cost recovery fees to the list of relevant legislation.</p>	
27.	Bruce Power, NB Power, OPG, CNL	S 2, Background Pg. 4 2 nd para.	<p>"It is important to note that, under the NSCA, the initial application does not necessarily have to be for a licence to prepare site. As such, the applicant could apply for any of the following licences as long as they address all applicable regulatory requirements, including those for the licence to prepare site:"</p> <p>A few issues with this passage:</p> <ul style="list-style-type: none"> • Presumably, this only applies in the situation where a licensee wants to licence a reactor design for marketing purposes and 	<p>Text has been revised to address the intent of the comment:</p> <p>Under the NSCA, the CNSC does not licence a reactor design. The following activities may be licensed:</p> <ul style="list-style-type: none"> • site preparation for the purpose of constructing or operating a reactor facility • construction of a reactor facility • operation of a reactor facility • decommissioning of a reactor facility

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			<p>isn't proposing to build it on a specific site.</p> <ul style="list-style-type: none"> •Licence to abandon isn't on this list. Is an applicant not allowed to apply for a licence to abandon before they apply for a licence to prepare? •Are licences to “prepare site and construct”, “construct and operate”, “prepare site, construct and operate” different than the same licences listed separately? •The statement, “as long as they address all applicable regulatory requirements, including those for the licence to prepare site.” suggests that to apply for an operating licence, one must have met the requirements for a prepare site licence, which is contradictory to the first statement in this paragraph. <p>Suggested Change: Revise the document to clarify these questions. Suggest the following; “Under the NSCA, the initial application does not necessarily have to be for a licence to prepare site. As such, the applicant could apply for any of the following licences as long as they address all applicable regulatory requirements::</p> <ul style="list-style-type: none"> •licence to prepare site •licence to construct •licence to operate •licence to decommission •licence to abandon 	<ul style="list-style-type: none"> •abandonment of a reactor facility <p>Licenses can be combined to permit multiple activities. The applicant shall address all regulatory requirements pertaining to all activities proposed in the licence application.</p>
	Bruce Power, NB Power, OPG, CNL	S. 2, p. 4	<p>Confusing section: It is highly improbable that a licensee would apply for a licence to prepare site, to operate and to decommission at once.</p> <p>Suggested Change: Re-consider need to combine licence phases into one discussion.</p>	

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28.	Bruce Power, NB Power, OPG, CNL	S. 2, p. 4, 6 th para.	<p>“Granting of the licence does not relinquish the licensee’s responsibility to ensure that the site continues to be suitable throughout the project lifecycle.”</p> <p>This is sufficiently obvious and may not need to be stated.</p> <p>Suggested Change: Delete</p>	Text has been deleted.
29.	CELA, Greenpeace	S. 2, p. 4	<p>The document states that the licensee has a responsibility to ensure continued suitability of the site. At present this has not been assured as the operator may not have jurisdiction or control over surrounding land uses. However the regulator, CNSC, does have jurisdiction over whether to issue a license to the operator at that site, and is obliged to discharge its public and environmental protection responsibilities under the <i>Nuclear Safety Control Act (NSCA)</i>.</p> <p>Recommendation: The guide should be amended to clarify that all Class 1 nuclear licences are conditional on the continued suitability of the site for nuclear power operations over the operating life of the plant. The licensing basis should clearly state that compromise of site suitability will result in modification or revocation of the subsequent license to operate.</p>	Text has been revised to address the intent of the comment. See response to comments #16 and 24.

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30.	CELA, Greenpeace	s. 2, p. 5	<p>The document states that it does not presuppose or limit an applicant's intention to implement a particular kind of technology in future licensing phases. However, in many situations the particular technology – and its associated hazards - has implications for site suitability.</p> <p>This is clearly not the case in light of the increased hazard and risk posed by multi-units sites and, in particular, multi-unit reactor designs. This fact is reflected in U.S. where the Nuclear Regulatory Commission has siting criteria, which acknowledges the increase hazard posed by multi-unit sites. Specifically:</p> <p>“If the reactors are interconnected to the extent that an accident in one reactor could affect the safety of operation of any other, the size of the exclusion area, low population zone and population center distance shall be based upon the assumption that all interconnected reactors emit their postulated fission product releases simultaneously. This requirement may be reduced in relation to the degree of coupling between reactors, the probability of concomitant accidents and the probability that an individual would not be exposed to the radiation effects from simultaneous releases. The applicant would be expected to justify to the satisfaction of the Commission the basis for such a reduction in source term.”</p> <p>Recommendation: This statement should be removed from the document.</p>	<p>No change. During licensing phases, it must be demonstrated that any technology, including multiple units on one site, will meet the assumptions, conditions and claims established in the environmental assessment (EA).</p> <p>REGDOC-1.1.1 and other CNSC REGDOCs indicate that multi-unit accidents scenarios for multi-unit power reactor facilities must be considered in emergency planning where applicable.</p>

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31.	CELA, Greenpeace	S. 2, p. 5	<p>Nuclear facilities pose a significant hazard to Canadian society. Chernobyl and Fukushima caused significant social disruption.</p> <p>Gregory B. Jaczko, the former Chairman of the Nuclear Regulatory Commission, has publicly acknowledged that while the Fukushima disaster is clearly a socially “unacceptable” event, it would not be considered “unacceptable” by risk models used by nuclear regulators internationally.</p> <p>Typically under nuclear safety standards, including the CNSC’s standards, a nuclear operator must meet safety goals that ensure in the event of a radiation release that emergency measure can ensure there are no immediate human deaths from radiation exposure. A lesson from Fukushima is that these safety goals, which are referenced in REGDOC-1.1.1, do not adequately minimize the possibility of social disruption in the event of a nuclear accident.</p> <p>Increasing the population density around a nuclear station increase the potential for social displacement in the event of a major nuclear accident. This is not properly addressed in REGDOC-1.1.1. Minimizing the extent of social disruption should be explicitly listed as an objective of the CNSC’s post-Fukushima site-suitability guidance.</p> <p>Recommendation: The following sentence should be added to the bulleted list of REGDOC-1.1.1’s primary purposes: “demonstrates that the surrounding region, including population centres, would not lead to unacceptable social disruption in the event of a worst-cast accident.”</p>	<p>No change.</p> <p>The objective of the site evaluation stage is to assess whether the site is suitable for the construction and operation of a nuclear facility. This includes whether it is feasible to undertake emergency measures given the population density, population distribution and other characteristics of the region (i.e., road infrastructure).</p> <p>Information on the suggested change is included in section 3.3, General criteria for site evaluation. Some additional information can be found in REGDOC-3.5.1, <i>Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills</i>, version 2, which states that:</p> <ul style="list-style-type: none"> • the population density, population distribution and other characteristics of the region, insofar as they may affect the implementation of emergency measures and the evaluation of the risks to individuals, the surrounding population and the environment • the proposed protective zone for the purposes of land use planning by the surrounding municipalities (reactor facilities)

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32.	CELA, Greenpeace	S. 2, p. 5	<p>It is important for the design basis of the facility to remain “current with changing environmental conditions or modification”. This must be enforced in all subsequent licensing phases; however this has not been the practice to date vis-a-vis population growth, changes in land use, or the impacts of climate change in the areas of some of Canada’s nuclear power plants.</p> <p>Recommendation: As noted, all nuclear power plant licenses should be made conditional on the continued suitability of the site for nuclear power operations over the operating life of the plant. The licensing basis should clearly state that compromise of site suitability will result in modification or revocation of the subsequent license to operate.</p>	<p>No change. According to sections 4.1 through 4.3 of REGDOC-3.1.1, <i>Reporting Requirements for Nuclear Power Plants</i>, version 2, the facility description and final safety analysis report, probabilistic safety analysis, and site environmental risk assessment are to be updated every five years.</p> <p>Site characteristics, such as flood, seismic, meteorological, and hydrological databases are taken into account in the updates. Offsite characteristics, including population densities are also to be considered in the updates.</p>

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33.	CELA, Greenpeace	S. 4.1, p. 7	<p>The document states that "Selection of a specific facility technology is not required when submitting a license to prepare the application." However, the CNSC should nevertheless require technology choice before proceeding with any of its licensing processes including site evaluation. The CNSC must apply its jurisdiction and expert judgment to the question of the suitability of a site in relation to the specific technology such as the design of the nuclear power plant, its inventory, its cooling methodology, its shut-down and containment systems, and its on-site emergency response mechanisms. These issues are integral to the question of potential off-site impacts and therefore are bound up within the question of the suitability of a particular site.</p> <p>Recommendation: The CNSC must apply its jurisdiction and expert judgment to the question of the suitability of a site in relation to the specific technology. This provision should be reversed and the proponent should be required to specify specific technology when applying for a licence to prepare a site.</p>	<p>No change. An application for a licence to prepare site does not require detailed design information or specifications of a facility design, but must provide enough information to demonstrate that releases of nuclear and hazardous substances are within the bounds established in the environment assessment (EA), and meet all applicable regulatory requirements."</p> <p>Any design selected for site preparation, construction and operation must meet the bounds established in the EA, and meet all applicable regulatory requirements.</p>

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34.	CELA, Greenpeace	S. 4.1, p. 7	<p>The document refers to “bounding parameters that encompass all technologies under consideration”. A “bounding” approach - does not allow for proper evaluation of the suitability of a site as it does not represent any potential actual set of conditions. Furthermore, the examples cited in the document are insufficient as there are additional examples of design characteristics and choices such as the type of operating system which has implications for source term and potential offsite impacts on the public and the surrounding environment.</p> <p>Recommendation: Reference to “a bounding approach” should be eliminated from the document. Specific design information should be required at the stage of application to prepare a site in order to inform the CNSC in its duty to ensure that the site is suitable for a nuclear power plant, and to impose appropriate conditions to ensure continued suitability of the plant.</p>	No change. Any design selected for site preparation, construction and operation must meet the bounds established in the EA, and meet all applicable regulatory requirements. See also response to comment #33.
35.	Bruce Power, NB Power, OPG, CNL	S. 4.1, p. 8	<p>“... (specify anticipated thermal power output)...” This phrase seems oddly specific and unnecessary in a very general guidance statement.</p> <p>Suggested Change: Delete.</p>	No change. Information on capacity is listed elsewhere in REGDOC-1.1.1.

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36.	Bruce Power, NB Power, OPG, CNL	S. 4.3.1, p. 9	<p>The second sentence under Guidance: "It is not expected that activities encompassed by the licence to prepare site will involve the handling of radioactive or nuclear substances." It is not clear why this guidance statement is here. Site preparation activities might use radioactive tracers in the site characterization activities.</p> <p>Suggested Change: Delete</p>	<p>This text has been deleted. Text has been included to clarify that activities using nuclear or hazardous substances not encompassed by the licence to prepare site must be covered by a separate licence (for example, a radiography licence).</p>
	CELA, Greenpeace		<p>The document states that "for activities that may use radioactive or nuclear substances" the application should state whether they are encompassed by the license to prepare a site or another licence; however the guidance states that it is not expected that activities encompassed by the licence to prepare a site will involve handling of radioactive or nuclear substances.</p> <p>Recommendation: Section 4.3.1 should be amended to state that a license to prepare a site will not encompass the handling of radioactive or nuclear substances.</p>	

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37.	Bruce Power, NB Power, OPG, CNL	S. 6, pg. 11, Guidance, end para. (Also S. A.4, p. 60)	<p>Wording should align with description used in CSA N286-12.</p> <p>Suggested Change: Edit to align with N286-12: "The management system integrates all elements of safety, health, environmental, and security, economics and quality (including quality assurance) elements to ensure that safety is the paramount consideration, guiding decisions and actions; supported by requirements. is properly taken into account in all of an organization's activities. The management system's main objective is to ensure, by considering the implications of all actions not within separate management systems but with regard to safety as a whole, that safety is not compromised.</p>	Text has been deleted.
38.	Bruce Power, NB Power, OPG, CNL	S. 6, p. 11, last bullet under Guidance	<ul style="list-style-type: none"> • a description of the applicant's site preparation organization for each aspect of the site preparation program, including the corporate and site management structure and the position titles of the persons responsible for the management and control of each program <p>Improve alignment with N286.12 language</p> <p>Suggested Change: Either delete the bullet, since N286-12 already requires the requested descriptions, or align more directed with N286-12 language by saying: "•a description of organizational structure; authorities, accountabilities and responsibilities of positions; internal and external interfaces; how and by whom decisions are made"</p>	Text has been revised to replace the previous bullet point with the proposed text.

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39.	CELA, Greenpeace	S. 6.1.1, p. 13	<p>The title is about deferring specific facility design but the text is about using another organization. This is confusing.</p> <p>Recommendation: The title and text should match. The portion of the paragraph referring to deferring reactor technology choice should be deleted (see above submission where it is submitted that the specific technology choice should be specified in the application to prepare a site.)</p>	The title has been revised to better reflect the content of the section, and the text has been revised for clarity.
40.	Bruce Power, NB Power, OPG, CNL	S. 6.3, p. 14, Guidance	<p>"The management system for the security program includes:"</p> <p>It is unclear whether the security program is envisaged as somehow separate from the management system. The way it is referenced here and in A4 sets it apart – "the management system for the security program," as opposed to the "security requirements of the management system."</p>	Text has been revised for clarity.

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41.	StarCore Nuclear	S. 6.3, S. 15	<p>We do not understand the need for the level of security required by these sections during the site preparation phase of the project. It is a given that the level of security requirements will increase as the project continues, and a full program will be in place before nuclear fuel is received on the site.</p> <p>However, we do not believe that there will be any prescribed information on site during site preparation. The work going on at the site will include such things as clearing, putting up fences, excavation / other earth work, setting up construction facilities and other similar activities. We would expect to secure the site, control access and egress and perform other related activities.</p> <p>Recommend that these sections be reconsidered for site preparation activities. If there are activities that would trigger the security provisions in these sections, please clearly define them so that we can take appropriate action to eliminate them.</p>	<p>No change. There may be prescribed information such as design documentation on the site during site preparation. In addition, appropriate measures need to be in effect to deter security threats.</p>

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42.	Bruce Power, NB Power, OPG, CNL	S. 6.3, pg. 14, Guidance, 3 rd bullet	<p>“a demonstration that the proposed security program has considered the applicable quality assurance criteria contained in ISO 17799:2005, <i>Information Technology – Security Techniques – Code of Practice for Information Security Management</i>”</p> <p>While ISO 17799:2005 can be a standard of the management system, it should be up to the licensee to determine which programs and/or processes it applies. The REGDOC should identify what is required, not how/where it should be implemented.</p>	<p>Text has been revised for clarity.</p> <p>Note: Standard has been re-designated as ISO 27002, <i>Information Technology – Security Techniques – Code of Practice for Information Security Controls</i>.</p>
43.	CELA, Greenpeace	S. 7, p. 15	<p>The document does not provide for the evaluation of the suitability of the site in terms of surrounding population numbers, density and demographics, land use, ability to execute strong emergency planning and other matters relevant to assessing the suitability of a site for nuclear emergency planning. It is the responsibility of the CNSC to evaluate the suitability of a site for nuclear power plant operations.</p> <p>Recommendation: The document must specify evaluation criteria for the suitability of the site in terms of surrounding population numbers, density and demographics, land use, ability to execute strong emergency planning and other matters relevant to assessing the suitability of a site for nuclear emergency planning.</p>	<p>No change. There are several references to the need for assessing population density in REGDOC-1.1.1 (see section 3.3, “general criteria for site evaluation” and subsection 3.3.5, “Population and emergency planning considerations”; also, this topic is covered in REGDOC-3.5.1, <i>Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills</i>, version 2).</p>

