

Draft RD/GD-369 Licence Application Guide, Licence to Construct a Nuclear Power Plant

Comments received from public consultation

First consultation: August 23 – September 17, 2010;

Second consultation September 30 - October 29, 2010

	Organization	Section	Comment	CNSC Response
1.	OPG -cover letter	General	<p>The Attachment [comments table] provides the detailed list of comments. Although several suggestions for clarification are provided, OPG has the following main observations:</p> <p><u>Process Issues</u></p> <p>OPG welcomes the efforts to improve regulatory efficiency in the transition to the operating phase, and move closer to international practices. OPG notes that the information requested, beyond that which is required by the Regulations for an Application for Licence to Construct is consistent with that requested by other jurisdictions, such as the United States Nuclear Regulatory Commission. However, these international practices are based on the pre-application acceptance of the generic design following a detailed review. The Canadian regulatory framework does not include this step, essential to successful implementation of this concept. To achieve the regulatory efficiencies sought, the guideline needs to contain process modifications; otherwise the regulatory review and approval will become critical path for the project. OPG strongly recommends the guidance document be revised to incorporate a staged review and approval process that includes the following.</p> <ul style="list-style-type: none"> • Provision for early approval by the Commission of the design elements necessary to support early procurement of long lead items. As currently structured, the process would require the Applicant to wait for 30 months after submission before any procurement could proceed (after Commission issuance of a Construction Licence), as this is the first confirmation that the design is acceptable. Based on industry experience, some long lead items such as steam generators, reactor vessel, and major heat transport components and piping, must be ordered approximately 4 to 5 years prior to installation. Installation would typically occur about two years after construction commences. The Applicant cannot reasonably be in a position to wait for 30 months to initiate the procurement and fabrication of these long lead items. In addition to the effect on the construction schedule, the delay will require a partial de-mobilization of the several hundred staff (applicant, vendor and contractor) expected to be in place. The Guideline should provide guidance on the information required on initial submission to achieve an early approval supportive of procurement. • In addition, the process should provide for an earlier acceptance of the overall design by the Commission. OPG notes that the material requested in Chapters 1 through 7 generally would provide 	<p>Resolution of process issues is beyond the scope of RD/GD-369. However, we note that the need of the applicant to obtain the maximum degree of regulatory certainty prior to placing orders for long-lead components is only resolvable by presenting substantially complete design information at an early stage. This should be discussed with the CNSC early on in the licensing process. Further information on a staged approach is provided at the end of this section of the response.</p> <p>Importance of Complete Design and Analysis Information</p> <p>Many problems with delays in licensing and construction of NPPs in Canada and worldwide can be traced to incomplete design information and inadequate commissioning information at the time of application for construction. Greater regulatory certainty will come from the submission of a complete set of information. For example, see the conclusions of <i>Nuclear Lessons Learned</i>, Royal Academy of Engineering, London, October 2010, ISBN 1-903496-60-8, related to Legislation, Regulation and Planning Consents:</p> <ul style="list-style-type: none"> • <i>New stations should be based on the application of proven technology and established design. This must be complemented by a high level of design completion in advance of construction, and the licensing basis for the plant must be secure before commitment to construct.</i> • <i>There must be a rigorous, efficient and auditable design change process in place, indeed this is a requirement of the nuclear site licence, and a culture established that recognises that even seemingly small changes can have unexpected implications and therefore require formal review.</i> • <i>It is essential to establish a program and a process for resolution of licensing issues throughout the build program that is agreed with the regulator and administered to ensure, as far as possible, that such issues are resolved before they approach the construction program critical path.</i> • <i>Comprehensive, early and open engagement with the local community in a structured and formally managed way; ‘a good neighbour policy’; pays dividends in terms of local support and cooperation.</i>

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			<p>sufficient material to provide for this. The development of the material requested in the subsequent Chapters is highly dependent on an acceptable design. A staged submission would prevent substantive rework should the review or Commission approval process result in a need to make improvements to the design. This would also facilitate an efficient regulatory review, as OPG anticipates that much of this material realistically could not be reviewed at the start of the technical review process, without assurance of an acceptable design. This approach would allow the Applicant to schedule submissions appropriately to ensure the technical review schedule can be achieved. OPG believes the above process changes can be accomplished within the overall timeline for review and issuance of the Construction Licence as described in CNSC INFO-0756 (revision 1) "Licensing Process for New Nuclear Power Plants in Canada". However, the guideline should provide clarity on the timeline and details of the specific information required to achieve the Commission approvals required for efficient project management.</p>	<p>Pre-project Vendor Design Reviews While CNSC does not currently certify designs, it has performed pre-project vendor design reviews which help to increase regulatory certainty. To date, these reviews have been limited to a fixed number of safety topics designed to provide the vendor with early feedback on how well the design meets Canadian requirements particularly in the use of new or novel designs or approaches. The review also offers the vendor early feedback where there may be potential fundamental barriers to licensing such that the vendor can initiate corrective action early. Within the review process, the vendor is able to discuss resolution paths for any issues before a proponent applies for a licence to construct or licence to operate a nuclear power plant and small reactor (if the issue is an operational issue). By being aware of resolution paths, both the vendor and the applicant can have reasonable confidence that the issue can be resolved in a reasonable timeframe so as not to cause licensing delays.</p> <p>Process Issues The arguments for a staged approach are noted.</p> <p>RD/GD-369 specifically identifies areas (particularly regarding commissioning) where outline information is expected.</p> <p>The design should be substantially complete upon submission of the application for the Licence to Construct in order to provide the applicant with a reasonable measure of certainty that there will not be major obstacles to achieving a Licence to Operate. However, staged <u>submissions</u> related to design and safety analysis may be accepted provided that an administrative tool, such as a protocol, is established between the applicant and the CNSC to establish timelines and deliverables. This would allow discussions early on in the licensing process with regards to long-lead items.</p> <p>The CNSC recognises the importance of these process issues; however, they are beyond the scope of RD/GD-369.</p>
2.	OPG, cover letter	General	<p><u>Organization and Duplication of Material</u> In many cases, the same information is requested for multiple chapters. Given the substantial number of documents anticipated to be filed for each chapter as part of this Application, it will be very challenging to organize and review the information, even if the duplicate information is addressed by cross-referencing. In addition, as material is updated as a result of the review process, it will be difficult to maintain consistency in the Application. OPG strongly urges that material only</p>	<p>A certain amount of redundancy is inevitable. The applicant is encouraged to cross reference other sections. A sentence has been added to the Introduction. "There is some redundancy of information requested in the various sections of this document. The applicant is encouraged to make cross reference to detailed information in other sections as appropriate."</p> <p>Note that the applicant may reference information already</p>

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			be requested in one chapter, rather than across multiple chapters. For example, design information is requested in several different chapters, in addition to the chapter on system design.	submitted in the Environmental Impact Statement and the Licence to Prepare Site submissions.
3.	OPG, cover letter	General	<u>Terminology – Requirement for “Justification”</u> In many cases, the Guideline requests the Applicant provide “justification”. It is not clear what this means, or how adequacy of a justification would be assessed. OPG recommends this be replaced with “provide supporting information”, consistent with established Canadian licensing practices.	No change. The term is used fairly widely in CNSC regulatory documents and appears to be well understood. The applicant should state the design provisions and provide arguments and evidence that they are adequate.
4.	OPG cover letter	General	As noted above, a staged approval process to all for both Commission approval to allow procurement of long lead items, and Commission approval of the design to allow development of detailed operating information is essential. Although CNSC staff have implemented a Pre-Project Design Review process, this is intended only to provide assurance that there is a path forward to resolve design issues. This is not equivalent to a certified design, nor is it intended to be. The reports produced by staff are not available to the Applicant, nor is there a final determination of design acceptability by the Commission. Without formal approval of the design, the Applicant cannot reasonably proceed with procurement, or the development of detailed operating processes and training material without a high risk of rework. OPG welcomes the efforts to introduce regulatory efficiencies in transitioning to the operating licence phase. However, the process for the submission and review and approval of the Construction Licence material itself must be reconsidered to ensure these efficiencies are realized, and that unreasonable and costly delays to the project due to regulatory process do not occur. In addition, given the large volume of material involved in the submissions, an approach to allow electronic submissions should be addressed in the documents.	The CNSC notes the need of the applicant to obtain the maximum degree of regulatory certainty prior to placing orders for long-lead components. This is only resolvable by presenting substantially complete design information at an early stage. This should be discussed with the CNSC early in the licensing process. See also the response to comment 1 on the importance of complete design information at the time of application. Regulatory certainty is a shared responsibility. The CNSC is committed to ensuring it can provide appropriate and quality reviews and offer them in a process which demonstrates the most expedited route available to the applicant. The goal of this process is to then allow the applicant to plan its commercial path with the assurance of what timelines the CNSC is capable of meeting. This is the aspect of regulatory certainty that is within the control of the CNSC. The remaining aspects of ensuring Regulatory certainty rest with the applicant and the quality of their submissions. The level of design information in a licensing situation is a commercial decision that rests with Applicant and is beyond the scope of this document. Sharing of CNSC staff pre-project design review reports with an applicant rests entirely with the vendor. As OPG has commented, the CNSC agrees that the preferred format for submissions to CNSC is electronic. It is however helpful in some instances, to receive parts of the submission as hardcopy, in limited copies. This can be discussed with the project team on a case by case basis. A sentence has been added to the introduction stating “Applicants are strongly encouraged to submit the documents electronically.”
5.	OPG	General	Throughout - modify the requests for information normally required for an operating licence application (as per CNSC Regulations), to clarify initial submission should be at a high level, with the detailed information provided at a later time. The information requests are in many instances related to the content prescribed for the application for the Licence to Operate. Development of detailed material requires an acceptable design. Provision in the	Comment noted. The strategy in RD/GD-369 is to introduce regulatory efficiencies in transitioning to the operating licence phase. In addition, clause 5(i) of the <i>Class 1 Nuclear Facilities Regulations</i> specifies that information pertaining to operation be submitted. The CNSC has interpreted this as the information needed in preparation for operation should be at a high level with the

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			document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	<p>detailed information provided at a later time. Specific comments related to the level of detail are addressed below.</p> <p>Many problems with delays in licensing and construction of NPPs in Canada and worldwide can be traced to incomplete design information and inadequate commissioning information at the time of application for construction. Greater regulatory certainty will come from the submission of a complete set of information. We recognize that some flexibility in the submission schedule is needed for some aspects of the project, in particular commissioning information. Note that incomplete information to support Phase A (prior to fuel load) commissioning may lead to delays in if there is insufficient time allowed for regulatory review.</p> <p>The applicant should make their views known to those working on mandated timelines. There is an expectation that the license application review would be complete in two years. Specific information to support facility construction, namely design, safety analysis and construction program, must be in the initial submission. A sufficient amount of information on commissioning and operational aspects, along with the schedule for future submissions needs to be provided. Taken together, these submissions will give confidence to the Commission and the public.</p>
6.	AECL	General	AECL recommends that GD-369 acknowledge that detailed data and/or procedures are often a series activity in the project that comes after the construction start. This means, in general terms, that the detailed data and design documentation and detailed procedures may not be available when the application for the Licence to Construct is submitted. However, the application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	<p>No change. See response to comment 1 on the importance of complete design information at the time of application.</p> <p>Generally, the level of detail requested for operational procedures is lower.</p> <p>Specific comments are addressed below.</p>
7.	AECL	General	<p>Since it is understood that all requirement sections of RD-337 are expected to be covered by the License applicant in the “Licence to construct application”, there should be a very CLEAR and COMPLETE mapping between both RD-337 and GD-369. The following are some examples of missing or incomplete mapping:</p> <ul style="list-style-type: none"> • Section 7.20 of RD-337 (Escape Routes and Means of Communication) is not referenced in GD-369; • Section 6.1 of RD-337 (Application of Defence in Depth) is not referenced in GD-369. However, it should be referenced in section 5.2.4 of GD-369 (Defence in Depth), which only references section 4.3.1 of RD-337; • • Section 5 (Safety management during design), and section 5.2 	<p>The scope of RD-337 is just for design. The scope of RD/GD-369 is much broader, covering the content of a safety case supporting an application to construct a nuclear power plant. The documents have significantly different structures so a simple mapping is not possible. Response to specific comments:</p> <ul style="list-style-type: none"> • No change. Escape routes are dealt with in building and fire codes expected to be used in sections 5.5 and 5.7 • Agree. Reference to section 6.1 of RD-337 added to text of section 5.2.4 of RD/GD-369. <p>• No change. Section 5 of RD-337 (Safety management in</p>

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			<p>(design management), and section 5.4 (Proven engineering practices) of RD-337 are clearly linked/referenced in GD-369. However, Chapter 5 (General Design Aspects and Support programs) in GD-369 requires evidence for topics in Section 5 of RD-337; and</p> <ul style="list-style-type: none"> Section 4.6 of GD-369 should also reference section 4.2.4 of RD-337, and not just 4.2.2. 	<p>design) is largely dealt with in section 3 (Management of safety) in RD/GD-369.</p> <ul style="list-style-type: none"> Agree. In section 4.6 of RD/GD-369, the reference to RD-337 now includes both 4.2.2 and 4.2.4.
8.	AECL	General	<p>The definition of what constitutes construction activities under a Licence to Construct versus under a Licence to Prepare Site is not well defined. For example, under paragraphs 4 and 5 of the Class I Nuclear Facility Regulations, there is a lack of clarity whether any part of concrete pour is considered to be a licensed activity under a Licence to Prepare Site (e.g., How far should the intake tunnel be drilled during Site Preparation?) or is only a licensed activity under a Licence to Construct.</p> <p>AECL recommends that guidance be provided under Section 1.1 to describe the CNSC's expectations for the transition in licensed activities from the Licence to Prepare Site to the Licence to Construct.</p>	<p>No change. Any preparatory work that is allowed before construction will have been described in the project description for the environmental impact statement and in the information submitted in support of the application for a licence to prepare site. The permitted activities are described under the licence to prepare site.</p>
9.	OPG	General	<p>In general the first 7 Chapters are required both from a CNSC perspective and an owner perspective. To understand the level of detail required to meet the requirements of Section 6.2, discussions between the Regulator and the Applicant should be conducted as early in the process as possible.</p> <p>For the required design completion of the systems important to safety, clarity is required as to which detailed elements of the design are required to assure that CNSC expectations are met; and, depending on the degree to which a system is safety related, the requirements for each system to meet these expectations (i.e., shutdown system versus a standby safety support system) should be provided. For auxiliary systems the level of detail required to be provided would be expected to be less.</p>	<p>See response to comment 1 on the importance of complete design information at the time of application. Specific comments are addressed below.</p>
10.	OPG	General	<p>For Chapters 8 to 16 the following general comment applies: Where detailed information is requested for the post construction license phase (i.e., operation and decommissioning phases and post fuel load), state that the processes or programs should be generally described and a schedule is to be provided as to when the detailed processes / programs will be developed.</p> <p>Development of detailed material requires an acceptable design. There should be provision in the document for staged Commission approvals, to allow for procurement, and the development of the operating information.</p>	<p>This has been done in applicable cases. Specific comments are addressed below.</p> <p>In most cases preliminary information is used to develop programs and this should be provided with the application. It is accepted that details will change and these changes will be addressed in the application for a licence to operate.</p>

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11.	OPG	General	The references to “justify” should be replaced with a requirement to provide supporting information. The application should be a description of the design, analysis, programs and processes not a position paper to debate the choices and rationale behind the choices.	To justify a design element the applicant should provide evidence that supports the design. Only in a few areas will choices be examined (where there are trade-offs between different requirements or ALARA). Supporting information is expected to include appropriate justification to support the design. Specific comments are addressed below.
12.	Candesco Corporation	General	This document provides very thorough guidance to the applicant regarding CNSC expectations and requirements for submissions in support of a New Build Nuclear Power Plant. In accordance with the thoroughness of the document, each section provides considerable detail and in some instances the detail is found to be beyond what would be required to meet the objectives of the Construction Licence application as defined in Appendix A of the draft guide. Examples are elaborated in some of the detailed comments provided in this table.	Specific comments are addressed below.
13.	Candesco Corporation	General	This document is based on IAEA Safety Guide GS-G-4.1, “Format and Content of the Safety Analysis Report for Nuclear Power Plants”. The IAEA guide includes the requirements for a Safety Analysis Report (SAR) for an operating facility. The information required for a construction licence application should be selected based on a risk-informed graded approach. Some of the sections of the draft guide seem to be missing the distinction between the level of detailed information required for the construction licence application and the operating licence application and it was found that many of the sections in the guideline document contain very specific and detailed requirements related to the Operations phase. It is therefore suggested that the guidelines be revised to better clarify where detailed information is required for the Application for Licence to Construct vs. where information may be provided at a high level for the Application for Licence to Construct and in detail for the Application for Licence to Operate. Examples include, but are not limited to: <ul style="list-style-type: none"> • p. 14, Section 5.2.8 (request for information on details of operating methods for restoring the unit to normal operating conditions in the event of a deviation) – suggest these details need only be provided for the Application to Construct if they are used in the safety analysis. • p. 21, Section 5.9.4 paragraph 3 - item related to requiring a separate study for each SSC • p. 27, Section 6.2.1, paragraph 2 and items 1 through 6, regarding detailed supporting technical information on design 	<p>p 14, Agree. This is adequately and more appropriately covered by 7.5.3 under Safety Analysis. Deleted “including the methods to be followed for restoring the unit to normal operating conditions”.</p> <p>p 21, Text is revised to ensure that appropriate information is asked for (opening paragraph only asks for “program and strategy”). See comment 95.</p> <p>p 27, No change. This doesn’t need be in the PSAR but should be available.</p>

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			<ul style="list-style-type: none"> • p. 36, Section 6.7.2, last paragraph, regarding details of safety related display instrumentation • p. 59, Section 8.4.2, paragraph 1, item 1: regarding the requirement to have commissioning procedures prepared for construction licence application. From a safety, licensing and schedule perspective, it is expected that it be acceptable to develop and submit the set of procedures sometime after the start of construction, as long as they are submitted at a reasonable time prior to commissioning. 	<p>p 36, Agree. Text changed to “The following specific information should also be provided (it is recognized that some information will be preliminary):”</p> <p>p 59, Comment noted.</p>
14.	Bruce Power	ALL	It is agreed that all subject areas are appropriate for the CLA submission; however the level of detail for each of these subject areas in the CLA must be commensurate with a reasonable schedule that factors in the design completion/procurement/construction phases of a new build project.	Dealt with under specific comments.
15.	Bruce Power	Preface/ General	<p>While following the format of the IAEA Safety Guide No. GS-G-4.1 , Format and Content of the Safety Analysis Report for Nuclear Power Plants, is one way to format the Construction Licence Application, Bruce Power believes that it puts too much emphasis on the Safety Analysis Report which is covered by one section [4(f)] of the Class I Nuclear Facilities Regulations. It also makes it difficult for the licensee to demonstrate compliance with certain sections of the regulations (i.e. Section 3(d) of the General Nuclear Safety and Control Regulations is covered in six different sections of RD-369). This could also cause problems for the public and interveners trying to review the application against regulatory requirements.</p> <p>It would seem more logical to list each section of the regulations then provide the guidance for meeting the CNSC expectations/requirements for each of the sections of the regulations.</p>	<p>No change to document structure.</p> <p>An application in accordance with RD/GD-369 has a number of uses. It is accepted that for some of the uses, the structure will not be ideal. However, overall, the structure based on IAEA Safety Guide GS-G-4.1 is a reasonable compromise. Appendix B provides mapping of the sections to the regulations.</p>
16.	Bruce Power	Preface/ General	The document is titled “Licence Application Guide: Licence to Construct a Nuclear Power Plant”, why in the preface is it being limited to water cooled reactors? Are the regulatory requirements set out not already technology neutral and therefore should be able to include other technologies such as gas or liquid metal cooled nuclear power plants?	No change. The design sections of RD/GD-369 refer extensively to RD-337. RD-337 has a scope limited to water cooled reactors, therefore RD/GD-369 must be similarly limited. However, much of the content would still apply to other technologies.
17.	Bruce Power	General	There are several sections of the guidance document that request information at a level that may be beyond what may be developed at the time of submission of an “Application for a Licence to Construct” (i.e. Commissioning Plans, Reliability Program, etc.), particularly for first of a kind builds.	This is addressed in individual comments below.

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18.	Bruce Power	General	There are several cases where the document requests quality assurance programs (i.e. 5.3 Classification of structures, systems and components, 5.4 pressure boundary, 5.2.6 Electromagnetic interference, etc) the quality assurance will be supplied already through 3.2 Management Systems, it seems redundant to repeat these requirements throughout the document.	A certain amount of redundancy is inevitable. The applicant is encouraged to cross reference other sections. A sentence has been added to the introduction. "There is some redundancy of information requested in the various sections of this document. The applicant is encouraged to make cross reference to detailed information in other sections as appropriate."
19.	OPG	Preface	Add a statement, upfront (e.g., in Preface), that in the event there is a discrepancy between the design and safety analysis expectations in this Guidance Document, GD-369, and the CNSC requirements stipulated in the relevant Regulatory Documents such as RD-337 and RD-310, the requirements in the CNSC Regulatory Documents shall take precedence over this Guidance Document. As described in Appendix A of the draft GD-369, the CNSC review objectives for an application to construct a nuclear power plant are focussed on three main aspects (objectives): the Design safety objective, Construction program objective, and the Qualifications objective. As noted by the CNSC, the Design safety objectives are met by satisfying the expectations in RD-337 and other relevant Regulatory Documents. As such, there should be no additional design and safety analysis requirements introduced in GD-369. However, GD-369 does elaborate on certain requirements for design and safety analysis, and there may be apparent inconsistencies with the Regulatory Documents – hence, the need for the proposed statement.	Comment noted, however no change to text. Staff does not believe there is any discrepancy. Guidance documents provide information only; the licensee/applicant is not obligated to follow the advice provided. Please see our Web site www.nuclearsafety.ca for details on the CNSC's regulatory framework.
20.	OPG	Preface, last paragraph	Revise the first sentence of the last paragraph to state that the operating licence application constitutes the facility reference safety case, rather than the combination of the construction licence application and operating licence application. Allow for referencing of documents previously provided in the preceding construction licence application. Each application should stand alone in addressing the different purposes of the licensing phases. As stated in the Preface, the information provided with the construction licence application constitutes the construction safety case. For the operational phase, the facility reference safety case should be based on the operating licence application, which may update and/or make reference to information provided with the construction licence application.	Agree. Text is changed to "The information that will be required at the time of the operating licence application will be added to this construction safety case. The operating licence application needs to update or make reference to documents previously provided in the preceding construction licence application. It will constitute the facility reference safety case. The reference safety case is then kept up to date over the facility's lifetime to reflect its current state and condition."
21.	AECL	Preface	Why is the applicability of this document limited to a water-cooled nuclear power plant? The Class I Nuclear Facility Regulations do not make any technology-specific distinctions for Class 1A nuclear facilities. Even if this guide is to be limited to water-cooled reactor technology, why is the guide limited to nuclear power plants? While the format of IAEA Safety Guide is appropriate for the Preliminary Safety Analysis Report, the contents of this guide content more topics than are typically included in Preliminary Safety Analysis Reports.	No change to application. The design sections of RD/GD-369 refer extensively to RD-337. RD-337 applies to water cooled nuclear power plants; therefore RD/GD-369 must be similarly limited. However, much of the content would still apply to other technologies or for non-power reactors. See response to comment 16. No change to scope. Appendix B of RD/GD-369 provides a mapping to the applicable CNSC Regulations. This shows why the scope needed to be enlarged from that of IAEA GS-G-4.1 to include all the information that should be submitted with an

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			<p>Since this guide should provide guidance to the applicants on addressing the requirements in the Nuclear Safety and Control Act and associated regulations, it would be more beneficial to organize the guide in accordance with the applicable paragraphs in the Nuclear Safety and Control Act and associated regulations, for example: - paragraph 24(4) of the Nuclear Safety and Control Act, - paragraph 3 of the General Nuclear Safety and Control Regulations, and - paragraphs 3 and 5 of the Class I Nuclear Facility Regulations.</p> <p>The Preface should also provide some statement about the relationship between the application for the Licence to Prepare Site, the environmental assessment, Licence to Prepare Site and the application for the Licence to Construct. This relationship should be identified in a manner similar to the relationship between the applications for the construct licence and the operating licence.</p>	<p>application to construct a nuclear power plant.</p> <p>No change to document structure. An application in accordance RD/GD-369 has a number of uses. It is accepted that for some of the uses, the structure will not be ideal. However, overall, the structure based on IAEA Safety Guide GS-G-4.1 is a reasonable compromise. Appendix B provides mapping of the sections to the regulations. See response to comment 15.</p> <p>No change. A description of the overall process for licensing a new nuclear power plant is beyond the scope of RD/GD-369. The process is covered in CNSC publication INFO-0756 Rev 1, <i>Licensing Process for New Nuclear Power Plants in Canada</i>. This shows the relationships between the stages of licensing.</p>
22.	OPG	1.0	<p>Indicate the limitation on the activities to be approved under a Licence to Construct.</p> <p>For clarity, provide additional explanation as to how the application for the licence to construct is also now required to contain information that the Regulations indicate is anticipated in the application for the licence to operate, and why such information has been determined to be necessary in advance of the commencement of construction, given that no staged approval process has been described, or confirm that such information is at the discretion of the applicant. Clarify the timing of submission to allow for staged approvals.</p> <p>Based on the Class I Nuclear Facilities Regulations, it is understood that activities involving the commissioning of the nuclear facility such as, initial receipt and loading of fuel at the nuclear facility will be performed under the Licence to Operate. The information requested in this guide is not consistent with this understanding. If initial fuel load is now contemplated to be permissible under the Licence to Construct, please indicate such in this application guide.</p>	<p>No change. This is beyond the scope of a licence application guide. The licensed activities will be described in the licence.</p> <p>Disagree with second and third points. The <i>Class I Nuclear Facilities Regulations</i> section 5 clearly requires description of the facility, design of SSCs, safety analysis and proposed programs. Outline information on programs for the operational phase is therefore within scope. To be clear, initial fuel load is not permissible under the licence to construct.</p>
23.	OPG	1.0	<p>Information should be included in the guide respecting electronic submission of materials. The large volume of materials suggests that electronic means of transmission would be more effective. Information management technologies exist that allow for electronic submission and electronic review of documents.</p>	<p>The preferred format for submissions is electronic. It is however helpful in some instances, to receive parts of the submission as hardcopy, in limited copies. This can be discussed with the project team on a case by case basis. A sentence has been added to the introduction stating “Applicants are strongly encouraged to submit the documents electronically.”</p>

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24.	OPG	1.0, 2 nd paragraph	Add the following text, “other sensitive information should be submitted to the CNSC in a secure manner as well, such as the assessment of certain human-induced external hazards.” There is other sensitive information besides the Security Program, e.g., assessment of the impact of aircraft crashes.	Agree. Text changed to “It should be noted that Security Program information and <u>certain other information</u> is sensitive and should be submitted to CNSC in a secure manner.” (Now paragraph 5.)
25.	AECL	1.1, 2 nd paragraph	With respect to the second paragraph, AECL recommends that the text be made more specific regarding “the impact of the addition of any information on the safety case or any statements present in previous submissions made to the CNSC”. This could be achieved by making specific references to the previous submissions that are required as pre-requisites to an application for a licence to construct, e.g., technical studies in support of the environmental assessment, the application for a licence to prepare site and its set of supporting documents, etc.	Agree. Text replaced with “In this chapter, the applicant should also explain the relationship of this application to any previous licences issued by the CNSC, including any changes to the safety case that was included in the previous licences.”
26.	OPG	1.1	Remove text “In this chapter, the applicant should also explain the impact of the addition of any information on the safety case or any statements present in previous submissions made to the CNSC” and replace with the following text “In this chapter, the applicant should also explain the relationship of this application to any previous licences issued by the CNSC, including any changes to the safety case that was included in the previous licences.” The noted text applies to a circumstance that will arise after the submission of the application, and cannot be addressed. The preceding paragraph in the section addresses how information submitted following the submission of the application will be incorporated into the plant’s safety case. The proposed revised text connects this application to previous applications made to the CNSC, and also connects with the following paragraph.	Agree. Suggested replacement text has been incorporated as per comment 25.
27.	OPG	1.1, 3 rd paragraph	The following paragraph should be revised as follows: “The applicant is expected to address all follow-up activities that would have been identified during the environmental assessment (EA) and the review of the application for a licence to prepare site. This could include the need to follow up on the implementation of mitigation measures identified in the EA or as a result of EA recommendations.” “The applicant is expected to address all follow-up activities relevant to the <u>construction and commissioning</u> phases that would have been identified during the environmental assessment (EA) and the review of the application for a licence to prepare site. This could include the need to follow up on the implementation of mitigation measures identified in the EA or as a result of EA recommendations for <u>design, construction and commissioning</u> .” The scope of EA follow-up activities should focus on the activities under the Licence to Construct.	Agree. Text has been revised, “The applicant is expected to address all follow-up activities relevant to the <u>design</u> , construction and commissioning phases that would have been identified during the environmental assessment (EA) and the review of the application for a licence to prepare site. This could include the need to follow up on the implementation of mitigation measures identified in the EA or as a result of EA recommendations for design, construction and commissioning.”
28.	OPG	1.2, item 8	Remove the following text in item 8 “and a description of their respective responsibilities” and replace with “and an overview of their relationships”.	Agree. Text has been revised as suggested.