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44.	StarCore Nuclear	S. 9	<p>This section includes dose and other criteria to be used in the determination of the exclusion zone. This topic is also covered in REGDOC – 2.5.2 Sections 4.2.1 and 6.3.</p> <p>Recommend that design criteria and requirements not be included in this document except by reference to the source document, which we have assumed is REGDOC – 2.5.2.</p> <p>We also would like clarification on how the criteria are applied. The dose criteria in this document refer to the “exclusion zone boundary” and in the latter document they refer to the “site boundary”. The two boundaries could be different.</p>	<p>No change. The information remains in REGDOC-1.1.1 because applicants need to consider the exclusion zone and emergency planning zones early in the project.</p> <p>The exclusion zone boundary is the site boundary. The inconsistency in the text has been addressed.</p> <p>RD-367 and REGDOC-2.5.2 are referenced in REGDOC-1.1.1 where appropriate.</p>

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45.	Bruce Power, NB Power, OPG, CNL	S. 9.2, pg. 16	<p>Request for clarity in the following statement: "The following criteria (for an operating unit) shall be considered in determining the size of the proposed exclusion zone: Demonstration that the dispersion model used for the dose calculations is not unduly impacted by the proximity of the nuclear facility to the exclusion boundary."</p> <p>Suggested Change: Delete item as it is unnecessary. If unduly impacted by proximity to the exclusion boundary, this demonstrates that the exclusion zone is too small.</p>	<p>Text has been revised to address the intent of the comment.</p> <p>Environmental factors such as meteorological conditions could affect the dispersion of radionuclides, and consequently, the radiological dose received. To capture the considerations of environmental factors in determining the size of the exclusion zone, the paragraph introducing the list now states:</p> <p>"The exclusion zone size is characterized based on a combination of dose limits, security and robustness design considerations, environmental factors meteorological conditions and emergency preparedness considerations that are affected by the land use around the site."</p> <p>The last bullet point now states:</p> <ul style="list-style-type: none"> • demonstration that the dispersion model used for the dose calculations is not unduly impacted by the proximity of the nuclear facility to the exclusion boundary representative of the actual site <p>CSA N288.2, <i>Guidelines for calculating the radiological consequences to the public of a release of airborne radioactive material for nuclear reactor accidents</i>, has been added as a reference in this section.</p>

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46.	CELA, Greenpeace	S. 9.2, p. 16	<p>The document states that “the exclusion zone size is characterized based on a combination of dose limits, security and robustness design considerations, and emergency preparedness considerations that are affected by land use around the site. This is appropriate. However, these factors cannot be assessed if no technology is selected, and the continued ability to control the exclusion zone is essential, which requires either controls on the future expansion of the population surrounding the plant or a clear and enforced intention by the regulator to modify or revoke a plant license if the integrity of the exclusion zone cannot be maintained. The same considerations apply to protective zones discussed later in the document.</p> <p>Recommendation: Require the applicant to specify the technology to be used at the site when applying for a site preparation license, in order to characterize the exclusion zone. Include conditions within the license as to the continued establishment and suitability of the exclusion zone.</p>	<p>No change. An application for a licence to prepare site (LTPS) does not require detailed design information or specifications of a facility design, but must provide enough information to demonstrate that releases of nuclear and hazardous substances meet the bounds established in the EA, and meet all applicable regulatory requirements.” The information required to support a bounding approach is provided in section 4.2 of REGDOC-1.1.1.</p>
47.	CELA, Greenpeace	S. 9.2, p. 14	<p>The criteria used to determine the exclusion zone in section 9.2 ignores the possibility that multiple reactors could be sited at one site. It also overlooks the historic practice in Ontario for multi-unit nuclear stations to share safety systems, including containment.</p> <p>As noted, the U.S. Nuclear Regulator Commission's siting criteria acknowledges that multi-unit nuclear stations and the degree to which reactors at a site share safety systems should inform the size of an exclusion zone and</p>	<p>No change. The exclusion zone is based on the design basis accident.</p> <p>See the response to comments 16, 17 and 30 regarding taking multiple unit accidents into account in establishing the emergency planning zones.</p> <p>For more information, refer to REGDOC-2.5.2, <i>Design of Reactor Facilities: Nuclear Power Plants</i> (section 16.6.1) for design requirements, and RD-367, <i>Design of Small Reactor Facilities</i> (Scope) for consideration of multiple unit events in the</p>

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			<p>the surrounding emergency zones. Specifically, it states "If the reactors are interconnected to the extent that an accident in one reactor could affect the safety of operation of any other, the size of the exclusion area, low population zone and population center distance shall be based upon the assumption that all interconnected reactors emit their postulated fission product releases simultaneously."</p> <p>A key lesson from the Fukushima disaster is that nuclear regulators must end their historic practice of ignoring the larger hazard posed by multi-unit nuclear stations. This includes other radiological hazards, such as waste storage facilities. This should be reflected in the CNSC's post-Fukushima siting guidance.</p> <p>Moreover, the dose requirements for determining the exclusion zone are based on dose projections for a design-basis accident at only reactor. Under historic Canadian design specifications such accidents are typically limited to the release of noble gases. This is also inappropriate in light of historic nuclear accidents.</p> <p>Recommendation: Section 9.2 should be amended to acknowledge that the increased hazard of multi-unit nuclear stations should be reflected in determining the exclusion zone.</p> <p>Recommendation: The use of single-unit design-basis accidents to determine the exclusion should be abandoned in favour of accidents with a source term similar to real-world</p>	<p>design.</p>

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			accidents such as Fukushima.	
48.	CELA, Greenpeace	S. 9.4, p. 18	<p>Section 9.4 wrongly refers to a singular “protective zone” beyond the exclusion zone. The section also fails to acknowledge that provincial authorities establish off-site protective zones. The provincially established zones beyond the exclusion zone typically have different objectives.</p> <p>The second sentence of section 9.4 lists matters considered by the province’s in determining offsite protective measures. There are two notable omissions: social expectations for public safety and the consequences of malevolent events.</p> <p>Regarding social expectations of public safety, the Ontario government historically instructed advisory groups on the provincial planning basis for nuclear accidents to consider public perceptions of nuclear accident risks. Based on this mandate, Working Group #8 observed “The public expects measures to be taken to protect it against the worst case possible.” This public expectation for effective emergency response for worst-case nuclear accidents needs to be acknowledged and factored into the CNSC’s assessment of site suitability.</p> <p>Similarly, Ontario government has historically asked advisory groups to consider the effects of hostile actions in determining offsite protective actions, including emergency planning zones. Notably, the public expectation for public safety has increased significantly since September</p>	<p>Text has been revised as follows:</p> <ul style="list-style-type: none"> - “Protective zone” has been reworded as “emergency planning zones” and CSA N1600, <i>General requirements for nuclear emergency management programs</i> has been added as a reference. <p>The multiple emergency planning zones (EPZs) are set by the province or territory in accordance with CSA N1600 and are under control of the region or municipality. The CNSC does not regulate these zones, but does ensure that arrangements are in place between the applicant and the province or territory as part of licensing review.</p> <p>No change for social expectations or consequences of malevolent acts. The province or territory considers social factors in setting the EPZs; however, malevolent acts are not considered for determining the EPZs or offsite protective actions. Malevolent acts are covered under each applicant’s security programs.</p> <p>No change for “regarding social expectations of public safety”. The CNSC expects that each applicant’s emergency plans cover the “credible worst case” scenario and that these plans are adaptable to respond to any accident.</p> <p>No change for “effects of hostile actions”. Malevolent acts are covered under each applicant’s security programs. The CNSC reviews the applicant’s offsite plans to ensure they address the consequences of any accident, regardless of the cause. A serious accident caused by an</p>

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			<p>11th. This also needs to be acknowledged in the CNSC's siting guidance.</p> <p>Section 9.4 also lists factors that should be taken into account when establishing a protective zone. Again, the guide is wrongly referring to a singular zone. These include the planning basis, population characteristics, land use and other matters should be taken into account in establishing a protective zone. These factors are appropriate, but incomplete.</p> <p>For example, the first bullet refers to "the planning basis". This concept needs to be expanded. Ontario, for example, has determined a planning basis based on a reference accident with an associated source term. Ontario's current planning basis, for example, is based on the radioactive releases from Ex Plant Release Category-3 from the 1995 Pickering A probabilistic risk assessment. This reality needs to be clarified in the guidance. For example, it is reasonable to assume that the provincial planning basis may need to be modified in the event that additional reactors are added at a nuclear site.</p> <p>The list also population characteristics and "present and future use of land and resources" as factors to be considered in establishing protective zones. This is problematic because it overlooks what limits and restrictions are in place (or should be in place) to prevent undesirable population growth or land-use. Such policies are typically a provincial responsibility and not in the control of the</p>	<p>earthquake would have the same consequences as a serious accident caused by a malevolent act.</p> <p>No change for "planning basis". The CNSC reviews the licence application to ensure the applicant has based their planning basis on a spectrum of postulated accidents in accordance with REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2.</p> <p>No change for "population characteristics and 'present and future use of land and resources' as factors". The CNSC reviews the licence application to ensure the applicant's emergency plans will be adequate for the duration of the facility's entire lifecycle.</p>

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			<p>licencee. This is directly relevant to the following bullet related to the "ability" to maintain the effectiveness of offsite emergency measures.</p> <p>What's more, the guide does not address what is to happen if these factors change over time and there is no longer an ability to maintain an appropriate protective zone, provide robust emergency planning and therefore assure public and environmental off-site protection.</p> <p>Recommendation: Section 9.4 should be amended to acknowledge that the provinces establish offsite protective zones.</p>	<p>Text in section 3.3.5 (was section 9.4) has been modified to:</p> <p style="padding-left: 40px;">The emergency planning zones are established by the province or territory and are under control of the region or municipality. These zones cover the area beyond the exclusion zone that should be considered with respect to implementing emergency measures.</p> <p>The sentence about "includes consideration of such matters as population distribution and density, residential development and sensitive public facilities, land and water usage, roadways, evacuation planning and consequence analysis" has been deleted, given that the bulleted list introduced by "Discussions around early plans shall include plans and consideration of the following:" covers all of those in better detail.</p>

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			<p>Recommendation: Section 9.4 should be amended to acknowledge that there are typically multiple offsite protective zones with different objectives established by the provinces.</p>	<p>No change except “protective zone” is now “emergency planning zones” and the addition of a reference to CSA N1600, <i>General requirements for nuclear emergency management programs</i>. The text regarding emergency planning zones will remain as is, as the details are to be specified by the province/territory. The applicant is also expected to base their safety planning in accordance with REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2.</p>
			<p>Recommendation: The second sentence of section 9.4 should be amended to include “societal expectations”.</p>	<p>No change. The applicant and the province or territory consider social factors and societal expectations in setting the EPZs; however, “societal expectations” are not within the mandate of the CNSC.</p>
			<p>Recommendation: The second sentence of section 9.4 should be amended to include “malevolent events”.</p>	<p>No change. Malevolent acts are covered under the applicant’s security programs. Consequence analysis includes malevolent acts. Sections E.9 (was B.4.7) and F.2.4 (was B.5.2.4) address malevolent acts, and accident consequences.</p>

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			<p>Recommendation: Section 9.4 should be clarified to state that “planning basis” includes the reference accident and source term used to determine offsite protective zones.</p>	<p>No change except “protective zone” has been changed to “emergency planning zones”. Sections F.2.2 (was B5.2.2) and F.2.3 (was B5.2.3) indicate that the source term shall be described as as part of calculation of accident consequences.</p> <p>Requirements and guidance regarding the planning basis for emergency preparedness are provided in Section 2.1 of REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2 which states:</p> <p>“Inputs to be considered in the analysis should include: the licensee’s safety analysis, probabilistic safety analysis, and operating experience.”</p>
			<p>Recommendation: Section 9.4 needs to be amended to require the provision of provincial policies, regulations and laws that may affect or impede the implementation of emergency preparedness.</p>	<p>No change. The offsite emergency preparedness is under the jurisdiction of the local or provincial authorities. The emergency plans must be tested before the CNSC will authorize the licensee to operate the nuclear facility, and the plans must be updated as needed to ensure that they remain valid throughout the nuclear facility’s lifecycle.</p>
			<p>Recommendation: The word “vulnerable” should be added before the word “populations” at the beginning of the fifth bullet point in section 9.4.</p>	<p>The 5th bullet point in section 3.3.5 (was 9.4) will be changed to:</p> <p>“...populations, including vulnerable populations, in the vicinity of the reactor facility that are, or may become, difficult to evacuate or shelter (i.e., schools, prisons, hospitals)</p>

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			Recommendation: The document should provide that all subsequent licensing phases will be made conditional on the integrity of the surrounding protection zones.	No change. Pursuant to REGDOC-2.4.1, <i>Deterministic Safety Analysis</i> ; REGDOC-2.4.2, <i>Probabilistic Safety Assessment (PSA) for Nuclear Power Plants</i> , and CSA N288.6, <i>Environmental risk assessment at Class I nuclear facilities and uranium mines and mills</i> , licensees must update the deterministic safety analysis, probabilistic safety analysis, and environmental risk assessment on a periodic basis, and make any necessary changes to plant design and/or operation to ensure all regulatory requirements are met.
49.	Bruce Power, NB Power, OPG, CNL	S. 10	Not required for new build. Suggested Change: Requirements are defined under other licences. Delete redundant requirements in the environmental requirements section. Impact on Industry: Possible confusion with refurbishing an existing reactor versus new build.	Text has been revised to incorporate the intent of the comment. The paragraph stating “in the event that nuclear substances... shall be implemented” has been removed; the paragraph “Where applicable, the doses...” has been revised to state simply “The doses...”; and the paragraph “In the event that radioactive substances are encountered, the dose assessment shall...” has been revised to state “the dose assessment shall...”.
50.	Bruce Power, NB Power, OPG, CNL	S. 12	Not required for new build. Provincially regulated. Suggested Change: Requirements are defined under other licences. Delete redundant requirements in the Emergency Management and Fire Protection section. Impact on Industry: Redundancy of meeting both the CNSC and provincial safety requirements or concerns with the alignment between various interpretations.	No change. This section will remain to provide clarity to new applicants regarding emergency preparedness. There are different considerations for new build on, or in proximity to an existing nuclear facility, as compared to a greenfield site.

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51.	Bruce Power, NB Power, OPG, CNL	S. 13	<p>Not required for new build. Provincially regulated.</p> <p>Suggested Change: Requirements are defined under other licences. Delete redundant requirements in the Environmental protection section – suggest collapsing section 13 into one paragraph referencing REGDOC 2.9.1</p> <p>Impact on Industry: Redundancy of meeting both the CNSC and provincial safety requirements or concerns with the alignment between various interpretations.</p>	<p>Section 4.9 (was section 13) has been modified to reflect the publication of REGDOC-2.9.1. The CNSC's mandate includes assessing the effects of hazardous substances used/encountered in the conduct of the licensed activity. C1NFR 3(e)(g)(h)(i) relate to environmental protection.</p>
52.	Bruce Power, NB Power, OPG, CNL	S. 13.3, p. 22	<p>Issue with the statements that the proposed effluent monitoring program is required for the licence to prepare site addressing the clauses of CSA N288.5-11. This statement seems to imply the need for an effluent monitoring program will be developed for an operating NPP, which should not be a requirement until commissioning and operation of the facility. This would be covered in the ERA or EA. This is another example of the potential for confusion caused by repeating requirements that are addressed in other regulatory documents.</p> <p>Suggested Change: It should be clearly stated that monitoring here only applies to potential contaminants associated with site preparation, e.g., dust, exhaust emissions, storm water runoff, noise, etc.</p>	<p>Text has been modified to address the intent of the comment.</p> <p>Clauses 3(g), 3(h) and 4(e) in the <i>Class I Nuclear Facilities Regulations</i> address environmental protection.</p> <p>Text has been modified so that the focus is on potential contaminants associated with site preparation. "The applicant shall demonstrate that all reasonable precautions are being taken to control and monitor the release of nuclear substances or hazardous substances to the environment resulting from site preparation activities and ensure that licence limits are being respected."</p>

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53.	CELA, Greenpeace	S. 13.3, p. 22	<p>The document states that all reasonable precautions shall be taken to control and monitor the release of radioactive nuclear substances or hazardous substances to the environment. However there are no provisions as to contingency plans in the event of contamination of drinking water sources. The ability to provide for alternative drinking water sources is a critical aspect of the issue of a suitability of a site as a location for a nuclear power plant.</p> <p>Recommendation: The document should require demonstration of an ability to provide alternative sources of drinking water in the event that accident during subsequent operations phase were to impact drinking water sources. The license to prepare a site should require description of all drinking water sources potentially affected by plant operations, a description of the population reliant on them, and should specify contingency plans to replace drinking water should be provided and evaluated, along with financial assurances to support those contingency plans.</p>	<p>No change. The applicant must comply with all applicable requirements with regards to impact on drinking water.</p> <p>With regards to post-accident water quality, REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i> states: “Guidelines for protective actions, such as Health Canada’s Canadian Guidelines for Intervention During a Nuclear Emergency and Canadian Guidelines for the Restriction of Radioactively Contaminated Food and Water Following a Nuclear Emergency, are intended to assist federal and provincial emergency response authorities on choosing appropriate protection actions to protect public health. Reference levels in these guidelines are used to inform decisions on what measures are necessary to protect the public during a nuclear emergency. These guidelines are based, in part, on advice from international organizations such as the IAEA and the ICRP and are found on Health Canada’s website” (p.4).</p>
54.	Bruce Power, NB Power, OPG, CNL	S. 13.3, p. 22-23	<p>Guidance: The effluent monitoring program should also address the following: 6 bullets dealing with the release of radioactive material. Since no radioactive material is generally released during site preparation and construction, these requirements should not apply until commissioning and operation.</p> <p>Suggested Change: Clarify what is required by when.</p>	<p>Text has been revised for clarity.</p> <p>Guidance changed to “As applicable to site preparation activities, the environmental protection measures effluent monitoring program should also address:”</p>

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55.	Bruce Power, NB Power, OPG, CNL	S. 13.4, pg. 23	<p>Unclear purpose of environmental monitoring at this phase.</p> <p>Suggested Change: This section should clearly state that the environmental monitoring program at this stage is to define baseline conditions and to monitor the impact of site preparation activities on the environment.</p>	<p>Text has been revised as suggested. The proposed text is included in the guidance for section 13.4:</p> <p>“For site preparation, environmental monitoring consists of defining baseline characteristics and monitoring the impact of site preparation activities on the environment.”</p>

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56.	Bruce Power, NB Power, OPG, CNL	S. 13.4, pg. 23, 1 st bullet of 3 rd para.	<p>Clarity is sought since there is no regulatory requirement to conduct an EA follow-up, which is listed in the first bullet.</p> <p>Suggested Change: Delete 1st bullet: “environmental monitoring recommended in an EA follow-up program”.</p>	<p>No change. In accordance with paragraph 15(a) of the <i>Canadian Environmental Assessment Act, 2012</i> (CEAA 2012), the CNSC is the sole federal responsible authority for conducting an EA for designated projects regulated under the <i>Nuclear Safety and Control Act</i> (NSCA) and described in the <i>Regulations Designating Physical Activities</i>. Therefore, for EAs under CEAA 2012, the CNSC has the obligation to ensure that an EA follow-up program is completed. Conditions, mitigation measures and follow-up programs established in CEAA 2012 EA decisions are incorporated into licences and Licence Conditions Handbooks as the mechanisms used to verify and ensure compliance.</p> <p>In addition, monitoring programs should take into account any EA commitments as they may influence monitoring requirements coming out of licensing (e.g., minimize overlap, coordinate timing and sampling location for cost efficiency, etc.).</p> <p>All of this information is consistent with REGDOC-2.9.1 version 1.1, <i>Environmental Protection: Environmental Principles, Assessments and Protection Measures</i>. For example, Appendix A states that “[l]icensing, compliance and verification activities undertaken by CNSC staff ensure that the applicant has implemented the mitigation measures identified in the EA. Where applicable, the licensing, compliance and verification activities will also be used to ensure the implementation of a follow-up program” (p.32).</p>

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57.	Bruce Power, NB Power, OPG, CNL	S 14	<p>Not required for new build (Decommissioning aside). Provincially regulated.</p> <p>Suggested Change: Requirements are defined under other licences. Remove requirements that are provincially regulated.</p> <p>Impact on Industry: Redundancy of meeting both the CNSC and provincial safety requirements or concerns with the alignment between various interpretations.</p>	<p>No change. Environmental protection and the regulation of hazardous substances are shared federal-provincial responsibilities. This includes requirements related to waste management. In recognition of this, the CNSC has established Memoranda of Understanding (MOU) with various federal and provincial regulatory agencies. Where MOU are not in place, relationships are established at the working level with local or regional regulatory authorities (e.g. provincial local or regional permitting authorities and municipalities as it relates to sewage disposal).</p> <p>Where there are specific legislated requirements (whether federal or provincial), the CNSC respects and adopts these requirements. However, the CNSC may have additional expectations should "unreasonable risks" be determined on a site-specific basis. This approach ensures all relevant authorities that their legislative mandates are being respected. This also increases regulatory efficiency and promotes regulatory harmonization. Expectations identified in this section are common expectations with respect to waste management, and thus, would not represent an onerous burden on proponents.</p>

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58.	CELA, Greenpeace	S. 14.2	<p>The document provides that the site should be evaluated from a decommissioning perspective. This is appropriate. However the document does not address public input nor does it constrain future end states as a result of the nuclear power plant operations on the site as might be necessary.</p> <p>Similarly, the guidance should require a discussion of the suitability of the site in the event that offsite sites are not available for long-term radioactive waste storage.</p> <p>Recommendation: The document should include a requirement for public input and consultation about potential end states and future land uses. The document should require all potential end states to be clearly stated and communicated throughout all subsequent licensing phases; a mechanism for this should be embedded as license conditions in all phases of licensing. The document should state that ongoing land use planning should be demonstrated to be consistent with the stated potential end state/s and with long term status of the site (eg long term presence of fuel waste or other radioactive waste; existence of contaminated soil or groundwater) and a license condition should be required in all subsequent phases that sets out these anticipated potential long term land use constraints.</p> <p>Recommendation: The guide should be amended to require a discussion of long-term radioactive waste storage at the site.</p>	<p>No change. Input from the public is taken into account through various means such as environmental assessments, open houses, public meeting and hearings and other outreach activities.</p> <p>As mentioned, the licensed activity must meet the applicable federal, provincial/territorial and regional regulatory requirements, including land use and waste management.</p>

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59.	Bruce Power, NB Power, OPG, CNL	S. 15	<p>Aside from Prescribed Information, section does not appear to be required. Treat as construction site until fuel is introduced to site.</p> <p>Suggested Change: Requirements are defined under other licences.</p>	No change. If granted a licence to prepare the site, the licensee can excavate the footprint for the nuclear facility (but not pour concrete); therefore, there is a need to protect the site from potential sabotage/malevolent acts, which could cause damage at a later date.
60.	Bruce Power, NB Power, OPG, CNL	S. 15.2, pg. 27, Site security program	<p>The site security program during site preparation needs to use a graded approach. There will not be any Category I or II nuclear materials at the site during this period.</p> <p>Suggested Change: Revise the site security program requirements to be in line with the required level of security.</p> <p>Impact on Industry: There will not be any Category I or II material on site during the site preparation phase and it is highly unlikely that there will be any prescribed information on site either. This will result in significant unnecessary costs to licensees during this phase of a new build project.</p>	No change. Agree that there will only be prescribed information. However, as mentioned for comment 59, there is a need to protect the site from potential sabotage/malevolent acts, when damage could occur at a later date.

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61.	Bruce Power, NB Power, OPG, CNL	S. 15.2.1, pg. 27 site access clearance	<p>Site access clearance should not be required at this point in the project unless it is at an existing NPP site.</p> <p>Suggested Change: Revise the site access clearance requirements to be in line with the required level of security.</p> <p>Impact on Industry: There will not be any Category I or II material on site during the site preparation phase and it is highly unlikely that there will be any prescribed information on site either, this will likely be stored at a head office or satellite office facility. There is no need for this level of security at this point in the project. This will result in significant unnecessary costs to licensees during this phase of a new build project.</p>	No change. See responses to comments 59 and 60.

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62.	Bruce Power, NB Power, OPG, CNL	S. 15.2.3, pg. 28 physical security	<p>The level of physical security needs to be in line with the requirements for site preparation. There will not be any Category I or II nuclear materials at the site during this period and it is unlikely that any prescribed information will be on site at this time.</p> <p>Suggested Change: Revise the physical security requirements to be in line with the required level of security.</p> <p>Impact on Industry: There will not be any Category I or II material on site during the site preparation phase and it is highly unlikely that there will be any prescribed information on site either, this will likely be stored at a head office or satellite office facility. There is no need for this level of security at this point in the project. This will result in significant unnecessary costs to licensees during this phase of a new build project.</p>	No change. See responses to comments 59 and 60.

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63.	Bruce Power, NB Power, OPG, CNL	S. 15.2.4, pg. 28 Cyber security	<p>This section requests consideration of documents that are outdated in terms of current best practices, namely:</p> <ol style="list-style-type: none"> 1) IAEA Nuclear Security Series 17, <i>Computer Security at Nuclear Facilities</i> and 2) Nuclear Energy Institute, NEI 04-04, <i>Cyber Security Program for Power Reactors</i>. <p>Suggested Change:</p> <ol style="list-style-type: none"> 1) Remove the two existing references (NSS17 and NEI 04-04) 2) Add a reference to CSA N290.7-14 <i>Cyber Security for Nuclear Power Plants and Small Reactor facilities</i>. 3) Add a more general reference to IAEA Computer Security guidance, thus including many important, more up-to-date documents under development such as IAEA NST-045 and NST-047. 4) Consult with Mr. Chul-Hwan Jung, the CNSC cyber security expert on this draft REGDOC <p>Impact on Industry: Although both of these references provide some value, they are outdated in some 'best practices' for cyber security. Furthermore, there is no reference to the new Canadian nuclear cyber security standard, CSA N290.7-14 <i>Cyber Security for Nuclear Power Plants and Small Reactor facilities</i>. This new standard was created at the initiative of the CNSC, and is currently being phased into the License Condition Handbook of Canadian operators.</p>	Text has been revised as suggested. The older references have been removed and a reference to CSA N290.7-14 has been added.

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64.	Bruce Power, NB Power, OPG, CNL	S.15.2.5 pg. 29 Security officer program	<p>The security officers for site preparation do not need to be to the requirements of an operating NPP. There will not be any Category I or II nuclear materials at the site during this period and it is unlikely that any prescribed information will be on site at this time.</p> <p>Suggested Change: Revise the security officer program requirements to be in line with the required level of security.</p> <p>Impact on Industry: There will not be any Category I or II material on site during the site preparation phase and it is highly unlikely that there will be any prescribed information on site either, this will likely be stored at a head office or satellite office facility. There is no need for this level of security at this point in the project. This will result in significant unnecessary costs to licensees during this phase of a new build project.</p>	No change. See responses to comments 59 and 60.
65.	Starcore Nuclear	Part B, S. 16	<p>As we read through the requirements for site evaluations, we agree that all the requirements have merit and many would be needed depending on the site proposed. We have a few overall comments for your consideration for inclusion in Section 16. Introduction.</p> <p>1) Number of Data Requirements - The StarCore reactor plant will be a low-risk facility given its small size and radioactive inventory; minimal release potential; passive shutdown design; automated operation; security-by-design philosophy; and other features. StarCore will make the safety case for these features in our regulatory submittals, beginning with the Vendor</p>	<p>No change. Applicants must provide the information to support their claims regarding their technology.</p> <p>An applicant will have to provide information to support their request for not addressing specific aspects of Part B of REGDOC-1.1.1.</p>

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			<p>Design Review that we are now engaged in.</p> <p>StarCore believes that the reactor types considered for remote regions must be inherently safe, as our design is – that is requiring no AC power nor human intervention to protect the public and the environment in the event of an accident. The HTGR is such a reactor. The IAEA has defined the HTGR as “an inherently safe nuclear reactor concept with an easily understood safety basis that permits substantially reduced emergency planning requirements and improved siting flexibility compared to other nuclear technologies”, (IAEA, “Advances in high temperature gas cooled reactor fuel”, IAEA TECDOC 1674, 2013).</p> <p>Given the above we do not see the need for all the data requirements in this section. Clearly some would need to be done at every site, e.g. foundation investigations. But others should not need to be done.</p> <p>Recommend that a section be added specifically for plants below a certain size and with a low-risk profile that drops some requirements and simplifies others.</p>	

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66.	StarCore Nuclear	Part B, S. 16	<p>2) Existing Site Data - We found no discussion of the use of existing site evaluation data. Since StarCore's currently planned Canadian sites include only existing nuclear, fossil power and mining sites, we expect to have a wealth of existing data that could be used. We recognize that a gap analysis will need to be performed against current requirements, and a plan put in place to eliminate the gaps found.</p> <p>We also recognize that if we were to propose a greenfield site, we would have to do a much more extensive evaluation.</p> <p>Recommend that a specific section be added to address the use of existing site evaluations and data for small, low-risk reactor plants.</p>	<p>Text has been revised to add clarity. The regulatory document indicates that existing site characterization data may be used to the extent practicable.</p> <p>Text has been added to Section 3.0 (was 16.2): "the applicant should ensure that the site is evaluated at a level sufficient to confirm the suitability of the site for the activity"</p>
67.	StarCore Nuclear	Part B, S. 16	<p>3) Enveloping Requirements - There is no discussion on using envelopes to simplify the data needed from each site. As an example, StarCore plans to survey potential sites for seismic levels and design the plant to the most severe conditions. Our overall philosophy is to design the nuclear and safety important portions of the reactor plant to an envelope set of conditions, so that we can build that portion of the plant the same way at each site. This will greatly simplify licensing, construction and operation of our plants.</p> <p>Recommend that a section be added referring to the use of envelopes for suppliers that plan to build fleets of plants.</p>	<p>No change. The bounding envelope is described in sections 3.2, 4.1 and F.1.2. It is the applicants responsibility to ensure that the derived bounding envelope is appropriate for all proposed or potential sites.</p>

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68.	CELA, Greenpeace	S. 16.1, Purpose p. 30	<p>The document states that site evaluation is a process that continues throughout the lifecycle of the proposed facility to ensure its design basis remains current with changing conditions. However this does not appear to have been the approach taken to date with existing plants.</p> <p>Recommendation: As noted the plants' license conditions in all phases should be conditional on the continued suitability of the site for nuclear power plant operation.</p>	<p>No change. Continued suitability of the site is addressed through periodic updates of the deterministic safety analysis, probabilistic safety analysis and environmental risk assessment. The licensee must demonstrate that the safety case remains valid throughout the lifecycle of the nuclear facility.</p>