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			Details on the respective responsibilities of the designer, vendor, constructor and operating organization are provided subsequently in the application. This is duplicative. The suggested revised text will address the overall contractual relationships that may exist between the parties identified.	
29.	NB Power	1.2, item 10	The applicant may not have access to all this information. It is likely that some of this information is 'commercial' and not available to the applicant.	The vendor should be able to provide this information. Text changed to "... and a description of the <u>main</u> differences or design improvements made since that earlier licence was granted."
30.	OPG	1.2, item 11	Clarification is required on the financial guarantees. This appears to be a duplication of section 15.6. Probable duplication of information in two different parts of the application.	Partly agree. Text changed to "a summary of financial guarantees relating to the proposed plant"
31.	OPG	1.2, item 13	Remove item 13. Additional relevant supporting information should be provided in each of the specific sections as evidence supporting that aspect of the application.	Agree. Text removed.
32.	OPG	2.2, 1 st paragraph	Clarify that details of compliance with codes and standards are expected to be included in subsequent chapters (e.g., Design codes and standards compliance described in Section 5.2.6.). <u>Adjust to avoid replication of detailed information in multiple chapters.</u>	No change. The list can be provided as an appendix or in a referenced document; however it is useful to have a complete listing of the codes and standards referenced in the application.
33.	NB Power	2.2, 1 st paragraph	The first paragraph seems to go beyond what is required in the scope of the construction licence. For instance does it include operation, maintenance, training, etc. These programs may not be completely defined at this stage. Should be limited to site selection, construction and design. In addition, it could be confusing because there appears to be no default standards or regulations, yet specific regulations, codes & standards are referenced (see References). At least state compliance with RD-337 is required.	No change. Phase A commissioning is included. As such, training and procedures are required to support these activities. Section 5 of the <i>Class 1 Nuclear Facilities Regulations</i> requires that information be provided on operational programs.
34.	NB Power	2.3, item 8	Again the applicant may not have access to all this information if the earlier designs licensed is owned by a different organization.	The vendor should be able to provide this information. Text changed to "In cases where the plant design is similar to earlier designs licensed by the CNSC, the applicant should provide a comparison that identifies and justifies <u>the main</u> modifications and improvements that have been incorporated into the submitted design."
35.	OPG	2.4	Provide clear instructions as to how to address lay out drawings that contain some security related information. It is anticipated that some layouts will be security classified in addition to those pertaining to the security measures themselves. This is a common practice within the nuclear industry, for example, floor layouts that disclose security equipment or security access or staging areas are not publicly released.	Agree. Sentence added to paragraph 2: "Information on plant layout that contains security related information must be submitted in a secure manner. See section 5.11, <i>Security and Robustness</i> ." Also, the following text is added to the last paragraph of section 5.11. "The Government of Canada Treasury Board Secretariat <i>Policy on Government Security</i> , [9] can be referenced for further detail on handling, submitting and transmitting assets considered security sensitive." Added to references: "Government of Canada Treasury Board Secretariat, <i>Policy on Government Security</i> , Ottawa, 2009"

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36.	OPG	2.5	<p>Add the following text “These documents are also those that have been submitted to a foreign national regulatory body, or received from a foreign national regulatory body, or otherwise published by a foreign national regulatory body. Materials incorporated by reference may also include information published by a national agency or an international nuclear agency such as, the International Atomic Energy Agency or the International Commission on Radiological Protection.”</p> <p>These are additional types of information that may be incorporated by reference.</p>	<p>Agree. Text added as a new paragraph in section 2.5: “These documents are also those that have been submitted to, received from, or published by a foreign national regulatory body. Materials incorporated by reference may also include information published by a national agency or an international nuclear agency such as, the International Atomic Energy Agency or the International Commission on Radiological Protection.”</p>
37.	OPG	2.5	<p>Revise the last sentence as follows “Material incorporated by reference must have been previously submitted to the CNSC or must be available from the applicant on request.”</p> <p>Incorporating material by reference requires that the material be assured of continuing to be accessible to the CNSC.</p>	<p>Agree. Final paragraph of 2.5 revised to “Material that is incorporated by reference should have been previously submitted to the CNSC or be available from the applicant upon request.”</p>
38.	OPG	3.1	<p>Clarify that for “over the lifetime of the plant”, only high level information needs to be provided initially. For operating licence activities, indicate that this may be submitted later to allow for staged approvals. For later phases, high level information only is required.</p> <p>Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information. It is not practicable to include detailed information on decommissioning and abandonment as these could occur more than 100 years in the future.</p>	<p>The text asks for the management systems to be outlined, not described in detail. It is understood that less detail will be available at this time for the later stages. However, it is important that the applicant demonstrates that future challenges have been considered at an early stage.</p> <p>The words “over the lifetime of the plant” have been removed from the last sentence in paragraph 1.</p>
39.	OPG	3.1	<p>Qualify requirements for organizational management system to note that only a high level description for operation phase is required initially.</p> <p>Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.</p>	<p>Noted. See response to comment 38 above.</p>
40.	NB Power	3.1	<p>With respect to the second paragraph in 3.1, the time period should be specified as it is not clear whose staff it is referring to. Designers and construction?</p>	<p>No change. An adequate number of qualified staff is important at all stages of the plant life. The submission should provide information that shows the applicant has considered the needs and made appropriate provisions.</p>
41.	AECL	3.1	<p>The level of detail for the management system and organizational structure of the applicant and any other organization involved in design, engineering, procurement, manufacturing, construction, commissioning or operation should be commensurate the requirements in paragraph 24(4)(b) of the Nuclear safety and Control Act.</p> <p>Therefore, the level of detail that is needed must be sufficient to demonstrate that the applicant is qualified to carry on the activity for</p>	<p>No change. The management system must be sufficient to demonstrate that the NPP that is to be constructed will be safe to operate. A management system that is adequate only for construction activities may produce an NPP that is not of sufficient quality to operate.</p>

	Organization	Section	Comment	CNSC Response
			<p>the typical set of activities under a Licence to Construct, which include:</p> <ul style="list-style-type: none"> • Construction • Phase A commissioning • Handling, transferring and storing fresh fuel bundles • Handling, transferring and storing heavy water (which may contain tritium and other radioactive substances) • Handling, transferring and storing radioactive sources 	CNSC accepts that the organizational structure for the operational phase can be less detailed.
42.	NB Power	3.2	The last paragraph seems to go beyond what is required for a construction licence.	Section 3.2 has been revised for clarity. Note that an adequate management system is important at all stages of a plant life.
43.	Bruce Power	3.2	<p>There is a statement in section 3.2 states “Confirmation should be provided that the personnel responsible for compliance have direct access to senior levels of the applicant’s management structure, to ensure that their needs and concerns receive adequate consideration.” Clarification is required as to whether this is providing assurance that there is independence of the oversight function as required in N286-05 or this is something different.</p>	<p>Section 3.2 has been revised for clarity.</p> <p>The independent oversight function is the same as that described in CSA N286. The final paragraph of section 3.2 makes it clear that N286 is an example of a suitable standard for a management system.</p>
44.	AECL	3.2	<p>Section 3.2 requires the description of Management System (MS) which should include ... ”<i>design (including engineering assessment and analysis), procurement of goods and services (including the use of contractors’ organizations), manufacturing, plant construction, commissioning, operation and decommissioning.</i>”</p> <p>Subsequent sections repeat (duplicate) the requirements for description of various parts of MS, as follows:</p> <ul style="list-style-type: none"> • <i>Section 5.1: “It should include the design management and quality management programs and also demonstrate that all contractors and sub-contractors involved in the design of the plant are qualified to carry out their respective activities.”</i> • <i>Section 8.2.1: “The description should also include an explanation of the organizational structure and of the quality management system established by the construction organizations....”</i> • <i>Section 8.2.2: “The structure of the engineering organization and its quality management or management system should be described in this subsection....”</i> • <i>Section 8.2.3: ... “An explanation of the commissioning organization’s organizational structure and the quality management system that it is to follow while performing its activities should be included in this subsection...”</i> <p>AECL recommends that appropriate text be included in Section 3.2 to acknowledge that detailed supporting information may be located in other sections of this application, or in other supporting documents. For example, the following sentence could be added to Section 3.2:</p>	<p>Section 3.2 has been revised for clarity.</p> <p>A certain amount of redundancy is inevitable. The applicant is encouraged to cross reference other sections. A sentence has been added to paragraph 2 of section 1.0, Introduction: “There is some redundancy of information requested in the various sections of this document. The applicant is encouraged to make cross reference to detailed information in other sections as appropriate.”</p> <p>See response to comment 2.</p>

	Organization	Section	Comment	CNSC Response
			“All references to other sections of this application, or to other documents, should clearly indicate the location of the supporting information.”	
45.	OPG	3.2, 1 st paragraph	Clarify the text “and later during operation” to note high level information only is required initially. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Section 3.2 has been revised for clarity. The explanation requested should focus on the continuity of effective management control. Not all details of future processes need to be worked out. The text asks for an explanation of this continuity.
46.	Candesco Corporation	3.2, 1 st paragraph	“Confirmation should be provided that the personnel responsible for compliance have direct access to senior levels of the applicant’s management structure, to ensure that their needs and concerns receive adequate consideration.” This requirement seems overly specific in the context of this document.	Section 3.2 has been revised for clarity. This is a fundamental principle of QA. See response to comment 43.
47.	OPG	3.2, 2 nd paragraph	Clarify that description of management system for operation and decommissioning is only required in general terms. Detailed information on operations will be provided later. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information. For decommissioning and abandonment, this could be over 100 years in future and therefore is not practicable at this time.	Section 3.2 has been revised for clarity. Text changed to “Where the applicant plans for a different management system and organizational management structure for operating the plant, the applicant should outline in general terms the overall arrangements including those for the transition from construction to commissioning. (see section 9.1, <i>General considerations</i> , and section 9.4, <i>Operational management processes</i>). Provisions for decommissioning should also be outlined.”
48.	OPG	3.3	Clarify that description of how safety culture will be incorporated into the management system for operation and decommissioning is only required in general terms. Detailed information on operations will be provided later. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information. For decommissioning and abandonment, this could be over 100 years in future and therefore is not practicable at this time. The preliminary decommissioning plan and associated cost estimate will be focused on the potential decommissioning should the facility not become operational. This change would align the contents of the application.	No change. While some details may only be available once an acceptable design has been created or selected, the safety culture of the teams working on design, selection, build and commissioning can impact the nuclear safety of the final product.
49.	Bruce Power	4	Certain aspects of Chapter 4 would have being submitted in the Application for a Licence to Prepare Site, it does not make sense to resubmit this information as it is not required for the Licence to Construct (i.e. the Licence to Prepare Site is required to be issued before a Licence to Construct). It may be more appropriate to rename this section “Site Description and Environmental Characteristics” to	No change. Paragraph 2 of section 4.1 makes it clear that reference to material already submitted is expected.

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			avoid confusion with the requirements of the Licence to Prepare site.	
50.	AECL	4	There is considerable overlap between the information requirements in Chapter 4 and the information requirements in RD-346, which are submitted with the application for the Licence to Prepare Site. The text in GD-369 should acknowledge that information provided with the site preparation licence application, including the documents to which the application makes reference will be added to the application for the Licence to Construct, and the two applications together will constitute the construction safety case.	No change. Paragraph 2 of section 4.1 makes it clear that reference to material already submitted is expected. See also the response to comment 26.
51.	OPG	4.1, item 2	Change “design targets” to “design assumptions or values”. The recurrence probability (frequency) of certain external events generally cannot be controlled via design of the plant, i.e., a “target” value may not be specified. It is more appropriate to state the design values and assumptions for the frequencies associated with such events, and how this is factored into the design process.	Agree. Text changed to “design assumptions or values”.
52.	OPG	4.2 item 1(b)	Change text to: “...ownership of the site and control of the exclusion zone”. The Regulations do not require the licensee to have ownership of the exclusion zone. Rather, the licensee is required to have legal authority to exercise control within the exclusion zone and there are to be no permanent dwellings within the exclusion zone.	Agree. Suggested change has been made.
53.	OPG	4.2, last paragraph	Clarify that the description of the site for the Licence to Construct is based on its prepared condition following the completion of any activities authorized under a Licence to Prepare Site. The characteristics of the site will be different at the conclusion of site preparation, for example topographical character of the site will be changed. The application for the Licence to Construct should assume completion of the activities authorized under the Licence to Prepare Site as the baseline conditions that will be used for characterization of effects predicted to occur.	Agree. Final paragraph, 1st sentence changed to “In summary, this section should present the relevant data for the site <u>after completion of authorized site preparation activities</u> and include the associated ranges of uncertainty <u>taken into account</u> in the plant structural design and in the dispersion studies for radioactive nuclear substances and hazardous substances. See also response to comment 54.
54.	OPG	4.2, last paragraph	Change “used” to “considered”. Uncertainty values may not necessarily be explicitly utilized in the plant structural design and radioactivity dispersion studies. Rather, they can be considered (taken into account) and covered off via use of conservative and/or industry standard approaches.	Comment noted. “Used” changed to “taken into account”.
55.	NB Power	4.3, item 2	Does this mean how ingress & egress to and from the Exclusion Zone Boundary will be managed? The Exclusion Zone Boundary is quite different from a Protective Boundary.	Agree. “Control” of the exclusion zone refers to legal control as in the definition in the <i>Class I Nuclear Facilities Regulations</i> : “exclusion zone” means a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control. Item 2 changed to “2. identify the party that has the legal authority to exercise control over the exclusion zone”

	Organization	Section	Comment	CNSC Response
56.	Candesco Corporation	4.4, 1 st paragraph	<p>“The administrative measures employed to mitigate these hazards (especially for human-induced events) should be identified, <u>and information should be presented on their nature and implementation, together with the roles and responsibilities of the persons charged with their enforcement.</u>”</p> <p>The information requested in the underlined text is operational-type information. Suggest that this be moved to the Application for Licence to Operate.</p>	No change. The plan for external hazards mitigation needs to be clear from site preparation onwards.
57.	OPG	4.4, 2 nd paragraph	<p>Delete or revise the 2nd paragraph in terms of design values/assumptions rather than “targets”.</p> <p>The recurrence probability (frequency) of external events generally cannot be controlled via design of the plant, i.e., a “target” value may not be specified. It is more appropriate to state the design values and assumptions for the frequencies associated with such events, and how this is factored into the design process.</p>	Agree. Text changed to “design assumptions or values” (two occurrences).
58.	OPG	4.4, 3 rd paragraph	<p>Add the following paragraph just before section 4.4.1: “Provisions should be made to ensure that confidential information relating to site-specific hazards should remain confidential, whether for security reasons, or to protect the interests of external third parties who have provided potentially sensitive information to facilitate the assessment.”</p> <p>Some information regarding external human induced events should not be made public. In addition to site security considerations, external third parties may provide information which is commercially sensitive or security sensitive, but which is necessary to assess hazards.</p>	Agree. Paragraph added.
59.	NB Power	4.4, 4 th paragraph	<p>Suggest replacing “conformance” with “monitoring” in the 4th paragraph</p>	Agree. Text changed to “The approach for monitoring against the design values or assumptions should also be described”.
60.	Candesco Corporation	4.4, last paragraph	<p>“Finally, this section should demonstrate that appropriate arrangements are in place to update evaluations of site-specific hazards periodically, in accordance with the results of up-to-date assessment methods, accumulated monitoring data, and surveillance activities.”</p> <p>This seems to be a new requirement / expectation. Neither RD-337 nor RD346 discuss the need for appropriate arrangements for periodically updating site-specific hazard evaluations. Although this work would likely be performed as part of periodic reviews and updates, please consider whether it is intended to use this guide for new requirements.</p>	<p>No change. This is not a new requirement. R-99 6.3.2.3 requires reporting of “a hazard or potential hazard to the health and safety of persons, security or the environment, or that is different in nature, greater in probability, or greater in magnitude than was previously represented to the Commission”.</p> <p>It is appropriate that arrangements are in place to update the evaluations, even at the design stage.</p>
61.	OPG	4.4.2	<p>Clarify that the site protection measures are those that may be implemented as part of the activities associated with the Licence to Construct, and are in addition to any activities authorized under the Licence to Prepare Site.</p> <p>Some protective features may be established during site preparation, and will not be included in the activities to be approved under the Licence to Construct.</p>	No change. If the protective feature could impact plant safety, then it should be described. If a feature is provided only for site preparation, then this section should describe the arrangements for its removal.

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62.	OPG	4.4.3, Items 1, 4 and 7	Item 1: Change “extreme precipitation” to “precipitation”. Item 4: Delete “drought”. Item 7: Delete “ice-related flooding” To better align with RD-346 requirements.	No change. Comment noted. However, current wording is adequate.
63.	Candesco Corporation	4.4.4, 2 nd paragraph	It is unclear how “accounting for the potential for climate change” would be demonstrated? Suggest that this is removed as it is addressed by the use of “extreme values”. Rewording proposed with strike-through and underline: Potential climate change effects should be evaluated in relation to the design, including e Extreme values in meteorological parameters such as temperature, humidity levels, rainfall levels, straight and rotational wind speeds, and snow loads <u>should be accounted for in design.</u>	No change. We recognize the difficulty but best efforts should be made. This could be quite important over an 80 year plant life.
64.	OPG	4.6, Item 8	Item 8: Preface with “Within the design basis,”. This is to limit such considerations (of natural and man-made events during emergencies) to those which should be reasonably defined as part of the design basis, as opposed to the inclusion of very unlikely and extreme scenarios.	Agree. However, certain beyond design basis events are considered in the design and these should be described. Item 8 text changed to “any natural or man-made event <u>within the design basis</u> that would”. Also, a new item is added “any natural or man-made events beyond the design basis that are considered in the design, and would impact emergency management requirements
65.	OPG	4.7	Clarify the information required to support the periodic safety review at the site. Periodic safety review contemplates reviews against standards and codes established after the establishment of the reference safety case to identify what improvements may be cost-effectively incorporated that adjust the safety case to meet the revised codes and standards. It will be difficult in advance to determine what additional information may be required to evaluate the nuclear facility against the subsequently established standards and codes.	The text was not intended to refer to a formal Periodic Safety Review. Text changed to “a periodic review of safety”.
66.	Candesco Corporation	4.7, 1 st paragraph	“This section should describe the provisions for monitoring the site-related parameters affected by seismic, atmospheric, water and groundwater-related events, and demographic, industrial and transport-related developments. <u>This description should be sufficiently detailed to provide the information necessary to support emergency actions in response to external events, to support the periodic safety review at the site, and to develop dispersion modelling for radioactive material. It also serves as a confirmation of the completeness of the set of site-specific hazards that have been taken into account.</u> ” The information requested in the underlined text is operational-type information. Suggest that this be moved to the Application for Licence to Operate.	No change. This information is particularly important for supporting emergency actions and modelling dispersion of radioactive material for the safety analysis.
67.	OPG	5.1, item 1(c)	Revise wording to “maintains its characteristics during its lifetime or changes are accounted for in the design and safety analysis” The characteristics may change, e.g., due to aging effects; this is acceptable and should be allowed, provided such changes are	Agree. Text changed to “maintains its characteristics during its lifetime within the bounds accounted for in the design and safety analysis”

	Organization	Section	Comment	CNSC Response
			accounted for.	
68.	OPG	5.1, item 1(d)	Change wording to “can adequately mitigate the effects of...”, rather than “is resistant to...” The term “resistant to” may be unnecessarily or extremely onerous, if not impossible to meet, implying no impact or damage from the postulated event.	Agree in part. Text changed to “is resistant to ... and, to the extent practicable, to severe accidents”
69.	NB Power	5.1	It would be worthwhile to add some discussion indicating that the following paragraph do not introduce new design requirements, which are mainly defined in RD-337, but simply clarify the information that should be in the licence application.	Agree. Sentence added to first paragraph of Preface. “This guidance document identifies the information that should be submitted to support an application to construct a nuclear power plant.”
70.	OPG	5.1, 2 nd paragraph	Revise paragraph text as follows: “This section should also describe the programs put in place to ensure that the design is carried out by technically qualified and appropriately trained staff. <u>The description should demonstrate that a systematic approach to training (SAT) has been adopted</u> and that all contractors and sub-contractors involved in the design of the plant are qualified to carry out their respective activities.” SAT process is a requirement of CSA N286-05 and also required for qualification of the personnel in section 9.11. Therefore, it provides a consistency in the requirements of different sections of the guide.	Agree. Text revised as proposed.
71.	NB Power	5.1, second list, items 1 and 2	Bullets 1 and 2 at the bottom of the page implies fuel can be loaded under the construction licence. Is that true? Would not the CNSC name hold points such as RRS & safety systems commissioned; control room staff trained	Licence to construct covers activities up to Phase A commissioning (see section 8.4). Agree. The final paragraph and list of three items have been moved and incorporated into section 8.4.1.
72.	OPG	5.1, last paragraph	Revise the sentence “Hold points used during the construction and commissioning phases should be identified” to state “Hold points used during the construction and commissioning up to fuel load should be identified. The subsequent sentence in the paragraph indicates that “This chapter should cover actions that require CNSC approval prior to loading reactor fuel”. The suggested change improves the alignment within this section.	Agree. The final paragraph and list of three items have been moved and incorporated into section 8.4.1.
73.	OPG	5.1, last paragraph	The itemized list should be revised as follows: 2. Replace “provision of a sufficient...” with “Confirmation that a sufficient...” (confirmation would be the CNSC action) 3. Replace Item 3 with “Issuance of the Licence to Operate” This itemized list is inconsistent with the general direction for the chapter to cover actions requiring CNSC approval prior to loading reactor fuel for which hold points will be established in the construction and commissioning phases. The programs, processes and procedures necessary to support loading of fuel and operations will be incorporated in the certification training program for operators, which will be approved in accordance with the Licence to Construct conditions.	Agree. The final paragraph and list of three items have been moved and incorporated into section 8.4.1.

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74.	Toshiba	5.2.6	Section 5.2.6 does not seem to mandate the use of Canadian Codes and Standards. Can alternate international Codes and Standards be used if their applicability can be justified?	No change. The interpretation is correct. International codes and standards can be applied if their applicability can be justified. This is made clear in section 2.2.
75.	AECL	5.2.6	AECL recommends that the text in GD-369 should be stated to provide greater clarity on the expectations. For example, change: “This subsection of the application should describe and reference how the requirement and expectations of the adopted Canadian and international codes and standards are met. These documents, which may also be referenced elsewhere in the application, provide the evidence that all the relevant licensing expectations for design and safety analysis have been met.” to “This subsection of the application should describe the process and include the reference to how the requirement and expectations of the adopted Canadian and international codes and standards are met. These documents, which may also be referenced elsewhere in the application, provide the evidence that all the relevant licensing expectations for design and safety analysis have been met.”	Agree. Text changed to “This subsection of the application should describe the process and include the reference to how the requirements and expectations of the adopted Canadian and international codes and standards are met. These documents, which may also be referenced elsewhere in the application, provide the evidence that all the relevant licensing expectations for design and safety analysis have been met.”
76.	Candesco Corporation	5.2.7, 2 nd paragraph	“The criteria used for determining the level of acceptable risk should be identified. The applicant should also explain how design practices (such as enhancing system reliability and addressing common cause, common mode, and cross-link failures) have been used to render the risk acceptable. The conceptual framework dealing with the cases that fall between the two risk levels should be described. The cost-benefit methodology used to decide which design option was selected should also be covered.” Please clarify the text regarding the acceptable vs. unacceptable risk and define for which aspect of the design this applies.	Agree. Changed first sentence to “The criteria used for determining the level of acceptable risk should be identified <u>and shown to meet the expectations of RD-337 section 4.</u> ”
77.	NB Power	5.2.8	This requires final safety report and SOE to be available. This should only be required for the operating licence.	No change. Plant states are as defined in RD-337. These are needed (among other things) for preparation of the safety analysis. It is also necessary for the designer to identify the operating configurations appropriate for the plant to enable adequate design provisions to be made. Adjustments can be made in the FSAR but preliminary definitions must be available for the designer and these should be provided in this section.
78.	OPG	5.2.9	This section should be deleted as the information expected to be provided under this section is same as that provided under section 7.3. Probable duplication of information in two different parts of the application	Agree. Subsection deleted.
79.	OPG	5.2.10	This section should be deleted as the information expected to be provided under this section is same as that provided under section 7. Probable duplication of information in two different parts of the application.	Agree. Subsection deleted.

	Organization	Section	Comment	CNSC Response
80.	OPG	5.2.11, Single Failure Criterion	In the sentence “The description should include...”, delete the words “or system”. Per RD-337, the single failure criterion is applied at the component level, not for the random failure of an entire system.	Agree. Suggested change has been made. (now subsection 5.2.9)
81.	Bruce Power	5.2.12	It may be premature to provide the detailed information requested on the reliability program, particularly for a first of kind build. This would typically be developed for the Operating Licence Application. (See comment 3 [General]) {This actually refers to comment 4 in Bruce Power’s submission which is included in this table as comment 17}	No change. Reliability information is needed for, among other things, use in the PSA. It is accepted (by the nature of a PSAR) that this information will be subject to later update. (now subsection 5.2.10)
82.	AECL	5.2.12	The text in this section should acknowledge that S-98 reliability program cannot be available when the application for the Licence to Construct is submitted, because the equipment specific information will not be available until procurement is completed.	No change. See response to comment 81.
83.	OPG	5.3	Add the following text: “The classification of system, structures and components should provide the criteria for the level of design detail included in this application related to the SSC as prescribed in section 6.1” Explains the graded approach implied in section 6.1.	Agree. Suggested text added after list following paragraph 1. “Prescribed” changed to “described”.
84.	Candesco Corporation	5.4, 2 nd paragraph	The information requested in the underlined text is very detailed for a SAR. Suggest that this content be considered supplemental to the SAR, which would be available and submitted to CNSC if requested. The description should include the basis for pressure boundary code classification of such components. <u>It should also include other support processes that are an integral part of the design such as:</u> <ol style="list-style-type: none"> 1. <u>specification and traceability of the materials of construction</u> 2. <u>requirements for quality assurance</u> 3. <u>qualifications and certifications of designers; fabricators; authorized inspectors and examination personnel</u> 4. <u>the codes and standards to be used for examination and pressure testing</u> 5. <u>documentation and records</u> 6. <u>in-service inspection</u> 7. <u>maintenance and testing of SSC</u> 	Agree that this information could be in supporting documents. Changed to “It should also include <u>(directly or by reference)</u> other support processes that are an integral part of the design such as: ...”
85.	AECL	5.4	For clarity, it is recommended that bullet 7 be changed from “maintenance and testing of SSC” to “maintenance and testing of pressure-retaining SSC”. It should be recognized that some equipment specific information will not be available at the time of the application for the Licence to Construct. Since the details may not be available at the time of the application for the Licence to Construct, the text should include “or timeline and milestones for development of information”.	Agree with first point. Text changed as suggested. No change for the second point. See response to comment 1 on the importance of complete design information at the time of application.