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69.	CELA, Greenpeace	S. 16.2, Scope p. 30	<p>The document states that “site selection is not regulated under the Nuclear Safety and Control Act (NSCA)”. On the contrary, the CNSC has the jurisdiction – and no other entity has the jurisdiction – to ensure that licences are not issued unless it is satisfied that the public and the environment will be protected. Indeed, the NSCA requires the CNSC to limit risk to Canadian society. As seen with past nuclear accidents, such as Fukushima, societal disruption is a key effect of nuclear accidents. It goes without saying that the siting of a nuclear station in a highly populated area increases the potential societal disruption in the event of an accident. The CNSC, therefore, has a clear responsibility under the NSCA to assess the potential for a site to exacerbate social disruption in the event of a nuclear accident.</p> <p>Recommendation: The CNSC must exercise its jurisdiction and fulfill the federal constitutional jurisdiction over site approval or it can never properly exercise its responsibility to ensure public and environmental protection. No amount of subsequent regulatory action short of license termination can adequately protect the public if an unsuitable site is selected.</p>	<p>No change. Site selection is not part of the CNSC's mandate.</p> <p>The purpose of the document states: “This regulatory document addresses site evaluation and site preparation for reactor facilities and provides requirements and guidance, including a licence application guide, for a licence to prepare a site for reactor facilities. Its content addresses suitability of a site for the construction and operation of a nuclear power plant or a small reactor. Site evaluation is integral to site preparation, and provides information to subsequent lifecycle phases.”</p> <p>The review of the application focuses on determining whether the site characteristics that have an impact on health, safety, security and the environment have been identified, and that these characteristics have been taken into consideration and will also be considered in the design, operation and decommissioning of the proposed facility.</p>

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70.	CELA, Greenpeace	S. 16.3, Overview, p. 31	<p>The document states that site evaluation is to be carried through to subsequent facility lifecycle phases, including the license to operate. This is appropriate. However, the document does not specify any criteria or thresholds as to whether a site is acceptable for nuclear power plant operation; or as to whether a site becomes unacceptable at a later stage due to for example population increase, in the event that these issues cannot be addressed by "design modifications" or "updates to operations".</p> <p>Recommendation: The document must specify that all facility lifecycle phases will be conditional upon continued suitability of the site for nuclear power plant operation.</p>	<p>No change. Licensees/applicants are required to update their deterministic safety analysis, probabilistic safety analysis and environmental risk assessment. These updates must take the following into account:</p> <ul style="list-style-type: none"> • site characteristics, such as flood, seismic, meteorological, and hydrological databases • offsite characteristics, including population densities <p>The Commission will evaluate the application to conduct the licensed activity over the time period proposed by the applicant.</p> <p>No licence will be issued unless the Commission determines that the applicant is qualified to carry out the activity, and will make adequate provisions for the protection of the environment, the health and safety of persons and the maintenance of national security.</p>
71.	Bruce Power, NB Power, OPG, CNL	S. 16, Figure 16.1, p. 32	Typo. Crown's duty to consult should be subsection 5.2 instead of 5.3.	Thank you. Figure has been adjusted.
72.	Bruce Power, NB Power, OPG, CNL	S. 16.4, p. 33	<p>'This document is consistent with the present IAEA consensus on what is expected in the site evaluation process.' The statement implies that any change in the "IAEA consensus" shall be immediately reflected in the document.</p> <p>Suggested Change: Delete the phrase.</p>	No change. Regulatory documents are reviewed periodically.

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73.	CELA, Greenpeace	S. 16.4, p. 33	<p>The document states that site characteristics and effects of external events are integral considerations in the site evaluation process. This is appropriate. However emergency preparedness and security needs should be mandatory and central to the analysis of suitability of the site; not merely "anticipated".</p> <p>Recommendation: The document should be altered to specify that emergency preparedness and security needs should be mandatory and central to the analysis of suitability of the site; not merely "anticipated."</p>	<p>Refer to the response to comment 70.</p> <p>The final bullet has been revised to state:</p> <ul style="list-style-type: none"> - emergency preparedness and security readiness needs can be anticipated to ensure that adequate measures can be implemented at the appropriate licensing stages <p>Licensees are expected to address the information in REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2.</p>
74.	CELA, Greenpeace	S. 16.4, p. 33	<p>The document states that the degree of focus given to external events depends on their probability and severity. This is far too vague. External events must be a critical consideration in evaluating the suitability of the site.</p> <p>Recommendation: The document should specify that external events must be a critical consideration in evaluating the suitability of the site.</p>	<p>No change. External events are a consideration in evaluating the suitability of any site.</p>
75.	CELA, Greenpeace	S. 16.4, p. 33	<p>The document states that "submission of site evaluation information on rejected sites is not necessary or expected in future EAs or in future licensing phases under the NSCA." For EA traceability this is incorrect advice. Alternate sites that were investigated and rejected should be detailed in an EA along with the criteria used.</p> <p>Recommendation: The document should specify that alternate sites that were investigated and rejected should be detailed in any related EA along with the criteria used.</p>	<p>Text has been revised for clarity.</p> <p>The original text that stated: "It is expected that the applicant will reject any inappropriate site before applying for a licence to prepare site, without requiring CNSC involvement. Submission of site evaluation information on rejected sites is not necessary or expected in future EAs or in future licensing phases under the NSCA."</p> <p>Has been replaced by the following text in section 3.0, Note 2:</p>

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				<p>“The applicant should reject any inappropriate site before applying for a licence to prepare site, without requiring CNSC involvement. Submission of site evaluation information on rejected sites is not necessary or expected in future EAs or in future licensing phases under the NSCA required.”</p> <p>Under CEAA 2012, as per paragraph 19(1)(g), applicants shall assess the alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means. Pursuant to subsection 19(2) of CEAA 2012, the scope of factors (including alternative means) is determined by the Commission, as a responsible authority, on a project-by-project basis, and may include options for location, development or implementation methods, routes, designs, technologies, mitigation measures, etc.</p> <p>The Commission may request any information needed to render a decision, including the assessment of alternative sites.</p> <p>The Commission's mandate, as the regulatory authority over nuclear matters in Canada, is not to evaluate alternative energy sources or to make energy policy decisions, but to ensure, in accordance with the NSCA, the regulation of the development, production and use of nuclear energy to prevent unreasonable risk to the environment and to the health and safety of persons.</p>

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76.	CELA, Greenpeace	S. 16.4, p. 33	<p>The document provides a list of considerations that site evaluation “takes into account.” The phrase “takes into account” is far too vague.</p> <p>Recommendation: The document should specify how how the site would be considered suitable or not on each of the listed factors.</p>	<p>No change. These factors will be considered in view of the overall safety case presented for the licensed activity. The CNSC does not prescribe requirements regarding population density; however, additional information regarding these factors is provided in Appendices B through G of REGDOC-1.1.1.</p>
77.	CELA, Greenpeace	S. 16.4, p. 33	<p>The document states that one consideration includes characteristics of the protective zone insofar as they may affect implementation of the emergency response measures – this consideration should also apply to broader zones than the current protective zones in case of changing standards in the future, or in case of the occurrence of more severe events than currently subject to detailed planning - for example given these characteristics what would be the ability to evacuate a zone of 50 km around the plant.</p> <p>Recommendation: The document should include a requirement to consider the ability to implement emergency response measures in a further zone beyond the protective zones, to a distance of 50 kilometers around the plant, given population and the other listed characteristics.</p>	<p>No change except addition of CSA N1600, <i>General requirements for nuclear emergency management programs</i> in the document. The CNSC does not prescribe the emergency planning zones. REGDOC-2.10.1 provides requirements and guidance regarding the planning basis for emergency preparedness programs.</p> <p>Off-site emergency response is under jurisdiction of the province or territory.</p>
78.	Bruce Power, NB Power, OPG, CNL	S. 17, p. 34, 2 nd bullet	<p>“reactor facility events, including beyond-design-basis-events and severe accidents”</p> <p>At the site prep stage, the final design may not have even been selected yet. It seems incongruous to be talking about beyond design basis events when the design basis hasn't even been established yet.</p> <p>Suggested Change: Delete</p>	<p>No change. This information is needed to support environmental assessments, licensing and land use around nuclear reactor facilities. Applicants may choose to apply a bounding envelope approach in their submission. Claims made in the EA and LTPS will have to be adhered to in future licensing stages.</p>

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79.	CELA, Greenpeace	S. 17, p. 34	<p>The document states that site evaluation shall include a number of factors such as external hazards, site characteristics, the range of technologies to be considered and others. However there are no evaluation criteria provided. The document simply asks the applicant to "prioritize" and to "document" these matters.</p> <p>Recommendation: The document should specify evaluation criteria for site suitability for nuclear power plant operation.</p>	<p>No change. Applicants must demonstrate that they will adhere to the dose limits and safety goals in CNSC regulatory framework (such as NSCA, regulations, and regulatory documents), and all applicable federal and provincial territorial requirements regarding releases of nuclear and hazardous substances to the environment.</p> <p>In keeping with the CNSC's risk-informed approach to regulation, the acceptability of a proposed project will be based on the overall, integrated assessment of the application.</p>
80.	CELA, Greenpeace	S. 17, p. 34	<p>The document states that "the main objective of site evaluation is to ensure that a reactor facility constructed and operated at the site will not create an unreasonable risk to the public or to the environment." However there is no definition of unreasonable risk, no evaluation criteria, and no threshold at which the site becomes unsuitable for any of the factors described in the document.</p> <p>Again, the social disruption caused by a Fukushima-scale accident could vary considerably depending on a sites proximity to population centres or even drinking-water supplies. The CNSC has a responsibility to establish clear criteria for judging such risks.</p> <p>Recommendation: The document should define unreasonable risk. It should specify evaluation criteria. It should specify thresholds in relation to population numbers, characteristics and density, and in relation to capacity to implement offsite emergency response in either qualitative or quantitative terms.</p>	<p>No change. See response to comment #79.</p> <p>Subject to the Commission's review and approval of any specific site or project, the CNSC will not impose specific thresholds in relation to population numbers, characteristics and density, and in relation to capacity to implement offsite emergency response in either qualitative or quantitative terms.</p>

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81.	Bruce Power, NB Power, OPG, CNL	S. 17, p 35, 1 st line	<p>“A high level overview of alternate sites considered prior to selecting the proposed site should be provided. A brief description of the degree and depth of site evaluation used to narrow down the final choice(s) should be included.”</p> <p>This is unnecessary and should be deleted. There is no need to explain why one site was chosen over another. The application is for one site and it simply has to be evaluated based on its merits.</p> <p>Suggested Change: Delete</p>	No change. This information may support environmental assessments, and helps to explain why the specific site has been chosen for the construction and operation of the reactor facility.
82.	CELA, Greenpeace	S. 17, p. 35	<p>The document provides that the characteristics of natural and human induced hazards, demographic, meteorological and hydrological conditions of relevance should be monitored over the nuclear installation's lifetime. The document does not provide any response in the event that these characteristics change.</p> <p>Recommendation: The document should specify that if these conditions change and the site becomes unsuitable for nuclear power plant operation, then the license in any subsequent phase may be modified or revoked; subsequent licences should contain the same condition.</p>	See responses to comments #70 and #79.

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83.	CELA, Greenpeace	S. 17, p. 35	<p>The document provides for periodic review of site specific hazards. However it does not specify any response if the review discloses factors, changes or implications that are serious for public safety.</p> <p>Recommendation: As noted above, the document should specify that if these conditions change and the site becomes unsuitable for nuclear power plant operation, then the license in any subsequent phase may be modified or revoked; subsequent licences should contain the same condition.</p>	See responses to comments #70 and #79.
84.	CELA, Greenpeace	S. 17.1, p. 35	<p>The document says that reactor facility designs shall be evaluated against applicable safety goals and refers to part A section 9.3 in part for requirements and guidance. However, Part A section 9.3 has little set out in terms of such requirements and guidance for accidents and malfunctions.</p> <p>Recommendation: The document should provide more extensive and specific requirements for evaluation of reactor facility designs against safety goals in the context of site characteristics and other factors listed in the document. The document should omit the reference to bounding approaches and bounding limits. The document should require evaluation of a specific reactor technology as specified in a license application to prepare a site.</p>	<p>Text will be revised as follows: Section 4.6 (was 9.2 through 9.4), Appendix A and Appendices B through G provide information regarding the evaluation against safety goals. The cross-reference has been corrected to reflect this.</p> <p>The bounding approach, as described in in sections 3.2, 4.1 and F.1.2., will remain. Applicants must demonstrate, in the construction licence application (or any other subsequent application), that the bounding approach and limits established in the EA and Site Preparation phase are met.</p>

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85.	CELA, Greenpeace	S. 17.2, p. 35	<p>The document provides that “the evolution of natural and human-induced factors in the environment that may have a bearing on safety and security shall be evaluated across a time period that encompasses the projected lifetime of the reactor facility. However, the document does not specify what would be the import of such evaluation of 'evolution' of factors.</p> <p>Recommendation: The document should specify evaluation criteria for site suitability for nuclear power plant operation. In the event that factors are predicted to evolve in such a way that the site would not be suitable for nuclear power plant operation then the license should be denied.</p>	<p>See responses to comments #71 and #80.</p> <p>All licensing decisions are based on the assessment of the licence application. Changes In the external environment that may have an impact on plant safety must be addressed in the licence application.</p> <p>Changes in the external environment are evaluated in updates to analyses and assessments.</p>
86.	Bruce Power, NB Power, OPG, CNL	S. 17.3, p. 36 1 st line	<p>“The analysis shall include an examination of potential cliff-edge effects that may arise from small increases in the severity of events. This information provides a baseline for future assessments over the life of the facility.” It is not clear how a small increase should be defined.</p> <p>Suggested Change: Remove or clearly state the severity level</p> <p>Impact on Industry: Severity of events can have major impact on the cost and time that is required by the applicant</p>	<p>No change. “Lessons learned” from Fukushima are that cliff-edge effects regarding external events need to be assessed and that design (and/or operational) measures are implemented as appropriate.</p> <p>In addressing the Fukushima lessons learned, methodology for assessing cliff-edge effects is already in place.</p>

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87.	CELA, Greenpeace	S. 17.3, p. 36	<p>The document provides for identifying and assessing external natural and human-induced events. However it fails to specify how they are to be assessed – i.e. as to what criteria or threshold? The document does not specify what potential consequences would render a site unacceptable?</p> <p>Recommendation: The document should specify evaluation criteria for site suitability for nuclear power plant operation.</p>	See responses to comments #70, #79 and #85.
88.	CELA, Greenpeace	S. 17.3, p. 36	<p>The document states that evaluation shall consider foreseeable changes in land use for the projected lifetime of the reactor facility, in order to assess and plan for mitigation of new external hazards introduced by changes in land use. This is appropriate. However, licensing a new site should require sufficient control over surrounding land uses or sufficient irrevocable commitment from local or provincial authorities to prevent incompatible changes in land use.</p> <p>Recommendation: The document should specify that licensing of a new site will require as a condition, sufficient control over surrounding land uses or sufficient irrevocable commitment from local or provincial authorities to prevent incompatible changes in land use over the lifespan of the facility.</p>	No change. Outside of the exclusion zone, land use is under provincial / territorial jurisdiction, and regions / municipalities and applicants must adhere to provincial/territorial legislation regarding land use.

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89.	CELA, Greenpeace	S. 17.3, p. 36	<p>CELA and Greenpeace have prepared an in-depth brief on the weaknesses of siting in relation to provincial land-use and population growth policies. It highlights that the CNSC's historic practice of ignoring provincial oversight of offsite land-use planning has led to a decline in the site suitability of existing nuclear stations in Ontario. Indeed, the province has been aware that its growth policies increase risk around the Pickering station. It is attached to this submission as appendix A, as part of our submissions to be considered in relation to this proposed REGDOC-1.1.1.</p> <p>Recommendation: The CNSC should review and consider the information provided in Appendix A.</p> <p>Recommendation: REGDOC-1.1.1 should be amended to require applicants to show that provincial policies are in place to limit and restrict land-use around Canadian nuclear facilities over the life of the facility.</p>	No change. See response to comment #88.
90.	CELA, Greenpeace	S. 17.3, p. 36	<p>The document provides an exception to obtaining site-specific data to determine hazards. On the whole this should not be permitted. The document should require site specific data to be obtained.</p> <p>Recommendation: The document should omit the references to data from similar regions and simulation. Site specific data should be required.</p>	No change. Site-specific data is used to determine hazards. Use of other, representative data is acceptable only in cases when site-specific data cannot be obtained.

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91.	CELA, Greenpeace	S. 17.3, p. 36	<p>The document states that prehistoric, historic and other types of data should be collected and analyzed. However it does not state how the data is to be evaluated, what it is to be analyzed for, and what decision criteria apply to the results of the analysis.</p> <p>Recommendation: More specific guidance is required as to what data is to be analyzed for, how it is to be used in decision-making, and against what decision-making criteria or thresholds.</p>	<p>No change. More specific information is provided in appendix F (was sections B.5, B.5.1 and B.5.2). It is up to the applicant to demonstrate that such information has been considered and how it is being used.</p>
92.	Bruce Power, NB Power, OPG, CNL	S. 17, Table 17.1, p. 37	<p>Potential mistake under Considerations. There is a repeat in the second and third row.</p> <p>Suggested Change: Remove repetition.</p>	<p>Text has been revised for clarity. CNSC staff find it reasonable to have the repetition for the second and third rows as they refer to two distinct areas or activities. However, the second row has been revised to read as follows:</p> <p style="padding-left: 40px;">“1) Assess and minimize any potential for compromising the natural heritage features that are used by VCs for migration, which may be site- or region-specific, and may include woodlands...”</p>
93.	CELA, Greenpeace	S. 17.4, p. 37	<p>The document provides that considerations such as table 17.1 “shall be taken into account” during site evaluation to minimize potential impact of the site’s interaction with the environment. “taken into account” is vague terminology. This type of terminology continues the problem noted earlier of vagueness and lack of systematic evaluation criteria.</p> <p>Recommendation: REGDOC-1.1.1 must specify what would make a site suitable for a nuclear power plant facility or not, as noted in submissions earlier in this document.</p>	<p>No change. See responses to comments #70 and #79.</p>

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94.	Bruce Power, NB Power, OPG, CNL	S. 17.4	<p>Determining potential impact on Environment – redundant to Environmental Assessments</p> <p>Suggested Change: Refer to the EA process rather than repeat requirements.</p>	No change. REGDOC-1.1.1 is to be used in support of licensing under the <i>Nuclear Safety and Control Act</i> , EAs under the NSCA, and EAs under CEAA 2012.
95.	CELA, Greenpeace	S. 17.4, p. 38	<p>The document states that selection of land should be balanced between the needs associated with the facility, and those of other land users around the facility. The use of the term “balanced” is vague and does not provide sufficient guidance, nor is it consistent with the CNSC’s regulatory responsibilities for public and environmental protection. This term implies that it could lead to decisions to accept increased risk to surrounding populations of residents and workers in order to allow for certain continued surrounding land uses for commercial and other reasons. Again, site suitability should also consider the potential for social disruption.</p> <p>Recommendation: The paragraph containing this phrase should be deleted from the document.</p>	No change. See responses to comments #70, #79 and #88.

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96.	Bruce Power, NB Power, OPG, CNL	S. 17.4, bottom of pg. 38	<p>“Two or more reference areas are needed to characterize natural spatial variability in measured parameters ...” It is not clear if this applies to all or some parameters.</p> <p>Suggested Change: Define where needed if suitable reference sites are available.</p> <p>Impact on Industry: This can require considerable consumption of time and resources to accomplish with little improvement in safety of the resultant site selection or preparation of site. Presently, multiple reference sampling locations are used for benthic invertebrates, but if applied to multiple parameters this could lead numerous reference areas being sampled in both the aquatic and terrestrial environment making costs and logistics prohibitive.</p>	No change. The spatial variabilities of reference areas, regardless of the parameter being assessed, must be included in an assessment in order to statistically detect projected effects.

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97.	CELA, Greenpeace	S. 17.5.1, p. 39	<p>In Section 17.5.1 I on refers a “protective zone” beyond the CNSC-defined exclusion zone. This imprecise language may hinder the ongoing assessment of site suitability and the effectiveness of emergencies.</p> <p>Typically, the provinces have established precautionary, urgent and extended emergency zones. In Ontario, the “precautionary zone” is referred to as the “Contagious Zone” and the “Urgent zone” as the “Primary Zone”</p> <p>At a minimum, post-Fukushima siting guidance needs to consider the viability of offsite evacuation within the urgent or primary zones. Limiting such assessments to the Contagious Zone may allow undesirable population growth. Specific criteria should be added to the definition of protection zone - that are linked to the ability to protect the population</p> <p>Recommendation: The guide should clarify that there are multiple emergency planning zone beyond the exclusion zone.</p> <p>Recommendation: The guide should be revised to require the applicant to demonstrate that provincial authorities have measures in place to restrict population growth and the siting of facilities for vulnerable communities over the life of the project in, at a minimum, both the precautionary action zone and the urgent action zone or their equivalent.</p>	<p>Text has been revised as follows:</p> <p>The 1st recommendation has been incorporated, in stating that there are multiple emergency planning zones beyond the exclusion zone. These zones are established by the province and under control of the region/municipality. The wording has been revised from “protective zone” to “emergency planning zones”.</p> <p>Regarding the 2nd recommendation:</p> <p>Population growth and the siting of facilities for vulnerable communities over the life of the project are under provincial and municipal jurisdiction, It is expected that licensees will adhere to provincial and municipal requirements.</p> <p>The CNSC will assess the application on the merits of the proposed safety case, taking the ability to execute emergency response measures into account in its assessment.</p>

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98.	CELA, Greenpeace	S. 17.5.2, p. 39	<p>The document states that the evaluation of the site should take into account the planning basis. However REGDOC 2.10.1 does not specify a planning basis; it merely requires that there be one. CNSC should mandate the planning basis based on its regulatory and constitutional jurisdiction. The planning basis should be at least as severe an accident as the Chernobyl and Fukushima accidents.</p> <p>Recommendation: CNSC should mandate the planning basis based on its regulatory and constitutional jurisdiction. The planning basis should be at least as severe an accident as the Chernobyl and Fukushima accidents.</p>	<p>No change. Section 2.1 of REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2 describes the planning basis and addresses multi-unit accidents with extended loss of power. The applicant's planning basis should be specific to the technology, based on safety analysis, and in accordance with REGDOC-2.10.1 version 2.</p>
99.	CELA, Greenpeace	S. 17.5.2, p. 39	<p>The document states that present and future land and resource use should be taken into account. As noted earlier, it is necessary to ensure reliable control over future land uses and population changes as a condition of a site licence and subsequent licences.</p> <p>Recommendation: Site licenses should include a condition of reliable control over future land uses and population changes within protective zones as a condition of a site licence and subsequent licences.</p>	<p>No change. See responses to comments #70, #79, #85 and #88.</p> <p>Only the exclusion zone is under the control of the licensee. Land use beyond the exclusion zone is under provincial and municipal control.</p>

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100.	CELA, Greenpeace	S. 17.5.2, p. 39	<p>The document describes confirming implementation of municipal, provincial and neighbouring jurisdictions' emergency plans for the lifecycle of the project. However it does not specify evaluation criteria as part of the process of approving and issuing a site license.</p> <p>Recommendation: The document should specify what level of preparedness and response must be demonstrated in order to obtain a license to prepare a site. For example, the document should define criteria and all subsequent license phases should include as conditions, demonstration of the ability to evacuate all population of residents and workers within 20 km of the plant with 3 hours of the onset of a nuclear emergency in severe weather conditions regardless of direction of wind; and to demonstrate the ability to provide alternate sources of drinking water to the entire population within 30 km of the proposed site within X hours of initiation of a nuclear emergency.</p>	<p>No change. The area needed for evacuation is based on the characteristics of the technology, and the safety case proposed for operation of the facility. The applicant must have arrangements in place with offsite authorities to ensure that they are able to effectively implement emergency plans.</p> <p>The time for evacuation is dependent on the proposed accident scenarios, and their associated releases and subsequent dose to the public.</p> <p>Offsite emergency response is the responsibility of provincial or territorial governments; however, the CNSC reviews each application to ensure that the appropriate arrangements are in place.</p> <p>REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i> and CSA N1600, <i>General requirements for nuclear emergency management programs</i> provide additional information.</p>

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101.	Bruce Power, NB Power, OPG, CNL	S. 17.5.2, p. 40 first line	<p>“Because of the time involved for this task, it is important to initiate these discussions during the initial (pre-licensing) site evaluation phase. The CNSC will expect these agreements to be in place before granting a licence to prepare site.” It makes sense to have the discussions with offsite agencies at this stage in the life cycle, but it is excessive to expect formal agreements to be in place before the licence is granted.</p> <p>Suggested Change: Delete this requirement.</p> <p>Impact on Industry: The requirement to have agreements in place before a site preparation licence is granted is unnecessary and overly restrictive. There will be plenty of time to establish these agreements before the facility is even built let alone operated.</p>	<p>The text has been changed to “should” and the paragraph has been moved to the “guidance” section. However, if the formal arrangements (for example, a Memorandum of Understanding (MOU)) are not in place at the time of applying for a licence to operate, CNSC staff will not recommend to the Commission that a licence to operate be approved.</p>

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102.	CELA, Greenpeace	S. 17.5.2, p. 40	<p>The document discusses the necessity to “initiate discussions” in the pre-licensing phase as to emergency response matters, but does not specify how the public is involved in these “discussions”.</p> <p>Notably, the International Commission on Radiological Protection (ICRP) also recommends public engagement in developing emergency plans. The Commission states:</p> <p><i>“During planning, it is essential that the plan is discussed, to the extent practicable, with relevant stakeholders, including other authorities, responders, the public, etc. Otherwise, it will be difficult to implement the plan effectively during the response. The overall protection strategy and its constituent individual protective measures should have been worked through with all those potentially exposed or affected, so that time and resources do not need to be expended during the emergency exposure situation itself in persuading people that this is the optimum response. Such engagement will assist the emergency plans by not being focused solely on the protection of those at greatest risk early in an emergency exposure situation.”</i></p> <p>Recommendation: The document should require mechanisms for public input and inclusion in the inter-jurisdictional and agency “discussions” as to emergency response during the pre-licensing phase.</p>	<p>No change. Via clause 3(j) of the <i>Class I Nuclear Facilities Regulations</i> applicants are to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed. For more information, see section 2.2.7 of REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2.</p>

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103.	CELA, Greenpeace	S. 17.6	<p>The document lists consideration of future life-extension activities. However the document is very vague and lacks criteria as to whether the site would remain suitable in the event of any life-extension activities.</p> <p>Recommendation: Because of the potential for future life-extension activities, the document should specify that long-term land use control should be required as a precondition to licensing, to a satisfactory distance around the plant.</p>	<p>No change. See responses to comments #71, #80, #86 and #89.</p> <p>Only the exclusion zone is under the control of the licensee. Land use beyond the exclusion zone is under provincial and municipal control.</p>
104.	Bruce Power, NB Power, OPG, CNL	S. 18, p. 41	<p>Concern with open-ended statement that can easily mean years/decades of baseline sampling before applying for a prepare site licence. “Baseline data should be of sufficient sample size and duration to conduct hypothesis testing against post-commissioning (follow-up) monitoring data, with sufficient power to detect relevant effect sizes.”</p> <p>Suggested Change: Include a statement to clarify the number of years of baseline data are required for the application to prepare site, considering that baseline monitoring will continue through the life of the project.</p> <p>Impact on Industry: This could be a major cost and resource impact on the industry if the stated condition is required to begin site preparation.</p>	<p>Text has been revised for clarity, as follows:</p> <p>“Baseline data should be of sufficient sample size and duration to obtain a basic understanding of within-year and between-year variation. For more information on specific baseline environmental components, see appendix B.</p> <p>As described in CSA N288.4, the proposed operational monitoring program may require additional intensive baseline sampling for monitoring elements where a specific level of effect or of change in the environment is detected.”</p>

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105.	CELA, Greenpeace	S. 18	<p>The document states "where possible" baseline data should take into account archeological, paleontological and prehistoric data...</p> <p>Recommendation: The words "where possible" should be deleted. These types of data should always be required. Furthermore, rather than "take into account", the document should specify how the data will be used in evaluating the site.</p>	<p>No change. Agree that archeological, paleontological and prehistoric data (including the oral history of Aboriginal peoples) should be taken into account where available. The data should be used in site evaluation as appropriate to the data and the site.</p>
106.	CELA, Greenpeace	S. 18.1, p. 42	<p>The document provides a mandatory list of basic meteorological variables. However this requirement should be coupled with a description of how this data would affect decision making as to site suitability. For example, winter wind speeds in certain frequency storms should drive analysis of potential evacuation distances and thus feed into evaluation of suitability of the site; the expected performance and thresholds should be specified.</p> <p>Recommendation: This requirement should be coupled with a description of how this data would affect decision making as to site suitability.</p>	<p>No change. Appendix C.2 (was B.3.1), <i>Baseline climate, meteorological data and air quality data</i> provides additional details regarding how the data on the atmospheric environment would be used in decision-making regarding site suitability.</p> <p>The information provided would be compared to international guidance regarding criteria that should be considered when compiling baseline information for dispersion in air.</p>

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107.	Bruce Power, NB Power, OPG, CNL	S. 18.3, pg. 42	<p>Concerns about requirements under this statement: "The evaluation shall take into account prehistoric, historic, and instrumentally recorded climatic data sources that reflect regional conditions... Descriptions of basic meteorological variables shall include...atmospheric pressure."</p> <p>Suggested Change: Change "shall" to "should" as some of this data may not be available (Prehistoric data in particular). Atmospheric pressure is not used in EAs/ERAs. Should only ask for data that are essential for the application to prepare site.</p> <p>Impact on Industry: There will be information gap if data are not available. Some of the data will not be readily available in the ERA and they not needed or used in present assessments. For example, there may not be any records of atmospheric pressure being available or being used in assessments, so this should not be required. Design of the NPP takes extreme weather conditions, which includes atmospheric pressure extremes into account which is documented in the safety analysis report.</p>	<p>For use of prehistoric and historic data , the text has been revised in section 3.4.1 (was 18.3) to change "shall" to "should" in order to match the general guidance provided at the beginning of the section. However, instrumentally recorded climate data remains as a requirement ("shall").</p>