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86.	AECL	5.6.1	It should be recognized that a complete list of equipment required to be environmentally qualified may not be at the time of the application for the Licence to Construct. Since the details may not be available at the time of the application for the Licence to Construct, the text should include “or timeline and milestones for development of information”.	No change. EQ information is needed in order to design SSCs, for example, the EQ list and room conditions. It is accepted that not all the testing will have been completed and for this reason paragraph accepts that only a sample of EQ documentation needs to be submitted.
87.	Bruce Power	5.6.1	The environmental qualification program for the operational state of the plant may not be fully developed at the construction licence application stage. (see comment 3 [General]) {This actually refers to comment 4 in Bruce Power’s submission which is included in this table as comment 17}	No change. See response to comment 86.
88.	AECL	5.6.2	The text in this section should acknowledge that detailed data and/or procedures are often a series activity in the project that comes after the construction start. This means, in general terms, that the detailed data and design documentation and detailed procedures may not be available when the application for the Licence to Construct is submitted. However, the application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	No change. Early in the safety analysis it will have been decided which systems are to be credited and therefore it is known which components need to be qualified. It is recognized that changes will be made as construction proceeds; however, good preliminary information should be available, used and reported here.
89.	AECL	5.7, item 1 a)	Section 5.7 bullet 1(a) requires enclosing fire safety related design specifications and drawings with the application for the Licence to Construct. Since these design specifications and drawings may not be available at the time of the application, AECL recommends including the phrase “or timelines and milestones planned for the detailed development and completion.”	No change. See response to comment 1 on the importance of complete design information at the time of application.
90.	Bruce Power	5.7	The requirement for a Fire hazard assessment and fire safe shutdown assessment should be reviewed if there is going to be a requirement for a fire PSA. Have all of these assessments seems to be redundant.	No change. The two types of assessment serve different purposes.
91.	NB Power	5.7, item 2	Alternatives should be suggested? N293 refers specifically to CANDU design.	No change. The clause asks for assessment against these standards, not necessarily application of them.
92.	NB Power	5.7, item 3	This seems to be too specific. It is not clear that this is a practice followed by all the NPP designers. Moreover, it requires a level of information that may not be available at this point in time.	Agree. Text changed to “a statement of compliance <u>of the design</u> with the codes and standards ...”
93.	Bruce Power	5.8	It will be virtually impossible to provide information regarding G-278 especially for first of kind new builds. As the plant would not yet be constructed this validation and verification of emergency operations could not be done, this would be a better fit for submission with the operating licence application.	Clarification provided. While CNSC acknowledges that the results of the HF Verification and Validation (V&V) activities may not be available, there is no reason why plans for these activities cannot be available at the time of the application for a licence to construct. If the initial V&V plans submitted are high level, increasing detail will be required by CNSC staff as the detailed design progresses and as the review of the construction licence application progresses. Text changed to “how the plant design takes into account, <u>or will take into account</u> , human factors considerations ...”

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94.	AECL	5.8	It should be acknowledged that detailed human factors design verification and validation of all aspects as called for in G-278 are unlikely to be available at the time of the application for the Licence to Construct. However, the application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	Agree. Text changed to “how the plant design takes into account, or will take into account, human factors considerations ...” See comment 93.
95.	OPG	5.9.4	Clarify that initial submission should describe in-service processes at a high level. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information	Agree. Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. Paragraph 3 changed to “Information should be provided to demonstrate that the design takes into account in-service monitoring, inspection, testing and preventive maintenance for SSCs important to safety.” Paragraph 5 has been revised and moved to section 9.7.
96.	NB Power	5.9.4	This section contains to many specific expectations in this context of ‘General Design Aspects and Support Programs’. It should be refocused on the links between design and maintenance.	Agree. Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. See comment 95.
97.	NB Power	5.9.4, 2 nd paragraph	The second paragraph seems to go too far. There is no consensus on ‘an optimized preventive maintenance program’. Also the information may not be available at the time of the construction licence application to complete this program.	Agree. Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. Second paragraph changed to “The approach taken should include a well-planned and effective program for monitoring and trending SSC performance, integrated with a preventative maintenance program.” Rest of the paragraph is moved to section 9.7 with modifications.
98.	NB Power	5.9.4, 2 nd paragraph	The second paragraph should make reference to S-210 and RD-334.	Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. Paragraph 2 is revised. No need to reference S-210 or RD-334. See comment 97.
99.	Candesco Corporation	5.9.4, 3 rd paragraph	<u>“A separate study should be performed and documented for each SSC important to safety, in order to develop an applicable in-service monitoring, inspection, testing and preventive maintenance program. The ability to inspect SSC and the program that demonstrates the inspection techniques should also be provided. This information should be summarized in an annex to the application.”</u> The information requested in the underlined text is very detailed for a SAR. Suggest that this content be considered supplemental to the SAR, which would be available and submitted to CNSC if requested.	Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. See comment 95.
100.	Candesco Corporation	5.9.4, 5 th paragraph	“The subsection should describe the approach to be taken for the development of flaw acceptance criteria (with appropriate safety margins) in the SSC inspection program. Defects subject to such criteria include crack-like flaws and metal loss. When establishing the acceptance criteria, consideration should be given to the worst possible combination of design loading conditions and to the potential for propagation of a flaw if subjected to system transients and/or adverse environmental conditions.”	Agree. Section 5.9.4 has been extensively revised and some text has been moved to section 9.7. See comment 95.

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			This section contains requirements regarding selection and application of the flaw acceptance criteria (e.g. describes how to do the work, rather than what to include in the application). Suggest that the wording be removed from the guideline document.	
101.	Bruce Power	5.9.5	<p>The full aging management program may not be developed at this stage of the project, therefore the level of detail being requested maybe premature for the construction licence application. (see comment 3 [General])</p> <p>{This actually refers to comment 4 in Bruce Power’s submission which is included in this table as comment 17}</p>	<p>Agree. Entire section reworded as follows: “In this subsection, the applicant should describe the proactive strategy and program chosen for integrated aging management to ensure that:</p> <ol style="list-style-type: none"> 1. aging issues for SSCs important to safety are adequately understood and effectively addressed in the plant design for its entire lifetime 2. adequate measures will be in place for implementing an effective an effective aging management program throughout all phases of the plant lifecycle. <p>The strategy should meet the requirements and expectations of applicable national and international codes and standards, and the expectations contained in RD-334, <i>Aging Management for Nuclear Power Plants</i>, and in section 7.17 of RD-337. The description should take into account any unique features possessed by the plant, and any operating experience and practices that may have potential impact on the aging management at the plant.</p> <p>The information to be submitted includes, but is not limited to the list below. Note that system names, definitions and boundaries will vary between reactor designs.</p> <ol style="list-style-type: none"> 1. Outline of a pro-active strategy for aging management (including addressing aging issues in the plant design and implementing effective AMP throughout plant lifetime). 2. High level description of the Plant Integrated Aging Management Program (policies, processes, procedures, and activities that provide direction for effective aging management): <ul style="list-style-type: none"> • Organizational arrangements • Data collection and record keeping • Screening and selection process for aging management • Process for evaluations for aging management (Understanding, Preventing, Monitoring, Mitigating) • Process for condition assessments • Process for SSC-specific AMPs • Process for management of obsolescence • Interfaces with other supporting plant programs • Process for implementation of AMPs • Process for review and improvement of AMPs

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				3. Preliminary SSC - AMP Summaries <ul style="list-style-type: none"> • for specific major plant SSCs important to safety 4. Identification of aging issues important to the safety analysis data and assumptions
102.	Candesco Corporation	5.9.5, All	This section contains very detailed guidance on the ageing management program and seems to be overly specific. Suggest that some of the detailed wording be removed from the guideline document.	Agree. See response to comment 101.
103.	OPG	5.9.5	Rewrite section to focus on ensuring aging issues have been addressed in the Plant design for its entire lifetime. Processes and programs should initially be required at a high level only. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Agree. See response to comment 101.
104.	NB Power	5.9.5	This section contains too many specific expectations in this context of 'General Design Aspects and Support Programs'. It should be refocused on the links between design and aging. Relevant aspects should be moved to section 9.7	Agree. See response to comment 101.
105.	AECL	5.9.5	AECL recommends that there be an acknowledgement that the detailed plant aging management procedures are not likely to be available at the time of the application for a Licence to Construct. Therefore, there should be text to reflect including "the timeline and milestones by which the procedures and activities will be prepared."	Agree. See response to comment 101
106.	AECL	5.9.5	AECL recommends changing "mitigating aging" in bullet 9 of Section 5.9.5 to "mitigating aging effects" to use the same terminology as CNSC draft RD-334 and IAEA NS-G-2.12.	Agree. However, text has been removed. See response to comment 101.
107.	OPG	5.9.5, item 13	Remove text "showing how safety margins are impacted as the plant ages". The safety analysis may be based on a bounding case, e.g., assuming end-of-life conditions. The wording in question presumes additional safety analysis will be performed for various aged conditions during the plant life, but this is not necessarily true and should not be required.	Text is changed. See response to comment 101.
108.	NB Power	5.9.6, item 3	It seems unlikely that this information will be available at the time of construction licence approval.	Agree. Item 3 changed to "results of assessments confirming the <u>feasibility</u> of SAM actions"
109.	OPG	5.9.6	Append to the end of last sentence "in accordance with the scope of events per RD-310, Section 5.2.2." This is to recognize that a limited number of severe accident cases will be analyzed, within reason and consistent with the scope in RD-310.	Agree. Text changed as suggested
110.	OPG	5.10, items 4 and 9	Item 4: delete "nuclear criticality safety analysis". Delete item 9 (postulated criticality events). Such analysis and postulated events are not necessary given the expected very low probability of an out-of-core criticality event.	No change. The list of functional categories is advisory (introduced by "such as"). Items that do not apply need not be addressed. With possible use of enriched fuel an out-of-core criticality is credible.

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111.	NB Power	5.11	It is not clear that the information outlined in the last 3 three bullets is really required at the time of the construction licence application	No change. The applicant is only asked to describe provisions for these items, i.e. how it will be done.
112.	AECL	6.0	AECL recommends that GD-369 acknowledge that detailed data and/or procedures are often a series activity in the project that comes after the construction start. This means, in general terms, that the detailed data and design documentation and detailed procedures may not be available when the application for the Licence to Construct is submitted. However, the application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	Duplicate comment. See response to comment 6.
113.	AECL	6.0	AECL recommends that the requirements for safety, safety-related, and non safety related systems and equipment be reviewed for consistency with the requirements in RD-337 and make direct reference to the applicable sections of RD-337.	No change. RD/GD-369 makes reference to applicable sections of RD-337 in the subsections dealing with specific SSCs.
114.	OPG	6.1	Add the following requirement: “A list of safety relevant system, structures and components, along with their classification, categorization and the criteria for the level of detail should be included as an annex or referenced here” Explains the requirements of section 6.1 and aligns the requirements with that of GS-G-4.1	Agree. Text changed to “A list of <u>SSCs important to safety</u> , along with their classification, categorization and the criteria for the level of detail should be included as an annex or referenced here”
115.	AECL	6.2	Since GD-369 includes a definition of “design basis”, it is recommended that the first sentence be changed to: “Each section of chapter 6.0 <i>Design of Plant Structures, Systems, and Components</i> that focuses on a specific system should describe in detail the characteristics and major components of the system and its design basis requirements (e.g., the functional and performance requirements associated with the definition of Design Basis).”	Agree. Text changed as suggested. See also response to comment 130.
116.	OPG	6.2, item 3	The 3rd bullet should be revised as follows: supporting design documentation and any related documents, such as design requirements and design manuals of the system. Design manuals are the combination of the design requirements and design description etc. It does not make sense to ask for design manual under description of the system.	Agree. Text revised as suggested.
117.	Candesco Corporation	6.2, item 5 c), d)	“c) physical location, accessibility and usability of equipment requiring testing, maintenance and surveillance d) physical interlocks, and indication of bypassed or inoperable status” These are very specific requirements and are not necessarily related to human factors. Suggest that this text be deleted.	No change. This is a listing of Human Factors requirements and these are important considerations. The designer needs to specify how these requirements are met.
118.	Bruce Power	6.2	The level of information be requested (particularly 7,8 9 and 10 of this section) may not be developed at this stage of the project, therefore the level of detail being requested maybe premature for the construction licence application. (see comment 3 [General]) {This actually refers to comment 4 in Bruce Power’s submission which is included in this table as comment 17}	No change. Preliminary information should be available.