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108.	Bruce Power, NB Power, OPG, CNL	S. 18.6, pg. 43	<p>Concern with the following statement: “Documentation of the biota utilizing the habitat and the proposed site shall be provided and include descriptions of ... and invertebrate communities.”</p> <p>Documentation of the terrestrial invertebrate community inhabiting soil and foliage is an enormous task and at the present level of the science of limited use for monitoring effects. To date the only requirement is for benthic invertebrates (at the level of genera) and observations on invertebrates of “special concern.”</p> <p>Suggested Change: Revise to be more specific on what is required for monitoring. For example, require focus on identifying legally protected species (e.g. monarch butterfly) and invertebrates that will serve a purpose for environmental effects monitoring.</p>	<p>Text has been revised to be more specific, as follows:</p> <p>“...and includes descriptions of vegetation communities, birds, mammals, reptiles, fish, and invertebrates that could be used for environmental effects monitoring and risk assessment purposes”.</p>
109.	CELA, Greenpeace	S. 19.1, p. 44	<p>The document mandates evaluation of potential climate change in relation to external natural events over the lifetime of the facility. This is appropriate. However, again, the criteria by which these factors are evaluated and used in decision making in relation to the suitability of the site must be specified.</p> <p>Recommendation: The criteria by which climate change impact on natural external events are evaluated and used in decision making in relation to the suitability of the site must be specified.</p>	<p>No change. The Commission will evaluate the application to conduct the licensed activity over the time period proposed by the applicant.</p> <p>No licence will be issued unless the Commission determines that the applicant is qualified to carry out the activity, and will make adequate provisions to carry out the activity.</p> <p>The potential climate change impact will be assessed with consideration of design or mitigation measures.</p>

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110.	CELA, Greenpeace	S. 19.2.2, high winds, p. 46	<p>The document provides as “guidance” potential factors to be used in the assessment of high winds. These factors (wind and pressure loading effects; wind-propelled missiles; effects on emergency plan execution; and possibility of affecting releases from the reactor facility into the environment) should all be part of the mandatory assessment of high winds.</p> <p>Recommendation: The factors listed as “guidance” under High winds should be moved to be part of the mandatory assessment of high winds.</p>	No change. Applicants are expected to address the guidance.
111.	Bruce Power, NB Power, OPG, CNL	S. 19.3.1	<p>Flood - How in situation where Canadian documents are currently unavailable, is the conformance criteria established and assessed?</p> <p>Suggested Change: Explain acceptance criteria.</p>	<p>Text has been revised by adding the following text describing NUREG/CR-7046 and IAEA Safety Standards Series No. NS G-1.5 and SSG-18:</p> <p>“These guidance documents reflect best international practice in flood hazard assessment. Conforming to the guidance, taking into consideration site-specific hydrological characteristics, will demonstrate the adequacy of flood hazard assessment.”</p>

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112.	CELA, Greenpeace	S. 19.3.1, p. 47	<p>The document requires assessment of flooding potential and determination of the design-basis flood. In light of Fukushima, there is an acknowledgement that nuclear facilities needed to be designed to resist external events well-beyond what was previously included in a nuclear station's design-basis.</p> <p>Recommendation: The document should require assessment of a beyond "design basis" flood to determine, if the design basis is exceeded, how the facility would be affected and whether there are potential consequences to the surrounding population; the results should be compared to specified evaluation criteria.</p>	<p>No change. Section 3.3 (was 17 and 17.3) provides the general criteria for the assessment of beyond design-basis events: "Analysis of external hazards is required to consider both design-basis and beyond-design-basis events (p.34)."</p> <p>The preface also explains the importance of considering beyond design-basis events, including beyond design-basis floods. In addition, there are other CNSC regulatory documents that require the assessment of beyond design-basis events, of which flood is one. Some examples are REGDOC-2.4.1, <i>Deterministic Safety Analysis</i> and RD/GD-369, <i>Licence Application Guide: Licence to Construct a Nuclear Power Plant</i>.</p>

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113.	CELA, Greenpeace	S. 20.1,p. 51	<p>The document requires assessment of aircraft crash potential on the site. Only if “an unreasonable risk” of an aircraft crash is revealed is further assessment of associated hazards required.</p> <p>Aircraft risk assessments typically don't factor in the potential for malevolent aircraft crashes at a nuclear site. This underlines the need for a deterministic review of aircraft crash effects in the event of a malevolent act. This should be carried whether or not aircraft crashes are found to be “unreasonable”.</p> <p>Recommendation: "Unreasonable risk" of aircraft crash on the site should be defined. In any event, the associated hazards of an aircraft crash should be assessed for all facilities as a mandatory requirement. The potential effects of aircraft crash and associated hazards should be evaluated according to specified evaluation criteria; not merely “considered” as the document presently states.</p>	No change. Section 20.1 focuses on non-malevolent airspace events with section 21.2.3 focusing on malevolent acts through airspace.
114.	CELA, Greenpeace	S. 19-20, p. 44-52	<p>The hazards outlined in sections 19 and 20 of Appendix [sic] B are not situated in a decision making context. Evaluation criteria must be specified in order to determine if the site is suitable or unsuitable for a nuclear facility.</p> <p>Recommendation: The document should specify that the hazards outlined in section s19 and 20 of Appendix [sic] B must be assessed against defined criteria established in the document. Thresholds as to whether the suite is suitable or unsuitable based on this evaluation must be pre-defined in the document.</p>	<p>No change. The Commission will evaluate the application to conduct the licensed activity over the time period proposed by the applicant.</p> <p>No licence will be issued unless the Commission determines that the applicant is qualified to carry out the activity, and will make adequate provisions to carry out the activity.</p> <p>The evaluation of natural, human and malevolent acts will be addressed in the integrated assessment of the application to verify that all regulatory requirements are met.</p>

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	Reviewer	Section or Para. #	Reviewer's Comment and Proposed Change	Response
115.	CELA, Greenpeace	S. 21.1.1, remote areas, p. 53	<p>The document provides that remote sites should be evaluated with respect to the anticipated time required to implement essential response services. However the document does not provide any minimum expectation in terms of response time.</p> <p>Recommendation: The document should specify a minimum required response time for essential response services for remote areas and this requirement should be used to evaluate site suitability.</p>	<p>No change. The area needed for evacuation will be based on the characteristics of the technology, and the safety case proposed for operation of the facility. The time for evacuation will be dependent on the proposed accident scenarios, and their associated releases and subsequent dose to the public. Thus, this decision is case-by-case, depending on the proposed technology and the location.</p> <p>See also response to comment #100.</p>
116.	Bruce Power, NB Power, OPG, CNL	S. 21.2.3, p. 53	<p>There is no leverage point available to a utility on the issue of establishing means of deterrence to "high risk" airspace.</p> <p>Suggested Change: The expected outcome of discussions with municipal, provincial and federal governments to establish means of deterring entry into "high risk" airspace is unclear. I don't see a definition of "high risk" airspace. There is little in place to deter entry for existing facilities. Current practices are reactive, not preventative. This point requires clarification and is not written in consideration of industry's ability to impact this area.</p> <p>Impact on Industry: For industry to engage in New Build on existing nuclear properties, the requirement for this deterrence is out of sync with our current norm.</p>	<p>Text in section 3.7.2, Transportation routes, "Airspace" [was section 21.2.3] has been revised as follows:</p> <p>The SSTR shall consider the threats and risks associated with private and commercial airports, including associated flight pathways. This requirement involves discussions with municipal, provincial, and federal governments to establish measures for deterring entry into airspace identified as being of "high risk" to the site. This requirement involves discussions with municipal, provincial or territorial, and federal governments to confirm interdiction capabilities and coordinating points of contact.</p>

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117.	Bruce Power, NB Power, OPG, CNL	S. 23, p. 54, 1 st line	<p>“A management system, quality management or quality assurance (QA) program shall be established when it can be applied to the site evaluation process.”</p> <p>There is a significant difference between a management system and a quality assurance program, with the management system integrating all requirements and ensuring safety is the overriding consideration. It doesn't seem appropriate in this section to allow for the choice of only a QA program.</p> <p>Suggested Change: For clarity, recommend removing “quality management or quality assurance (QA) program.”</p>	Text has been revised to remove “Quality management or quality assurance (QA) program”.
118.	Bruce Power, NB Power, OPG, CNL	S. 23, p. 55, second to last bullet under further guidance	<p>Reference to CSA N286 should be revised to CSA N286-</p> <p>Suggested Change: Revise to reference N286.</p>	No change. The references section provides the “-yy” version for each CSA document.
119.	Bruce Power, NB Power, OPG, CNL	Appendix A	<p>Redundant to REGDOC-1.1.3</p> <p>Suggested Change: Opportunity to create single LAG specifying various requirements for different licences.</p> <p>Impact on Industry: Having redundant requirements in a more than one Regulatory document leads to potential for confusion.</p>	No change. Licence Application Guides focus on the specific regulated activity.

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120.	CELA, Greenpeace	Appendix A.4.2, p. 61	<p>The document states that a management system is expected to govern the conduct of site evaluation activities. However, the criteria for evaluation of the site is obscured by the requirement for such a "management system" which is itself not defined as to evaluation criteria. It is unclear whether such a management system will be required to be transparent or include public participation.</p> <p>Recommendation: Ensure that utilization of a management system is not a substitute for clear evaluation criteria as to the factors relevant to site suitability which should be specified in this document as we submit above.</p>	<p>No change. Information on the management system as it pertains to site evaluation will be included in the application that is considered in the public hearing process.</p> <p>Evaluation criteria regarding site suitability are outlined in this document.</p>
121.	Bruce Power, NB Power, OPG, CNL	Appendix B	<p>Redundant to REGDOC-1.1.3</p> <p>Suggested Change: Opportunity to create single LAG specifying various requirements for different licences.</p> <p>Impact on Industry: Having redundant requirements in a more than one Regulatory document leads to potential for confusion.</p>	<p>No change. See response to comment #119.</p> <p>Appendices B through G accompany section 3, Site Evaluation for New Reactor Facilities and are not associated with the LAG.</p>

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122.	Bruce Power, NB Power, OPG, CNL	Appendix B.2.1, p. 67	<p>"Because characterization methods and tools evolve over time, the licensee shall demonstrate that the process of site evaluation will continue to be periodically updated in future licensing phases to ensure that the design basis and the licensing basis are supported by up-to-date information."</p> <p>Clarity is sought around this expectation. Licensees accept that information will be updated over time, but the initial site evaluation will remain valid unless additional requirements are imposed (Environmental Assessment, for example).</p> <p>Suggested Change: Clarify expectations around future periodic review.</p>	<p>Text has been revised to address the intent of the comment. The second paragraph under section B.1 (was B.2.1) has been removed.</p> <p>Note that the licensee does not redo a site evaluation once a facility is operating. An operating facility is required to meet the conditions of its operating licence which involves demonstrating through the ERA, and associated emissions and monitoring programs that the facility continues to operate within the environmental performance predictions documented as the licensing basis. The ERA and associated monitoring programs identified as the licensing basis are updated as per CSA N288.6 requirements, but the site evaluation itself is not updated.</p>
123.	Bruce Power, NB Power, OPG, CNL	Appendix B.2.1, p. 67, Guidance, 1 st bullet	<p>"applicable federal environmental legislation" is too vague for effective guidance.</p> <p>Suggested Change: Specify.</p>	<p>No change. Applicants are responsible for addressing all applicable federal, provincial and municipal requirements.</p> <p>Under ISO 14001 and REGDOC-2.9.1, it is the licensee's responsibility to identify relevant environmental and human health regulations for their proposed project or activity. Because requirements may be site-specific, and thus vary provincially and possibly locally (e.g., municipal sewage regulations), the CNSC is not prescriptive in terms of applicable legislation in REGDOC-1.1.1.</p>

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124.	Bruce Power, NB Power, OPG, CNL	Appendix B.3, Guidance, p. 69, 4 th para.	<p>“This includes specifying the deviation from a reference conditions that would be considered an adverse effects, taking into consideration the normal and natural variation for that parameter. This can be done through the implementation of statistical design into baseline studies.”</p> <p>This may be achievable after a facility is in place and operated for considerable time, but is not possible early in the program. The text implicitly implies several years or decades of baseline monitoring before implementation of the project.</p> <p>Suggested Change: Include a statement to clarify the number of years of the baseline data required for the application to prepare site, considering that baseline monitoring will continue through the life of the project.</p> <p>Impact on Industry: This could be a major cost and resource impact on the industry if the stated condition is required to begin well before site preparation.</p>	<p>Text has been revised as follows:</p> <p>The paragraph under B.3 (was B.2.3), “Process for gathering baseline data” (Guidance) has been revised to state:</p> <p>“Limitations and data gaps in the quality and completeness of baseline information should be identified and addressed. Specific attention should be paid to the adequacy of baseline data collection for those elements of the environment to be carried forward into future licensing phases with the objective of monitoring for a specified level of change in some environmental parameter or analyte. This process requires specific statistical study design considerations as outlined in CSA N288.4, <i>Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills.</i>”</p> <p>Baseline monitoring is collected prior to operations. Baseline monitoring cannot continue throughout the life of a project. True baseline can only be completed prior to the commencement of a project. Operational monitoring will include one or more “reference” stations; however, they are not baseline, rather they are reference stations that are part of the operational monitoring program. Reference and exposure stations will be monitored over the life of a project as part of the “operational” or decommissioning” monitoring programs.</p>

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125.	Bruce Power, NB Power, OPG, CNL	B.3.1, p. 69, 2nd bullet	<p>Concern with statement: "One year of onsite meteorological data for the most recent one-year period is required for baseline climate, meteorological data and air quality data (repeated on pg 70)."</p> <p>Suggested Change: Specify whether the one-year period also applies to other baseline parameters as well. One year of baseline monitoring prior to prepare site should be sufficient, but regulatory statements seem to imply several years may be required.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant.</p>	<p>No change. The one year of on-site data is specific to baseline climate, meteorological data and air quality data. The monitoring period is established on a case-by-case basis for other baseline parameters. Furthermore, section C.2 (was B.3.1) states: "Typically, one year of meteorological data is sufficient if it covers the most recent one-year period. If this is not the case, then average data covering a longer recent period up to five years is used. Further, data covering the most recent one-year period should be verified against the five-year average to ensure that it is typical of the conditions at the site. If the data is not typical, then the five-year average data should be used."</p>
126.	CELA, Greenpeace	B.3.1, p. 69	<p>The document states that baseline information should include one year of onsite meteorological data for the most recent one-year period. One year is insufficient to encompass severe events or may present anomalous data therefore the document must require collection and analysis of a longer time frame for the meteorological baseline.</p> <p>Recommendation: Require more than one year data collection for meteorological baseline.</p>	<p>No change. REGDOC-1.1.1 is consistent with international guidance. Section 3 (was 17 and 17.3) provides the general criteria for the assessment of beyond design-basis events. The licensee is required to demonstrate how the data represents the long-term meteorological characteristics of the site.</p>

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127.	Bruce Power, NB Power, OPG, CNL	B.3.1.3, p. 69, 3 rd bullet	<p>Concern with bullet: "information about climatic parameters such as air masses, general airflow, pressure patterns, frontal systems and temperature and humidity conditions, as compared against references."</p> <p>A general description of dominant wind direction, temperature and precipitation is usually given in an ERA or application, but not to the level of detail requested here. It is highly unlikely that there would be major differences in the reference areas and study site if reference areas are nearby, and if significantly different, then they are not appropriate reference areas.</p> <p>Suggested Change: This bullet should be changed or deleted.</p> <p>Impact on Industry: This cannot be implemented as all information is not readily available and will not be available at the micro-scale to compare among the selected site and reference sites. This will create a data gap in requirements.</p>	<p>Text has been revised for clarity. Appendix C codifies current practice with regards to this topic. However, the third bullet has been clarified as follows:</p> <ul style="list-style-type: none"> • "if available, information about climatic parameters such as air masses, general airflow, pressure patterns, frontal systems, and temperature and humidity conditions, as compared against references (if the information is not provided, an explanation should be included); for example: <ul style="list-style-type: none"> • air masses • general airflow • pressure patterns • frontal systems • temperature and humidity conditions"

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128.	Bruce Power, NB Power, OPG, CNL	B.3.2.3, p. 72	<p>“Estimates of the rate(s) of erosion of shores or riverbanks on or near the site should be provided. ... for the average long term and also for the historical occurrence...”</p> <p>Although erosion is an obvious concern over the long term facility life, are measurements required for the application to prepare site, especially long-term average values and how they have changed with historic events, i.e., this information would likely not be available and would be considered a gap.</p> <p>Again on pg 73 B.3.3.1 3rd bullet “ for surface-water bodies and wetlands, estimated erosion characteristics and sediment transport, including rate, bed, and suspended load fractions and graduation analyses ...”. Is this required to prepare site? Is this required at all if there is no visual evidence of an issue? If required, how often is this to be measured?</p> <p>Suggested Change: This topic could be addressed and mitigation can be applied as needed during the life of the facility. During site selection, visual inspection of the sites would identify issues with erosion and if serious problem were evident the site would not be selected.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no significant benefit</p>	<p>No change. Appendices B through G codify current practice with regards to this topic. CNSC staff expect erosion to be considered in the site evaluation, and the scope and depth of the analysis to be commensurate with the potential challenges posed by erosion.</p>

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129.	Bruce Power, NB Power, OPG, CNL	B.3.3.2. p. 74, 4 th bullet	<p>Concern about information on “historical drought stages and discharges...” For many areas in Canada this information is likely not available.</p> <p>Suggested Change: Specify where this information is available, otherwise delete.</p> <p>Impact on Industry: This cannot be implemented if the information is not available.</p>	No change. Appendices B through G codify current practice with regards to this topic. CNSC staff expect the potential for drought and its impact to be assessed in the site evaluation.
130.	Bruce Power, NB Power, OPG, CNL	B.3.3.3, p. 74	<p>It is not clear whether all the information is needed and what level of detail is required for the application to prepare site. For example, bullet 7 “net loss, including evaporation and seepage” Evaporation could be estimated using equations but seepage would require considerable monitoring.</p> <p>Suggested Change: Clarify that knowing whether there is sufficient quantities of water available should suffice to meet requirements for the prepare site phase.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no significant benefit.</p>	No change. Appendices B through G codify current practice with regards to this topic. CNSC staff expect these factors to be assessed in the site evaluation.

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131.	Bruce Power, NB Power, OPG, CNL	B.3.4.2, p. 75	<p>Concern with statement on Water Quality Guidance</p> <p>“Water quality benchmarks from peer-reviewed scientific literature will be recognized only when no federal or provincial benchmarks exist”. There are many natural (unperturbed) waters in Canada that do not meet the water quality guidelines. Sound rationale or scientific justification should be permitted. As stated in the guidelines, they are for guidance only.</p> <p>Suggested Change: Delete or modify this statement.</p> <p>Impact on Industry: This may restrict the availability to select an excellent site.</p>	<p>Text has been revised as follows:</p> <p>“Baseline surface water quality data should initially be screened against recognized water quality guidelines, such as the <i>Canadian Environmental Quality Guidelines</i>*. Where federal or provincial standards or guidelines are not available, or where natural background documented in an appropriate baseline study demonstrates that the WQ standards/guidelines are not applicable, benchmarks from the peer-reviewed scientific literature may be used with appropriate rationale. Site-specific water quality objectives may be developed with the support of the scientific literature and the application of procedures for deriving numerical water quality objectives, as documented in CCME 2003.”</p> <p>* Reference: CCME 2003. Canadian Water Quality Guidelines for the Protection of Aquatic Life – Guidance on the site-specific application of water quality guidelines in Canada. Procedures for deriving numerical water quality objectives. Canadian Council of the Ministers of the Environment.</p>

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132.	Bruce Power, NB Power, OPG, CNL	B.3.4.3, p. 75	<p>Concern about Baseline sediment quality guidance requirement: "Without federal or provincial standards and guidelines, sediment quality benchmarks from peer-reviewed scientific literature should be used with appropriate rationale."</p> <p>The federal and provincial sediment quality guidelines were developed from data from the Great Lakes. Sediment quality data from other locations can be compared to these benchmarks, however, sediment quality from other areas cannot be expected to meet these benchmarks as many/most lakes and wetlands on the Canadian Shield including pristine lakes, do not meet these guidelines. Further, not all good pieces of work/data sets demonstrating this are in peer-reviewed literature. Sound rationale or scientific justification should be permitted.</p> <p>Suggested Change: Delete or modify this statement.</p> <p>Impact on Industry: This statement limits the construction of nuclear plant to the Great Lakes.</p>	<p>Text has been revised as follows:</p> <p>"Baseline sediment quality data should initially be screened against federal sediment quality guidelines, such as the <i>Canadian Environmental Quality Guidelines</i>*. Where an appropriate baseline study demonstrates that natural background exceeds the available standards or guidelines (or that none exist for the COPC of interest), sediment quality benchmarks from the peer-reviewed scientific literature should be used with appropriate rationale."</p> <p>Reference: CCME 2003.</p>
133.	Bruce Power, NB Power, OPG, CNL	B.3.5, p. 78	<p>Concern about lack of clarity about level of detail in terms of number of years of study This will consume unnecessary resources and time of the applicant.</p> <p>Suggested Change: This is nominally covered in the EA. EA requirements should not be duplicated in this document Instead focus on supplemental requirements.</p>	<p>No change. Appendix C codifies current practice with regards to this topic. CNSC staff expect these factors to be assessed in the site evaluation.</p> <p>Section 2 provides information supporting both an application for a Licence to Prepare Site and an EA under the <i>Nuclear Safety and Control Act</i> or the <i>Canadian Environmental Assessment Act, 2012</i>.</p>

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134.	Bruce Power, NB Power, OPG, CNL	B.3.5, p. 79, last para.	<p>“For commercially or recreationally valuable species ...the provincial, local conservation agencies or organizations that maintain harvest records of these species should be identified.”</p> <p>Is this necessary? For example, records kept by the Ontario Ministry of Natural Resources for harvest of game animals such as deer and moose are crude and are of little use for site preparation.</p> <p>Suggested Change: Remove expectation. This is nominally covered in the EA. EA requirements should not be duplicated in this document. Instead focus on supplemental requirements.</p>	<p>No change. Appendix C codifies current practice with regards to this topic. CNSC staff expect these factors to be assessed in the site evaluation.</p> <p>Section 2 provides information supporting both an application for a Licence to Prepare Site and an EA under the <i>Nuclear Safety and Control Act</i> or the <i>Canadian Environmental Assessment Act, 2012</i>.</p>

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135.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 79	<p>Concern about baseline aquatic flora, fauna and food chain data: “Characterization information shall address the site and surrounding region potentially affected by the project such as the following ... phytoplankton, zooplankton... “.</p> <p>It is not clear how a species list of algae species and zooplankton species and their relative abundance will be useful considering their population dynamics (highly variable). There is little use in biomonitoring.</p> <p>Suggested Change: Characterization of the algae and zooplankton communities should be removed.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no value added. This level of detail imposes requirements that cannot be met by industry. Characterization of the algae and zooplankton communities is time consuming, expensive, and generally not used for environmental monitoring. If specific issues develop over the course of operating a facility, specific studies can address the issue at that time as a licence condition.</p>	<p>No change. Appendices B through G codify current practice with regards to this topic. CNSC staff expect these factors, which are important in determining habitat quality, to be assessed in the site evaluation.</p>

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136.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 80, fish habitat mapping, 2 nd sub-bullet	<p>Concern with “this includes mapping of streams and ditches that contain fish for substrate type, cover and structure (run, riffle, pool) and stream channel morphology, according to published protocols ...”</p> <p>By definition drainage ditches are not designed to provide habitat for fishes. Fishes may colonize drainage ditches to a limited extent and ditches may become naturalized over time, however, eventually they need maintenance to prevent flooding and are dredged. No protocols developed for mapping fish habitat were developed to specifically address drainage ditches.</p> <p>Suggested Change: Drainage ditches should be deleted from this bullet.</p> <p>Impact on Industry: Unnecessary expense for applicant and is contrary to the design and purpose of the drainage ditch.</p>	Text has been revised to remove “ditches” from the second sub-bullet on page 80 as drainage ditches are not designed to provide habitat to fish.

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137.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 80, 5 th major bullet	<p>Question regarding: "For existing facilities on the same site, a description of the zone of influence of the existing thermal plumes (>1⁰C above ambient)".</p> <p>Why is 1⁰C above ambient used as opposed to a minimum temperature above ambient where effects may appear? i.e., no effect would be seen with a 1⁰C increase in temperature. Comment also applies to pg 108 requirement.</p> <p>Suggested Change: The zone of influence should be based on the area of expected impact, e.g., for round whitefish, a sensitive species, this would be >3⁰C above ambient, a much smaller area of influence than for >1⁰C increase. This is nominally covered in the EA. EA requirements should not be duplicated in this document Instead focus on supplemental requirements.</p> <p>Impact on Industry: This affects social licence. 1⁰C will show much larger potential affect area than in reality would be affected.</p>	Text has been revised by removing "(>1 ⁰ C above ambient)" from this bullet, given that the zone of influence should be based on site-specific information.
138.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 80, fish habitat mapping, 5 th sub-bullet	<p>Concern with "spring freshet effects on biota and habitat quality in site streams..."</p> <p>Spring freshets are natural phenomena as a result of snow melt that aquatic organisms normally have to contend with whether there is a facility there or not. Why is this a requirement?</p> <p>Suggested Change: Remove requirements.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no significant benefit.</p>	<p>Text has been revised by removing this specific reference to spring freshets and replacing it by the following text:</p> <p style="padding-left: 40px;">"hydrological characteristics associated with any identified critical fish habitat (see Appendix C)" [note: was B3.3].</p> <p>Appendices B through G codify current practice with regards to this topic. CNSC staff expect these factors to be assessed in the site evaluation.</p>

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139.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 81 2 nd bullet	<p>Concern with “baseline characterization field study of site reference ditches that provide habitat for aquatic biota ...”</p> <p>The use of reference ditches off-site, not under the licensee’s control, is of limited use. For example, agricultural ditches maybe contaminated with pesticides and those along roadway by metals, road salts and petro-contaminants. Both can be dredged at any time destroying their use as a reference ditch.</p> <p>Suggested Change: This bullet should be deleted. Alternatively specify how many reference ditches the licensee should construct for comparison with their drainage ditch and how these ditches can be kept from being exposed from on-site potential contaminants.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no significant benefit</p>	Text has been revised to change the reference from “ditches” to “areas”.

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140.	Bruce Power, NB Power, OPG, CNL	B.3.6.1, p. 81, last main bullet	<p>“A total aquatic species inventory list based on field studies for the site and local study area and available published information for the regional study area.”</p> <p>It is not clear how this information is ever used, although often a requirement. The statement “a total aquatic species inventory” implies a total inventory, i.e., protozoa, nematodes, aquatic bacteria, fungi, algae, etc.</p> <p>Suggested Change: If this needs to remain a requirement, change statement to request an aquatic species list of fish, benthic invertebrates and major macrophyte species, based on species collected in field studies on the site and local area and those species expected to be found in the area based on regional studies with some indication on their relative abundance and the presence of protected species.</p> <p>This should be limited to the requirements identified in the EA. EA requirements should not be duplicated in this document.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant with no significant benefit. This requirement is unrealistic.</p>	<p>Text has been revised as follows:</p> <p>“This includes the list of fish, benthic invertebrates and major macrophyte species, based on species collected in field studies on the site and local area and those species expected to be found in the area based on regional studies with some indication on their relative abundance and the presence of protected species.”</p> <p>Appendices B through G codify current practice with regards to this topic. CNSC staff expect these factors to be assessed in the site evaluation.</p> <p>Per section 2, Appendices B through G provide detailed information supporting both an application for a Licence to Prepare Site and an EA under the <i>Nuclear Safety and Control Act</i> or the <i>Canadian Environmental Assessment Act, 2012</i>. However, CNSC staff agree with the suggested change to remove “total” and add the suggested text.</p>

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141.	Bruce Power, NB Power, OPG, CNL	B.3.8, p. 84	<p>"Baseline land-use information that includes future changes in land use is used to predict the effects on the proposed site operations, and of the site operations on the environment."</p> <p>Additional information is requested on what level of prognostication is expected from licensees regarding "future land use".</p>	<p>Text has been revised as follows:</p> <p>"Baseline land-use information that includes future changes in land use is used to predict the effects on the proposed site operations, and of the site operations on the environment. In addition, future changes in land use shall be taken into account in the assessment."</p> <p>Considerations of future land use should include expected or credible changes to the current land use, using the list of "characterization information" provided in the guidance section. For example, possible future municipal development on adjacent property, based on the uses permitted in the official plan. This information is site-specific, but the guidance provides a list of considerations.</p>
142.	CELA, Greenpeace	B.3.8, p. 84	<p>The document notes that baseline land-use information should include future changes in land use to predict effects on proposed site operations and as a factor in determining the suitability of the site and appropriate size of the site's proposed exclusion zone.</p> <p>Recommendation: See submission earlier in this document: a condition of licensing should be the adequate control of future land use in both exclusion and protective zones.</p>	<p>Text has been revised to address earlier comments regarding exclusion and emergency planning zones. Also see response to comment 141.</p>

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143.	CELA, Greenpeace	B.5.1.1, p.93	<p>The document states that a decision by the Commission may be made with design information from a range of reactor designs without specifying the technology to be constructed. This should be altered to require specification of the technology to be constructed since site evaluation is affected in myriad ways by the technology choice across a number of factors and hazards.</p> <p>Recommendation: Remove all statements that the technology need not be specified for the application to prepare a site. Remove references to “bounding” design parameters. Require the applicant to specify the technology to be constructed, and to prepare the application and gather information for the application based on that specified technology.</p>	<p>No change to the document. The bounding approach, as described in the REGDOC, will remain. Applicants must demonstrate, in the construction licence application (or any other subsequent application), that the bounding approach and limits established in the EA and Site Preparation phase are met.</p>

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144.	CELA, Greenpeace	B.5.1.3, p. 94	<p>The document specifies information required to support site evaluation around the assessment of accidents and malfunctions. The requirements should be mandatory. The description of accidents must include planning basis accidents akin to the releases that occurred at Chernobyl and Fukushima.</p> <p>Recommendation: The requirements for evaluation of accidents and malfunctions should be mandatory. The description of accidents must include planning basis accidents akin to the releases that occurred at Chernobyl and Fukushima.</p>	<p>No change. REGDOC-1.1.1 updates RD-346 by incorporating lessons learned from the Fukushima nuclear event. The updates were made to address findings from INFO-0824, <i>CNSC Fukushima Task Force Report</i>, and the subsequently issued action plans as applicable to RD-346. The changes focused on the need for robust characterization of the site to include:</p> <ul style="list-style-type: none"> • consideration of events to include multiple and simultaneous severe external events that could exceed the design basis • multiple and simultaneous reactor accidents <p>The requirements and guidance for the planning basis are documented in section 2.1 of REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>, version 2. See also responses to comments 17 and 98.</p>
145.	Bruce Power, NB Power, OPG, CNL	B.6.1, p. 102, effects of project on air quality, 5 th major bullet, 1 st sub-bullet	<p>Concern with “description of cumulative effect of emissions from the facility..., including: representative background concentrations in the worst-case air quality assessment”. It is not clear what is being said here.</p> <p>Suggested Change: This is nominally covered in the EA. EA requirements should not be duplicated in this document Instead focus on supplemental requirements</p>	<p>Text has been revised. The two sub-bullets did not add clarity and have been removed. The fifth major bullet has been left as it is.</p>