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119.	OPG	6.2.1, item 6	For item 6, delete the word “independent” before “verification and validation of software”. The verification and validation activities that are performed are inherently independently reviewed and verified, per the relevant QA procedures of the organization/contractor conducting the work (e.g., prepared/reviewed/verified by the vendor, and submitted to the applicant/licensee for review and acceptance). An additional, third-party / independent, verification and validation does not need to be conducted.	Agree. The word “independent” has been deleted.
120.	Candesco Corporation	6.2.1, 2 nd paragraph	“Supporting technical information (with reference to the original reports) should be provided to demonstrate compliance with design requirements, such as summary reports on: 1. <u>material strength</u> 2. <u>overpressure protection</u> 3. <u>corrosion resistance</u> 4. <u>environmental qualification</u> 5. <u>reliability assessment; resistance to electromagnetic and radiofrequency interference</u> 6. <u>independent verification and validation of software</u> “ The information requested in the underlined text is very detailed for a SAR. Suggest that this content be considered supplemental to the SAR, which would be available and submitted to CNSC if requested.	Agree. The intention was only to have summary info in the safety case with reference to detailed reports. Changed to “Supporting technical information to demonstrate compliance with design requirements should be summarized (with reference to the original reports), including information on: ...”
121.	OPG	6.3	Revise text as follows “This section should present relevant information on the design of the site layout and on civil engineering works and structures associated with the nuclear facility”. Buildings not related to the plant operations, such as support buildings outside the protected area, should not require this level of information, as they are typically built under municipal permits.	Agree. Text changed as follows. “This section should present relevant information on the design of the site layout, and on civil engineering works and structures <u>associated with the nuclear facility. The design and analysis procedures, the assumed boundary conditions and the computer codes used in the analysis should be described.</u> This information should be in accordance with sections 7.15 and <u>8.6.2 of RD-337</u> ”
122.	AECL	6.3	The support facilities for housing personnel, change rooms, etc. and civil structures for maintaining and servicing the nuclear facility contribute to the defence-in-depth for the nuclear power plant. It is recommended that these types of facilities should also be described in the application for the Licence to Construct.	Agree. Paragraph 4 is expanded to cover “each building containing equipment <u>or used for operations</u> important to safety ... equipment that it contains <u>or the operations it is used for.</u> ”
123.	AECL	6.4.1, item 6	Under bullet 6, the required description of the fuel manufacturing process should be restricted to aspects of the fuel manufacturing process dictated by design specifications and drawings and how this ensures that the fuel will fulfill its design basis requirements.	Agree. Text changed to “description of the fuel manufacturing process <u>dictated by design specifications and drawings and how this ensures that the fuel will fulfill its design basis requirements.</u> ”
124.	Bruce Power	6.4.3	There is a statement in this subsection that states: “This subsection should describe the design bases established for”. This should state: “This subsection should describe the design bases requirements established for:” as the design basis is defined as “The range of conditions and events taken explicitly into account in the design of the	Agree. Changed to “the design basis requirements ...”

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			facility, according to established criteria, such that the facility can withstand them without exceeding authorized limits for the planned operation of safety systems.”. Given the definition, the design basis would come from safety analysis and regulatory requirements, and the components would have design basis requirements to meet the design basis of the plant.	
125.	Candesco Corporation	6.4.4, item 4	“ 4. justification for the thermalhydraulic stability of the core” It is not clear what this item is referring to. Please clarify the wording.	Clarification provided. Text changed to: “4. justification for the thermalhydraulic stability of the core, for example, stability in forced or natural circulation flow against: a) neutronic / thermalhydraulic feedback b) flow oscillations c) parallel channel instabilities”
126.	OPG	6.4.5, last paragraph	Change text in last paragraph to “a material surveillance program should be described”. Implementation of monitoring is part of Operating Licence, and would not typically be in place during construction as aging mechanisms are not present.	Agree. Text changed to “a material surveillance program <u>should be described that will ...</u> ”
127.	Candesco Corporation	6.4.5, 3 rd paragraph	“A material surveillance program should be in place to address potential material degradation for all components, particularly for components operated in high radiation fields, in order to determine the metallurgical effects of factors such as irradiation, stress corrosion cracking, flow-accelerated corrosion, thermal embrittlement, vibration fatigue, and other aging mechanisms.” This section describes how to do the work, rather than what to include in the application. Suggest that the wording be removed from the guideline document.	Agree. See response to comment 126.
128.	Candesco Corporation	6.5.1, All	This is very detailed information for the Application for Construction Licence. Expect that it would be sufficient to demonstrate confidence in the pressure boundary design and that detailed stress analyses could be made available for confirmatory purposes at a later stage.	No change. RD/GD-369 is only asking for the results of the detailed evaluations. The design of the reactor coolant pressure boundary should be complete at the time of application for a licence to construct so this information has to be available.
129.	AECL	6.5.1	Section 6.5.1 states a requirement to “list all components and their corresponding applicable design and other codes”. Since all of the information may not be available at the time of the application for the Licence to Construct, AECL recommends including the phrase “or timelines and milestones planned for the detailed development and completion.”	No change. See response to comment 1 on the importance of complete design information at the time of application. See also response to comment 125.
130.	Bruce Power	6.5.2, 6.6.1, 6.6.2, 6.6.3, 6.6.4, 6.7.1, 6.8, 6.9, 6.11, 6.13	As mentioned in comment 13 [section 6.4.3], there appears to confusion between design basis and design basis requirements throughout Section 6. Section 6.5.2 asks for the design basis of the reactor coolant system, this should be the design basis requirements (i.e. how the system is designed to meet the design basis) this issue repeats itself in other sections. { This actually refers to comment 14 in Bruce Power’s submission which is included in this table as comment 124. }	Agree. “design basis” changed to “design basis requirements” in identified sections. Also 6.2 paragraph 1 6.3 paragraph 1 6.4.1 paragraph 1 item 2 6.4.2 paragraph 1 6.4.4 paragraph 1 item 1 6.6.5

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131.	OPG	6.5.2, item 2	Remove gas circulators. Gas circulators are only used in gas cooled reactors.	Agree. Gas circulators removed.
132.	NB Power	6.6.1, item 1	Should not the word “bases” be replaced with “basis”	Text changed to “design basis requirement” as per comment 131.
133.	AECL	6.6.3	Item (8) in Section 6.6.3 states “functional design of the secondary containment”, which does not include the proviso that is stated in Section 6.3, namely, “If the design incorporates confinement or secondary containment, this should also be described”.	No change. This comment relates to item 2. The list is introduced by “as appropriate” therefore designs that do not include a feature in the list do not need to describe it.
134.	Candesco Corporation	6.6.3, item 2	“2. functional design of the secondary containment” The reference to secondary containment is design-specific. Suggest that this text be deleted.	No change. The list is introduced with “as appropriate”. If there is no secondary containment, it is not necessary to describe it.
135.	NB Power	6.7	This whole section is confusing. It should be re-aligned to refer to Instrumentation and control related to safety systems and instrumentation and control not related to safety systems. Safety systems being defined in RD-337. The concept of safety related in the new regulatory framework is not clearly defined, specifically for non CANDU plants.	Agree. “Safety-related systems” changed to “systems important to safety”. S-98 Rev 1 describes method for determining which systems are important to safety. Also changed in: 5.6.2 paragraph 1: “the approach used in the design to protect the plant safety and safety-related systems’ instrumentation and electrical equipment from ...” to “the design approach for protecting the instrumentation and electrical equipment of the safety systems and systems important to safety from ...” 6.7 paragraph 1, changed “non safety-related systems” to “all other systems” 6.7.2 title changed from “Safety-related display information” to “Information systems important to safety” 6.7.2, paragraph 1, changed “This subsection should describe safety-related display instrumentation systems and the plant information system provided in the design in order to meet the relevant expectations of sections 7.21 and 8.10 of RD 337” to “This subsection should describe display instrumentation of systems important to safety to demonstrate that the expectations of sections 7.21 and 8.10 of RD 337 are met.” 6.7.3 and 6.7.4 reworded to eliminate “safety-related”. See response to comment 141 for other changes to these sections. 6.8 item 2, changed “safety-related electrical power systems” to “electrical power systems important to safety” 6.8.2, second list, item 3, changed “safety-related instrumentation and control systems” to “instrumentation and control systems important to safety” 6.8.3, item 2, “safety-related DC loads” to “DC loads important to safety”

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136.	NB Power	6.7, 1 st paragraph	There is a need in the first paragraph to more clearly define what is a 'safety-related' system. Recent regulatory documents refer to system important to safety but not to safety related systems. CSA standards, including the N285 series are largely using the concept of safety related systems but these standards are not applicable to non-CANDU plants.	Agree. See response to comment 135.
137.	NB Power	6.7, 2 nd paragraph	The second paragraph is confusing; it implies that a CANDU RRS, which controls the plant in normal operation, is a non-safety-related system. -	Agree. Paragraph 2 is deleted.
138.	AECL	6.7.1, item 3	Item (3) of Section 6.7.1 includes: "Note: This description is only needed when digital computers are used to implement the actuation logic for safety systems" AECL recommends deleting this note or generalizing the note, because, as written, the note is inconsistent with the statement in the preface: "This document does not presuppose or limit an applicant's intention to follow any particular kind of water-cooled reactor technology."	Agree. Note to item 3 changed from "This description is only needed when digital computers are used to implement the actuation logic for safety systems" to "The description for software is needed when digital computers are used for safety systems"
139.	AECL	6.7.2	The specific information for all of the items may not be available at the time of the application for the Licence to Construct. Since the details may not be available at the time of the application for the Licence to Construct, the text should include "or timeline and milestones for development of information".	No change. See response to comment 1 on the importance of complete design information at the time of application.
140.	AECL	6.7.3, item 3	Item (3) in Section 6.7.3 states "vibrations and loose parts monitoring systems", which implies a requirement for vibration monitoring and loose parts monitoring. RD-337 specifies requirements for vibration monitoring without specifying a requirement for loose parts monitoring. By asking for information on "loose parts monitoring systems", GD-369 is imposing an additional requirement on a nuclear power plant. Furthermore, the guidance on providing information on "loose parts monitoring systems" is not consistent with the statement in the preface that "This document does not presuppose or limit an applicant's intention to follow any particular kind of water-cooled reactor technology."	Clarification provided. RD-337 states "The design also facilitates monitoring in-service for degradations that may compromise the intended design function of the structures." However, the list in 6.7.3 was not intended to be mandatory. Introductory text changed to "It should cover, <u>as applicable</u> :" No change on the second point. Any reactor type may add a loose parts monitoring system if one is required; the reactor technology is not an issue. This part of the comment is not understood.
141.	NB Power	6.7.4	This concept is not clear. Which control systems are not required for safety? In the context of AOOs, the control systems are required to mitigate initiating events. Moreover maintaining the plant parameters within operational limits is also a safety function.	Agree. Subsection 6.7.4 merged with 6.7.3 and reworded to only include systems important to safety: "6.7.3 All other instrumentation systems important to safety This subsection should describe any other instrumentation systems required for safety. It should cover: 1. any particular system needed for the management of severe accidents 2. leak detection systems 3. vibrations and loose parts monitoring systems 4. protective interlock systems that are credited in the safety

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				<p>analyses with preventing damage to SSCs important to safety and for preventing specific accidents (e.g., valve interlocks at interfaces between low-pressure and high-pressure fluid systems whose operation could result in an inter-system loss-of-coolant accident)</p> <p>This subsection should describe the control systems for normal operation, including any power reduction systems. Specific information should be provided to demonstrate that postulated failures of control systems will not defeat the operation of systems important to safety, or result in scenarios more severe than those already postulated and analysed in the safety analyses. The following should be included:</p> <ol style="list-style-type: none"> 1. a description of control systems used for normal plant operations 2. a description of any limitation systems (e.g., control grade power reduction systems installed to avoid a reactor trip, by initiating a partial power reduction) 3. evidence that such systems do not challenge the operation of other systems important to safety”
142.	Candesco Corporation	6.8.1, 1 st paragraph	<p>“The responsible authority controlling the operation of these grid connections to the on-site power system, and the availability of those operations, should be clearly explained.”</p> <p>The text is Operations-specific. Suggest that this is better included in the Application for Operating Licence.</p>	No change. The power outage in NE of North America in August 2003 showed the importance of grid control to nuclear power plants.
143.	AECL	6.8.2	The text in GD-369 should acknowledge that detailed data and/or procedures are often a series activity in the project that comes after the construction start. This means, in general terms, that the detailed data and design documentation and detailed procedures may not be available when the application for the Licence to Construct is submitted. However, the application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	No change. See response to comment 1 on the importance of complete design information at the time of application.
144.	NB Power	6.10	Fire protection does not apply only to safety systems	Agree. Subsection title changed to “Fire protection systems” and paragraph 1 changed to “... provisions for the SCC of the <u>systems important to safety</u> , in accordance with the format outlined in section 6.2, <i>System description</i> . The documentation provided should demonstrate that the <u>fire protection systems</u> meet ...”
145.	NB Power	6.10	Again, the concept of ‘fire safety systems’ is not defined.	Agree. See response to comment 145.
146.	AECL	6.11.2	Paragraph 3(1)(j) states: “the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and	No change. Section 5 (e) of the <i>Class I Nuclear Facilities Regulations</i> requires the applicant to submit “a description of the systems and equipment proposed to be installed at the nuclear facility, including their design and their design operating

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			<p>the proposed method for managing and disposing of that waste”</p> <p>Since the activity to be licensed under the Licence to Construct does not result in the generation of any irradiated fuel, there should be some clarification in the text to explain that the details of spent fuel consignment and transport is not required. The guidance in this section should describe the requirement at a high level for the strategy, processes and facilities that will be constructed for spent fuel storage and the high level strategy for spent fuel consignment and storage.</p>	<p>conditions”. The systems and equipment at an NPP include facilities for handling and storage of irradiated fuel, therefore these should be described.</p>
147.	Environmental Law Centre	6.13	<p>This section should be more detailed, as a general comment. First, the applicant should have to provide details of the quantity of radioactive and hazardous material the facility will handle. Second, the applicant should have to provide a complete explanation of the sources of radioactive materials. Third, the applicant should provide details of the design (materials and methods) and operational elements that influence the production and release of hazardous and radioactive materials, not simply provide the control systems. Fourth, the applicant should list alternative materials, methods, monitoring and control systems and evaluate the strengths of each one. Only once this information is presented clearly is there transparency about whether the control and monitoring systems are adequate or reflect ALARA principles. The monitoring, treatment and control systems need to be related back to this information; they should not be discussed separately or disjointedly in the application. Finally, the strengths and weaknesses of the selected control system should be clearly explained, including the volumes of waste (not just radioactivity of the waste) that will ultimately be discharged after treatment and the discharge points for that waste. We agree that the design features should be listed for all radioactive and hazardous wastes arising from all activities on the site throughout the lifetime of the plant.</p>	<p>First point. No change. This information is included in chapter 14 on Waste Management. Second point. No change. This is described in chapter 14. Third point. No change. This is described in chapter 14 and in chapter 11 under design aspects of Radiation Protection. Fourth point. No change. This is addressed in Chapter 13 on Environmental Protection, where the waste management program in chapter 14, the radiation protection aspects of design, and this section (6.13) all contribute to the focus raised in this point. Final point. No change. Waste volume is addressed in chapter 14. The hardware is addressed in this section.</p>
148.	AECL	7.1	<p>The first paragraph states “<i>Chapter 7 of the application should provide a safety analysis of the plant, prepared as a preliminary safety analysis report (PSAR), ...</i>”.</p> <p>Since the intent is to address the requirement states in paragraph 5(f) of the Class I Nuclear Facilities Regulations, it would make the text less confusing by deleting (PSAR) after “<i>prepared as a preliminary safety analysis report</i>”. The reason is that the preface states “This document follows the format of the IAEA Safety Guide No. GS-G-4.1, <i>Format and Content of the Safety Analysis Report for Nuclear Power Plants ...</i>” Hence, many readers of GD-369 will associate the entire application for the Licence to Construct with a Preliminary Safety Analysis Report (as defined by the IAEA), rather than limiting Section 7 to just the documentation of the safety analysis at the construction</p>	<p>Text changed to clarify. See response to comment 150.</p>