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146.	Bruce Power, NB Power, OPG, CNL	B.6.2, p. 103	<p>“Sufficient data should be provided for the assessment of anticipated impacts during... Effects description should include direct exposure effects (e.g., on survival, growth, reproduction, age, species distribution of community) and indirect effects (e.g., altered predators, prey, competition, exposure via the food chain).”</p> <p>This statement infers an intense evaluation in the environmental effect monitoring program rather than an ERA analysis. Sampling to assess potential effects will likely have a major impact on biota. This is nominally covered in the EA. EA requirements should not be duplicated in this document. Instead focus on supplemental requirements.</p> <p>Suggested Change: This requirement needs further consideration if the goal is to minimize environmental effects to biota.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant. This can have potential major environmental impacts through excessive sampling.</p>	<p>Text has been revised as follows:</p> <p>“Sufficient data should be provided for the assessment of anticipated effects during... Effect descriptions should include direct and indirect effects that could be used for the environmental effects monitoring and risk assessment purposes.”</p>

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147.	Bruce Power, NB Power, OPG, CNL	B.6.3, p. 104, Guidance	<p>Concern with: "The typical, natural variation in radioactivity and hazardous substances concentrations at reference sites should be determined through the implementation of statistical design into the baseline studies." Natural variation is frequently so high that a statistic design is not practical, i.e., too many samples are required to gain a reasonable measure of certainty.</p> <p>Suggested Change: This statement requires a caveat stating where it is statistically feasible.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant. This can have potential major environmental impact through sampling.</p>	<p>Text has been revised as follows:</p> <p>"The typical variation in concentrations of nuclear and hazardous substances at reference site(s) should clearly demonstrate no anthropogenic point source influences. The reference site(s) should closely match the site of interest with respect to the geological, hydrological, meteorological, climate, human and environmental settings (e.g., as described in CSA 288.6-12)."</p>
148.	Bruce Power, NB Power, OPG, CNL	B.6.4, p. 105	<p>Concern with statement: "Well prepared effects predictions: last bullet "specific predicted effects as the difference in attribute(s) between a future condition without the project, and a future with the project."</p> <p>Unless applied to all assessments of projects in Canada that require an approval (by regulators other than the CNSC) this produces an unfair disadvantage on nuclear energy. Production of energy by nuclear power has little direct effect on the environment, but production of energy allows for population growth and industrial growth that have a direct effect on the environment.</p> <p>Suggested Change: This requirement should be deleted.</p>	<p>Edited text to remove "well-prepared". This statement indicates that nuclear power has little direct effects on the environment and allows for population and industrial growth. However, nuclear power can cause fish impingement and entrainment, to the point where a Fisheries Act Authorization needs to be obtained from the Minister of Fisheries and Oceans (DFO). Predictions of fish impingement and entrainment require well-prepared effects predictions to determine offset measures. Therefore, this requirement will be kept.</p>

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149.	Bruce Power, NB Power, OPG, CNL	B.6.4, p. 105, last bullet	<p>Concern with statement: “defensible arguments for or against using the benthic invertebrate community as indicator of loss of fish habitat, since this is a food base for many fish species.” Benthic invertebrates are excellent indicators of environmental quality, are food for fish and a pathway for movement of contaminants from water and sediment to higher trophic levels. Justification as an indicator of loss of fish habitat is not required, it is a given.</p> <p>Suggested Change: Delete this bullet. Benthic invertebrates are excellent indicators of environmental quality, are food for fish and a pathway for movement of contaminants from water and sediment to higher trophic levels. Justification as an indicator of loss of fish habitat is not required, it is a given.</p>	<p>No change. CNSC staff agree that benthic invertebrate are excellent and well-accepted indicators of habitat quality, and expect benthic communities to be used for monitoring. Otherwise, a clear justification for not using this common monitoring element is required.</p>

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150.	Bruce Power, NB Power, OPG, CNL	B.6.4.4, p. 109, thermal plume effects, 1 st bullet	<p>Concern with statement: “direct consequences to the ecosystem (process, structure, function) aquatic invertebrates (bacteria, protozoans, viruses, zooplankton, benthic and other macroinvertebrates) phytoplankton, rooted aquatic plants and fish, and indirect effects (via food chain) to aquatic birds and mammals.” If this is to be demonstrated by sampling and analysis, the environmental effects placed on the environment by the regulator may be greater than that from the project. This requirement is cost inhibitory and appears to take a very strong anti-nuclear position.</p> <p>Suggested Change: Demonstration of effects or no effects to all taxa is an extreme requirement. Suggest modifying to potential thermal effects only to fishes.</p> <p>Impact on Industry: This will consume unnecessary resources and time of the applicant. This may have a negative impact on social licence. Excess sampling can have a negative environmental impact.</p>	<p>Text has been revised. The first bullet now states: “direct consequences to the ecosystem (process, structure, function), fish and fish habitat, other aquatic VCs, and indirect effects (via food chain) to aquatic birds and mammals”</p> <p>CNSC staff agree that listing examples of various aquatic invertebrates, phytoplankton, rooted aquatic plants and fish gives the impression that all of these biological receptors are required to be monitored and assessed in the field. The intent was to provide a list of biological receptors that could potentially be impacted by thermal effects and that should be considered in an assessment of potential impacts.</p>
151.	Bruce Power, NB Power, OPG, CNL	B.6.7.3, p. 114	<p>Concern with statement: “Chronic exposures that are less than a biota effective dose screening criterion of 10 µGy/h require minimal interpretation or discussion.”</p> <p>Suggested Change: Does the CNSC have a simpler criteria for the human dose rate for which minimal interpretation or discussion is required. If so, please state here.</p>	<p>No change. This section refers to non-human biota dose assessment.</p> <p>However, with respect to dose to humans, the <i>Radiation Protection Regulations</i> stipulate that the effective dose limit for members of the public is 1 mSv/year.</p>

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152.	Bruce Power, NB Power, OPG, CNL	Glossary, p 120	<p>The definitions on page 120: <i>-site preparation - the act of establishing basic infrastructure to support the future construction and operation of a facility regulated under the Nuclear Safety and Control Act.</i> <i>- site evaluation - the processes and methodologies to determine whether the characteristics of the site and the surrounding region are appropriate for the construction, operation and future decommissioning of a facility regulated under the NSCA.</i> Appear to be misaligned with the descriptions in the text of the document, for example, the document describes a process way beyond "basic infrastructure".</p> <p>Suggested Change: Update definitions.</p>	<p>The glossary in REGDOC-1.1.1 has been replaced with a cross-reference to REGDOC-3.6, <i>Glossary of CNSC Terminology</i>, and these particular definitions will be added to an upcoming revision of REGDOC-3.6. CNSC staff do not anticipate any major changes to the definitions for these terms. Text has been added to the document to clarify the application of the site evaluation and site preparation to the lifecycle of the nuclear facility.</p>

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Table C: Feedback on comments for Draft REGDOC-1.1.1, Licence to Prepare Site and Site Evaluation for New Reactor Facilities

	Reviewer	Section or Para. #	Reviewer's Comment and Proposed Change	Response
A	CELA, Greenpeace		<p>Thank you for the opportunity to provide comments on the comments submitted to the CNSC in relation to the above noted RegDoc 1.1.1, Licence to Prepare Site and Site Evaluation for New Reactor Facilities. This submission will focus on the comments from Bruce Power to respond to the comments from industry, since several of the comments from nuclear power plant operators mirror each other, as well as on the topic of small modular reactors.</p> <p>Response to the Bruce Power Comments These are high level comments in response to the submissions from industry. Page numbers refer to the Bruce Power submission pdf numbers as posted (for example "page 5" in this submission refers to page 5/37 of the pdf document.</p>	Thank you.
B	CELA, Greenpeace	Page 5 (of BP's comments)	<p>General. The assessment of the suitability of a site for a new nuclear power reactor is an important and distinct decision stage which requires thorough review of the potential impacts of operations and accidents on the surrounding environment and population. We repeat our comment regarding section 4.7 of the draft document; 2</p> <p>Recommendation: The CNSC must apply its jurisdiction and expert judgment to the question of the suitability of a site in relation to the specific technology. The proponent should be required to specify specific technology when applying for a licence to prepare a site.</p>	No change. The bounding approach remains as described in the REGDOC. Any design selected for site preparation, construction and operation must meet the claims made in the EA, and meet all applicable regulatory requirements throughout the lifecycle of the facility.

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	Reviewer	Section or Para. #	Reviewer's Comment and Proposed Change	Response
C	CELA, Greenpeace	Page 6	There should be no relaxing of requirements for assessment of the suitability of a site due to size of the reactor. Furthermore if the industry stated logic about size of the reactor applies, then larger reactors should have even more onerous requirements.	No change. The requirements are not relaxed. Applications are assessed on a case-by-case basis. Applicants may apply a risk-informed approach in demonstrating that requirements are met.
D	CELA, Greenpeace	Page 7	We would agree in general that vagueness of language is a problem. Each jurisdiction must fully meet its own review requirements; "redundancy" is not an issue for key safety decisions (see Walkerton Inquiry). Rather than consider prescription of requirements to be problematic, Canada should adopt more of the USNRC prescriptive requirements style in Canadian licensing standards.	No change. See response to comment C. The CNSC will continue to apply a non-prescriptive approach.
E	CELA, Greenpeace	Page 8	The site will have to remain suitable for all subsequent licensing phases; therefore sufficient information is necessary to evaluate the likelihood that this will be the case. This is an issue that should be able to be determined with a high degree of certainty given the significance of this issue to the surrounding population. This is why detailed design info is needed - because such events and their implications for the site context is essential in determining whether the site is suitable.	No change. See response to comment B, above.
F	CELA, Greenpeace	Page 9	To repeat, the site must remain suitable for the whole life cycle so this information should be retained and listed.	No change. See response to comment E, above.

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G	CELA, Greenpeace	Page 12	The licence to prepare a site should be required to be obtained first so that site suitability can be considered before any other licences are pursued (or at least in conjunction with them).	No change. Under the NSCA and the regulations made under it, the following activities may be licensed: <ul style="list-style-type: none"> •site preparation for the purpose of construction or operating a reactor facility; •construction of a reactor facility •operation of a reactor facility Licenses can be combined, and permit the combination of site preparation, construction and operation, All regulations pertaining to the activity proposed in the licence application will have to be addressed.
H	CELA, Greenpeace	Page 13	The section is appropriate as proposed as it reinforces the necessity at the stage of application to prepare a site for the regulator to consider the likely suitability of the site for all subsequent phases and licensing stages in the whole lifecycle of the facility. The continued suitability of the site throughout the life cycle of the nuclear reactor very much does need to be stated. There is currently no mechanism to re-evaluate site suitability during the operations phase and subsequent phases in licensing. However this should become an explicit requirement of every stage of licensing with criteria, and with potential rectification if the site becomes unsuitable according to the criteria, up to and including the potential for revocation of license to operate and orders relative to decommissioning.	No change. Site evaluation information is also to be carried through to subsequent facility lifecycle phases, including the licence to operate. In addition, in accordance with CSA Group Standard N288.6, <i>Environmental risk assessments at Class I nuclear facilities and uranium mines and mills</i> , the site evaluation information is periodically re-evaluated. The re-evaluation should focus on confirmation of the site characteristics (in particular external events), and assessing the effects of the updated information. Design modifications, updates to operations, or both, may be needed.
I	CELA, Greenpeace	Page 14	The expected radioactive materials uses on the site during the license period should be specified and limited.	No change. The use of nuclear substances during site preparation activities is governed by the NSCA and the regulations made under it.

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J	CELA, Greenpeace	Page 16	Demonstration of the adequacy of the dispersion model is an important requirement to retain. It is important to demonstrate to the adequacy of the exclusion boundary. Such determinations should be transparent to the public.	No change to text. Agree that demonstration of the adequacy of the dispersion model is important. This information is part of the safety case.
K	CELA, Greenpeace	Page 18	A description of the steps that will be taken throughout the lifecycle to protect environment and public should be included as relevant to the decision as to whether the site is suitable for a nuclear reactor.	See comment H above.
L	CELA, Greenpeace	Page 21	Environmental assessment requires comparison of alternatives including alternative sites. Specification of "reactor facility events, including beyond-design-basis events and severe accidents" is highly relevant to evaluating the suitability of the site.	No change to text. Agree that this information is needed to support environmental assessments, and helps to explain why the specific site has been chosen for the construction and operation of the reactor facility.
M	CELA, Greenpeace	Page 22	"Cliff edge effects" from external events are critical considerations relevant to the suitability of the site for nuclear power. As submitted in our original comments, we agree that criteria should be added.	No change to text. As part of the Fukushima action plan, licensees assessed cliff-edge effects regarding external events, and implemented design (and / or operational) measures as necessary. Therefore, it is CNSC's expectation that industry already has a methodology for assessing cliff-edge effects in place.
N	CELA, Greenpeace	Page 23	Ability of the surrounding municipalities and first responders to respond to large nuclear accidents is a key factor in terms of site suitability for a nuclear reactor.	No change to text. Agree that CNSC expects agreements to be in place in a timely manner.
O	CELA, Greenpeace	Page 29	Thorough evaluation of potential impacts on water bodies from thermal impacts, impacts on biota, impacts of emissions, impacts of accidents, are all essential aspects of assessment of suitability of site for nuclear reactor.	No change to text. Agree that appendix B codifies current practice with regards to these topics. CNSC expects that these factors would be assessed.

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P	CELA, Greenpeace	SMRs	<p>A common theme from industry commentators is that the proposed guidance is unduly strict for theoretical Small Reactor (SMR) designs. Industry comments to this effect should be viewed with skepticism.</p> <p>Industry recommends a graded approach based to enable the construction of SMRs, which they allege are less hazardous than operating reactors. There are two problems with industry's arguments in relation to the proposed RegDoc 1.1.1. Firstly, SMRs are theoretical designs, with the majority of designs only 5 to 10 % complete. Internal CNSC documents also acknowledge that the source term from SMRs could still be equivalent to existing designs. There are still significant risks to the environment and the public.</p> <p>What's more, the high-level waste produced by SMRs was not included in the Nuclear Waste Management Organization's (NWMO) public consultation on waste management methods between 2002 and 2005. While current reactor operators have relied on the argument at the siting stage that waste will be dealt with by the NWMO, SMR developers will not be able to credibly rely on similar arguments. Site preparation studies will need to be much more thorough to assess the possibility that high-level waste remains at the site in the long-term. In our view, siting guidance should require a proponent to outline a non-theoretical waste management and decommissioning plan at the outset. This</p>	<p>No change to text. Agree that any claims made by a SMR vendor or applicant must be supported by suitable evidence.</p> <p>Waste management aspects for SMRs was discussed in the SMR Discussion Paper DIS-16-04: <i>Small Modular Reactors: Regulatory Strategy, Approaches and Challenges</i>. Any application for an SMR must comprehensively address waste management.</p> <p>REGDOC-1.1.1 requires applicants to address multi-unit common-cause accidents.</p>

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			<p>requires heightened siting requirements for SMRs.</p> <p>Finally, while industry is today arguing for reduced siting requirements for SMRs they argued against imposing site-wide risks limits for new reactors during the development of RD-346 and 337 in the 2000s. At the time, they said such requirements would put multi-unit sites at a disadvantage (even though the hazard is higher). As we noted in our submission, the proposed siting requirements continue the industry's preferred practice of ignoring the risk of multi-unit, common cause accidents, when assessing site acceptability. To be logically consistent, requiring a graded approach for SMRs would by extension require increased rigour for multi-unit stations.</p>	