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			stage. Furthermore, since the preface states that the application for the Licence to Construct constitutes the construction safety case, it will be generally associated with the Preliminary Safety Analysis Report (as defined by the IAEA).	
149.	Candesco Corporation	7.1, 1 st and 2 nd paragraphs	<p>“Chapter 7 of the application should provide a safety analysis of the plant, prepared as a preliminary safety analysis report (PSAR), which meets the requirements of paragraph 5(f) of the Class I Nuclear Facilities Regulations.</p> <p>The PSAR should include a deterministic safety analysis, a probabilistic safety assessment (PSA), and a hazards analysis. The design information, provided in chapter 6.0 Design of Plant Structures, Systems, and Components, should adequately support the PSAR (which should also be supported by reference material, where appropriate). The safety analysis should be provided in sufficient detail such that an independent review can be performed.”</p> <p>This section refers to the safety analysis section only as the Preliminary Safety Analysis Report (PSAR), whereas the entire document would normally be called a SAR: PSAR for the application to construct and FSAR for the application to operate. Please clarify the expected definitions and use of the terms PSAR and FSAR.</p>	<p>Agree. Text changed to “Chapter 7 of the application should provide a safety analysis of the plant, prepared as a preliminary safety analysis report (PSAR), which meets the requirements of paragraph 5(f) of the Class I Nuclear Facilities Regulations.</p> <p>The <u>PSAR safety analysis</u> should include a deterministic safety analysis, a probabilistic safety assessment (PSA), and a hazards analysis. The design information, provided in chapter 6.0 Design of Plant Structures, Systems, and Components, should adequately support the <u>PSAR safety analysis</u> (which should also be supported by reference material, where appropriate). The safety analysis should be provided in sufficient detail such that an independent review can be performed.”</p>
150.	Candesco Corporation	7.1, 2 nd paragraph	<p>“The safety analysis should be provided in sufficient detail such that an independent review can be performed.”</p> <p>This statement could be interpreted as various levels of review. Please clarify this statement as to the type of review that would be expected.</p>	<p>Agree. Added “These independent reviews include the independent peer review expected in RD-337 section 5.6 and regulatory review of the safety analysis.”</p>
151.	Toshiba	7.1	<p>Section 7.1 indicates in part: “Chapter 7 of the application should provide a safety analysis of the plant, prepared as a preliminary safety analysis report (PSAR), which meets the requirements of paragraph 5(f) of the Class I Nuclear Facilities Regulations. The PSAR should include a deterministic safety analysis, a probabilistic safety assessment (PSA), and a hazards analysis”</p> <p>Will a subsequent submittal to the PSAR be required, and if so, will the format and content differ from the PSAR, and where will these requirements be documented?</p>	<p>It is beyond the scope of RD/GD-369 to describe this. However, it is expected that a very similar format will be used for the submission to support an application for a licence to operate a nuclear power plant.</p>
152.	OPG	7.1, 4 th paragraph. 7.8, 1 st paragraph. A.3, 1 st paragraph	<p>Delete reference to RD-346.</p> <p>RD-346 does not provide requirements for safety analysis, rather it is specific to the evaluation of sites and a Licence to Prepare Site. As stated in the Preface of RD-346, the information from the site evaluation process feeds into other licence applications, and this has already been captured in RD-337 (e.g., in Section 7.4.2 of RD-337, which states “Human-induced external events include those that are identified in the site evaluation...”). The internal and external hazards identified in RD-346 have generally been brought forward into RD-337.</p>	<p>Partly agree. RD-346 is deleted from 7.1, 4th paragraph. However, reference to RD-346 is appropriate in other sections.</p>

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153.	OPG	7.2, 2 nd paragraph	In the second-last sentence, change "...frequently occurring plant events will have minor consequences" to "...frequently occurring plant events will meet the expectations of RD-337 and RD-310" The existing sentence is vague. RD-337 and RD-310 provide clearer expectations, i.e., for AOs and DBAs, and their expected consequences.	No change. The text echoes RD-337 section 4.2.4, final paragraph. This is an important principle of NPP safety.
154.	NB Power	7.3	The paragraph at the top of the page could be interpreted as setting new requirements, not included in RD-337 or 310. This guide should be limited to define documentation requirements.	No change. This is a guidance document and does not set requirements. The examples provided are commonly found in the safety analysis for most reactor designs and although most are not explicitly mentioned in RD-337 or RD-310.
155.	OPG	7.3, 2 nd paragraph	Delete reference to sections of RD-346. RD-346 is specific to the evaluation of sites and a Licence to Prepare Site. As stated in the Preface of RD-346, the information from the site evaluation process feeds into other licence applications, and this has already been captured in RD-337 (e.g., in Section 7.4.2 of RD-337, which states "Human-induced external events include those that are identified in the site evaluation..."). The internal and external hazards identified in RD-346 have generally been brought forward into RD-337.	No change. RD-346 provides requirements for the identification of events.
156.	OPG	7.3, items 9 and 10	Delete items 9 and 10. The intent and relevance of Item 11 are unclear, in the context of PIEs for safety analysis. Items 9 and 10 are not initiating events per se; rather they may represent the consequential effects from initiating events.	Partly agree. Item 9 – no change. It could be an independent PIE and has been left. Item 10 has been deleted. Item 11 has also been deleted because it will be identified by PSA if it is relevant.
157.	Toshiba	7.5	This section does not describe the process CNSC uses for reviewing the V&V of computer codes. Is the method for review of the V&V process described in greater detail in another CNSC regulatory document?	No change. Description of CNSC's review is outside the scope of RD/GD-369. Staff review procedures (under development) should provide this information.
158.	OPG	7.5, 2 nd paragraph	For the sentence regarding "The analysis of beyond design basis accidents...", change "may be less conservative than the analysis of DBAs" to "may use a more realistic methodology or "best estimate" type". This proposal is better aligned with RD-310 (Section 5.4.4 and the Glossary).	No change. CNSC does not advocate any particular methodology. We note that a more realistic or best estimate type methodology is less conservative than that used for DBA analysis and so would meet the intent of this clause and would likely be acceptable (subject to other considerations).
159.	AECL	7.5, 2 nd paragraph	Section 7.5 states: "The analysis of AOs and design basis accidents (DBAs) conducted to demonstrate the capabilities of the safety systems (Level 3 defence in depth) should be sufficiently conservative to give a very high level of confidence that the acceptance criteria can be met by the action of safety systems acting alone". AECL recommends that the text be made consistent with the requirements in Section 5.4.6 of RD-310" "The safety analysis shall build in a degree of conservatism to off-set any uncertainties associated with both NPP initial and boundary	Agree. First sentence of paragraph 2 changed to "The level of conservatism of each deterministic safety analysis should be appropriate for the class of event analysed and the analysis objectives <u>in accordance with RD-310 subsection 5.4.6.</u> "

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			<p>conditions and modeling of nuclear power plant performance in the analyzed event. This conservatism shall depend on event class, and shall be commensurate with the analysis objectives.”</p> <p>In other words, use the requirement in Section 5.4.6 of RD-310 to explain “<i>should be sufficiently conservative to give a very high level of confidence that the acceptance criteria can be met by the action of safety systems acting alone</i>”.</p>	
160.	AECL	7.5, 2 nd paragraph	<p>In Section 7.5, the text states: “<i>The analysis of beyond design basis accidents (BDBAs) may be less conservative than the analysis of DBAs</i>”.</p> <p>AECL recommends that a reference to the last paragraph of Section 5.4.4 of RD-310 be included to provide appropriate context: “For the analysis of BDBA, it is acceptable to use a more realistic analysis methodology consisting of assumptions which reflect the likely plant configuration, and the expected response of plant systems and operators in the analysed accident.”</p>	No change. The text is consistent with RD-310 and change to the first sentence of this paragraph already emphasises the link to RD-310.
161.	Candesco Corporation	7.5, 4 th paragraph	<p>“The validation status of the plant model should also be presented.”</p> <p>It is not clear what the “validation status of the plant model” refers to. Please clarify the wording.</p>	Text has been clarified. The plant model refers to the input datasets for safety analysis computer codes. Since the plant is not built, verification alone may be all that is possible. Text changed to “The verification and validation status of the plant models (input data used by safety analysis computer codes) should also be presented.”
162.	NB Power	7.5	The phrase “AOO could use best estimate” used in the second paragraph goes beyond what is said in RD-310. The discussion should be limited to the documentation requirements and not how safety analysis should be performed.	No change. RD-310 section 3.4.6 says that the “conservatism shall depend on the event class and shall be commensurate with the analysis objectives”. The wording in RD/GD-369 relates to level 2 defence in depth and is consistent with RD-310.
163.	OPG	7.5.1, 1 st paragraph	<p>Remove reference to Section 4.2.1 of RD-337.</p> <p>This section of RD-337 does not apply to normal operation.</p>	Agree. Text changed to “will meet the expectations of section 4.1.1”.
164.	NB Power	7.5.2	Is not the reference that for AOOs; safety systems acting alone should be able to mitigate the event; a new requirement. Again, this guide should only include licence application requirements not design or analysis requirements	Agree. Last sentence in paragraph 2 changed to “For both AOOs and DBAs, there should be high confidence that qualified systems (as identified in section 5.4.4 of RD-310) acting alone can mitigate the event.”
165.	OPG	7.5.2, 2 nd paragraph	<p>Change “For AOOs” to “For a wide range of AOOs”.</p> <p>The activation of safety systems may be necessary in order to adequately mitigate certain AOOs. Furthermore, the proposed additional wording is verbatim from Section 7.3.2 of RD-337.</p>	Agree. First sentence of 7.5.2 2 nd paragraph changed as suggested.
166.	OPG	7.5.4, item 2	<p>Regarding item 2 under “The analyses may:”, add “and beyond original intended functions”.</p> <p>This is consistent with Section 7.3.4 of RD-337 (concerning severe accidents).</p>	Agree. Text changed as suggested.
167.	OPG	7.5.4, 3 rd paragraph	<p>Delete the wording “in which the uncertainties in the understanding of the physical processes being modelled are taken into account.”</p> <p>For beyond design basis accidents, the sentence presents the option of using “reasonably conservative assumptions”, as an alternative to the</p>	Partly agree. CNSC considers that a “reasonable degree of conservatism” is larger for physical processes with large uncertainty. Hence consideration of uncertainties is important. Changed “are taken into account” to “are considered”.

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			acceptable approach of items 1-3 on the use of best estimate models and realistic assumptions, system actions, performance or operator actions. As such, the inclusion of uncertainties is unnecessary (they are not considered in the realistic methodology of items 1-3), and it is inconsistent with RD-310 rules for BDBA analysis.	
168.	OPG	7.5.4, 4th paragraph	For item 1 under “with the following modifications:”, delete mention of “specific acceptance criteria” and add “consistent with Section 5.3.3 of RD-310”. There are no acceptance criteria for BDBAs in RD-337 nor RD-310. Rather, RD-310 discusses objectives for BDBAs, e.g., in terms of safety goals.	Clarification provided. RD-310 section 5.4.2, item 2 requires the licensee / applicant to identify applicable acceptance criteria, hence the wording in RD/GD-369 is consistent. For clarity, reference to section 5.4.2 of RD-310 is added, “... specific acceptance criteria <u>consistent with section 5.4.2 of RD-310</u> should be stated”.
169.	OPG	7.5.4, 4 th paragraph	For item 3 under “with the following modifications:”, reword this item to simply say “whenever operator action is taken into account, the analysis of BDBAs will use assumptions which reflect the expected response of operators in the analyzed accident”. The proposed wording is generalized to align with Section 5.4.4 of RD-310. Also, item 3 refers to “documented procedures”, which are prescriptive in nature, whereas in the case of severe accidents, there may be no such procedures (rather, severe accident management guidelines).	No change. All the items listed are important. RD-310 is not the only source of information. G-306 contains guidance on Severe Accident Management Guidelines, including procedures.
170.	OPG	7.5.4, 4th paragraph	For item 4 under “with the following modifications:”, delete mention of “specific acceptance criteria”. Reword to state that key results should be assessed against relevant objectives. There are no acceptance criteria for BDBAs in RD-337 nor RD-310. Rather, RD-310 discusses objectives for BDBAs, e.g., in terms of safety goals.	No change. See response to comment 169 above. RD-310 requires that acceptance criteria are identified.
171.	OPG	7.5.5 items 5 and 6	In items 5 and 6, change “DBA” to “AOO and DBA”. This discussion in this section relates to “design basis events”, which includes AOOs. Also, items 5 and 6 refer to the crediting of safety system actions, which may be necessary for certain AOOs.	Agree. Text changed as suggested. Also, first paragraph, second sentence “design basis events” changed to “events within the design basis (AOO and DBA)”.
172.	OPG	7.6, 2 nd paragraph	At the end of the first sentence, after “molten fuel-coolant interaction”, insert “if applicable”. Such phenomena may not arise in the severe accidents selected for analysis.	Agree. Text changed to “including, as applicable ...”
173.	OPG	7.6, 3 rd & 4 th paragraphs	Delete mention of emergency preparedness planning. This topic may not be based on severe accidents. Section 12 addresses this topic.	No change. This section describes accident phenomenology and releases. Section 12 deals with the measures to cope with those (and other) releases. If no severe accident scenarios are used in emergency preparedness planning, then it is simple for the applicant to say so in this section.
174.	Bruce Power	7.7	Section 7.7 (Probabilistic safety assessment) of the draft GD-369. There will obviously be estimates made in the PSA developed for the construction licence (some of the S-294 requirements are for realistic data and modeling – since the detailed design wouldn’t be completed yet, you would include estimates of initiating event frequencies, failure	No change. CNSC staff accepts that safety analysis will change through the plant life. At this stage, the best data available will be used. It will be updated as better data become available.

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			<p>rate data, human performance data, shutdown state configurations and durations, etc in the PSA).</p> <p>The only specific comment on is the statement that the aspects of plant operation that are the most important contributors to the (RD-337) risk measures should be identified. Since operating procedures wouldn't be finalized, listing the 'important contributors' is an estimate only (and would definitely change as the procedures were developed).</p> <p>The PSA will need to be updated to include addition detailed information for the FSAR and operating license application.</p>	
175.	AECL	7.7	<p>Section 7.7 states a requirement for "assessment of off-site consequences". Since all of the information may not be available at the time of the application for the Licence to Construct, AECL recommends including the phrase "or timelines and milestones planned for the detailed completion."</p>	<p>No change. This information must be available at the time of application for a licence to construct a NPP. CNSC must be satisfied that the NPP will meet the requirements of <i>Class 1 Nuclear Facilities Regulations</i>, section 5, which include "An application for a licence to construct a Class 1 nuclear facility shall contain the following information [...]</p> <p>(i) the effects on the environment and the health and safety of persons that may result from the construction, <u>operation</u> and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects".</p> <p>It is recognized that there may be changes during construction and the consequences will be recalculated. However, there must be meaningful calculations of the off-site consequences available at the time of application for a licence to construct. Indeed, these consequences should have been estimated at the time of application for a licence to prepare site.</p>
176.	OPG	8.1	<p>Clarify that initially, general description only is required for commissioning activities following fuel load. Detailed information may be provided later.</p> <p>Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.</p>	<p>No change. Section 8.1 covers <u>program</u> information related to all commissioning. These programs should be defined before construction begins and hence CNSC needs to review them. It is not anticipated that significantly different processes will be used before and after fuel load.</p> <p>See response to comment 1 related to staged submission of information and staged review by CNSC. See also response to comment 1 on the importance of complete information at the time of application.</p> <p>Note that additional text has been added to section 8.1 to address comment 210 related to control of modifications.</p>

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177.	Bruce Power	8.2 and Glossary	The definition of the applicant is flawed. Given this definition the applicant/constructor must supervise any operator of the plant. This is not supported by regulations. “The company/organization the holds the operating licence is responsible for the safe operation of the plant, not the applicant for the construction licence.” The CNSC cannot give a licence to a company/organization that is not qualified, so why would a company that for example, bought a newly constructed plant be required to be supervised by the original applicant? It is wrong to put this type of requirement into a Guidance Document. This needs further clarification to the intent.	No change. Looking forward to operation, many possible contractual models are possible. One possible model is with an applicant that purchases a facility from a vendor and then places contracts to another organization to operate the facility. In this case, the applicant is responsible for all activities carried out by the contracted organization (the operating organization). There is also the model where the applicant is also the organization that will operate the facility. The definition covers both of these models.
178.	OPG	8.2.1	Clarify that initially, general description only is required for commissioning activities following fuel load. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change. Section 8.2.1 covers the role of the construction organization and related organizational and management arrangements. Commissioning activities after fuel load are discussed in section 8.4, paragraph 2. See comment 1.
179.	Bruce Power	8.2.3	The information requested for Commissioning may not be fully developed at the time of the construction licence application submission. It would also be difficult to demonstrate the qualifications of staff for activities that would not be occurring for 2-5 years after the submission of the application.	Agree. Changed first line to “This subsection should <u>outline</u> ...”
180.	OPG	8.3	Reword first paragraph to clarify the description of functional tests required up to fuel loading, to indicate that for activities after fuel loading a general description may be provided initially. Detailed information may be provided later. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Agree. Section 8.3, third list, item 1 is revised to read, “1. description of all necessary functional tests to be carried out, in order to demonstrate that the SSC have been properly installed and that the plant meets the design specifications, regulatory requirements, codes, standards and safety requirements ” Commissioning activities (including functional testing) up to fuel load are discussed in section 8.4, paragraph 1. Commissioning activities after fuel load are discussed in section 8.4, paragraph 2.
181.	OPG	8.3.1, 2 nd paragraph	Add text to Item 4 as follows – “spares are procured for plant items at the time original items are procured, where practicable considering shelf life.”	Agree. Text changed as suggested.
182.	AECL	8.3.1, items 3, 4 and 4	Items 2, 3 and 4 in the second list are not practical to address in a manufacturer’s quality assurance program: “2. <i>understanding of the manufacturing implications of the design</i> 3. <i>estimates of resource requirements</i> 4. <i>procurement of critical path and long-delivery items</i> ” It is recommended that these items be included with the requirements in first list of bullets which pertains to considerations that the applicant should take in to account.	Partly agree. Items 3 and 4 deleted. Item 2 is necessary.
183.	AECL	8.3.2	The text should acknowledge that detailed data and/or procedures are often a series activity in the project that comes after the construction start. This means, in general terms, that the detailed data and design documentation and detailed procedures may not be available when the application for the Licence to Construct is submitted. However, the	No change. See response to comment 1 on the importance of complete design information at the time of application.

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			application for the Licence to Construct can include the timelines and milestones planned for the detailed development and completion.	
184.	OPG	8.4	Revise this section to provide a clear connection between the pre-fuel load commissioning program and the training program for certified positions. Previous sections of the document indicate the expectation that the role of the operator in the commissioning program be described. There will be a strong linkage between the training program, particularly for certified positions, and the commissioning program.	Agree. Text added to end of paragraph 4, “The connection between the pre-fuel load commissioning program and the training program for certified staff should be described.”
185.	Candesco Corporation	8.4, all	Please note that, it is expected that the detailed commissioning program will be provided prior to the beginning of Phase A commissioning, and may not be submitted in full with the initial application for Licence to Construct.	No change. The first paragraph asks for the section to “describe in general terms, the program established ...”
186.	OPG	8.4, 2 nd paragraph	Revise the second paragraph to state “This section should also initially indicate, in general terms, the commissioning program proposed for commissioning following fuel loading, and the approach to commercial operation. The overall timeline for the submission of the application for the operating activities and the details (?) of the fuel loading and post-fuel load commissioning program should be provided.” Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change. Section 8.4.1 adequately addresses the stages of commissioning. See response to comment 1 on the importance of complete design information at the time of application.
187.	AECL	8.4, item 7	Section 8.4 bullet #7 asks for “description of the tests, including acceptance criteria”. It would be very difficult to list every test and all acceptance criteria. In some cases there will be tests or acceptance criteria that are specific to equipment which has not been purchased before the application for the Licence to Construct is submitted. AECL recommends adding the words “or timeline and milestones for development of acceptance tests and acceptance criteria”.	Partly agree. Item 7 changed to 7. description of the tests (including acceptance criteria) to be carried out in the different commissioning phases in order to demonstrate that the installed plant meets the design and safety requirements a) detailed information is expected for Phase A commissioning b) for later stages of commissioning, a high level description of the tests along with a schedule and milestones for provision of detailed information is sufficient

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188.	AECL	8.4	<p>Paragraph 5 of the Class I Nuclear Facility Regulations does not include a requirement to submit the proposed commissioning program for the systems and equipment that will be used at the nuclear facility. This requirement is stated in paragraph 6(g) of the Class I Nuclear Facility Regulations.</p> <p>However, it is recognized that the proposed commissioning program for the systems and equipment up to first fuel load will be performed under the Licence to Construct as a licensed activity. Therefore, AECL recommends that GD-369 include guidance on describing, in general terms, the commissioning documentation proposed for the commissioning program and including the timelines and milestones planned for its detailed development and completion.</p>	<p>No change. Paragraph 1 of section 8.4 asks for information in general terms and paragraph 2 asks for timelines and milestones. The remainder of the section outlines the information that is expected. This information is required to meet <i>General Nuclear Safety and Control Regulations</i> paragraph 3(1)(i), which states that “a description and the results of any test, analysis or calculation performed to substantiate the information included in the application” must be provided.</p> <p>Moreover, paragraph 3(1)(m) states that “any other information required by the Act or the regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.”</p>
189.	Bruce Power	8.4	<p>The approach for the Commissioning program is appropriate and should be used for other programs that are requested to be submitted (i.e. submit a general description and timelines and milestones for preparation of and completion of the program documents). However, there is information in this section that is requested that may not be fully available at the time of submission of the application.</p>	<p>See response to comment 186.</p>
190.	Bruce Power	8.4 & 8.4.2	<p>At the stage of the CLA submission it should factored in that not all the detailed commissioning procedures will be developed as some of the plant will not have been completely design at this stage. Therefore, the requirements for CLA submission should be commensurate with the level of detailed needed based on an agreed schedule for developing such detailed commissioning procedures.</p>	<p>See response to comment 1 on the importance of complete design information at the time of application.</p> <p>See also response to comment 186.</p>
191.	OPG	8.4.1, 2nd paragraph	<p>Revise the second sentence to state that the CCA “...process should require formal review by the applicant’s engineering staff before the CCA is presented.” not a formal review by nuclear safety engineers.</p>	<p>Agree. Text changed as suggested. [now third paragraph]</p>
192.	OPG	8.4.1, 2nd paragraph	<p>Revise “should cover the detailed development of the rest of the commissioning program” to state “should initially cover, in general terms, the development of the rest of the commissioning program”</p> <p>Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.</p>	<p>Partly agree. See response to comment 186.</p>
193.	AECL	8.4.2	<p>Paragraph 5 of the Class I Nuclear Facility Regulations does not include a requirement to submit the proposed commissioning program for the systems and equipment that will be used at the nuclear facility. This requirement is stated in paragraph 6(g) of the Class I Nuclear Facility Regulations.</p> <p>However, it is recognized that the proposed commissioning program for the systems and equipment up to first fuel load will be performed under the Licence to Construct. Therefore, AECL recommends that GD-369 include guidance on describing, in general terms, the commissioning documentation proposed for the commissioning</p>	<p>Duplicate comment. See response to comment 188.</p>

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			program and including the timelines and milestones planned for its detailed development and completion.	
194.	AECL	9.0, all	A reasonable balance is needed between the level of detail in the information required on operational aspects and the stage of development of a project at the time of the application for the Licence to Construct is needed in the text of GD-369. There needs to be a recognition that the details of the procedures under operational aspects will be developing during the construction phase. The emphasis should be placed on having an appropriate level of detail commensurate with the operational aspects that are needed to support the construction and commissioning activities up to first fuel load.	Section 9.1 has been revised to clarify the limited scope of information being requested: “Chapter 9 of the application should describe the main operational safety objectives for the plant throughout its operational lifetime. It should explain, in general terms, the planned organizational structure, management programs and processes, required services and facilities, and promoting and maintaining a healthy safety culture to achieve those safety objectives.” Some further revisions have been made to other sections in chapter 9 to address specific comments related to the level of detail requested (see 199 to 218).
195.	OPG	9.0, all	Operational Aspects – This entire section should initially be described in general terms with more details to follow. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	See response to comment 194.
196.	Candesco Corporation	9.0, all	This section seems overly specific for construction. Suggest that this be moved to the guidelines for Application for Operating Licence.	See response to comment 194.
197.	Bruce Power	9.0, all	This entire section seems to be beyond the requirements for a construction licence and fit more appropriately in an operating licence application. I high level description of this information may be appropriate, however, the level of detail being requested will not be available at the time of the construction licence application.	See response to comment 194.
198.	OPG	9.2	Revise the last sentence “The role planned for the operating organization during the decommissioning phase of the plant lifecycle” to state “The role planned for the operating organization in a potential early decommissioning of the plant at the conclusion of construction” Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information. For decommissioning and abandonment, this could be over 100 years in future and therefore is not practicable at this time. The preliminary decommissioning plan and associated cost estimate will be focused on the potential decommissioning should the facility not become operational. This change would align the contents of the application.	No change. The current text is sufficiently high-level (“describe in general terms”).

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199.	OPG	9.2	Clarify that staffing levels, structures for later phases need initially only be described at a general level. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information. It is not practicable to include detailed information on decommissioning and abandonment as these could occur more than 100 years in the future.	Agree that staffing levels need only be described at general level. Second sentence of first paragraph changed to “It should <u>outline</u> the staffing and qualification requirements ...”
200.	OPG	9.4 to 9.10	Focus on those activities that occur prior to fuel load. For post-construction phases, this will be addressed in detail once an acceptable design is available. Only those programs required for commissioning, operation and maintenance prior to fuel load are required in detail initially.	No change. Section 9.1 makes clear the limited scope of the information being requested.
201.	OPG	9.6	Revise the first sentence to remove the phrase “and justify” and replace with “This section should describe the program that will be followed to develop the emergency operating procedures, including severe accident management guidelines.” The meaning of this phrase is unclear. Justification can be achieved by any number of means – such as current practices, industry best practices, etc. As applicant, this section does not provide sufficient clarity as to the content to be included. The emergency operating procedures will be developed in the same manner as the other operating procedures to be used in the operation of the station and the establishment of the training program content. These procedures will be checked using the simulator that is available in support of the certification training program. Such checking does not “justify” the procedures.	Agree. Text changed as suggested.
202.	AECL	9.6, first sentence	AECL recommends changing “...emergency operating procedures, including severe accident management guidelines ...” to “...emergency operating procedures and severe accident management guidelines ...”. Emergency operating procedures are typically developed to address events arising from anticipated operational occurrences, design basis accidents and internal and external hazards. Severe accident management guidelines are developed to address beyond design basis accidents and severe accidents. Hence, severe accident management guidelines may be a completely separate set of operational processes.	Agree. Text “including” changed to “and”.
203.	NB Power	9.6	Information outlined related to accident management program seems to go well beyond what is required at the construction licence application stage.	Partly agree. The opening paragraph of section 9.6 makes it clear that it is the approach to development of accident management procedures and guidelines that is requested. Some of the detailed content has been modified to make this clearer: <ul style="list-style-type: none"> • first sentence in paragraph 1 has been revised as per comment 202 • first list, item 6, "and communication" deleted

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				<ul style="list-style-type: none"> second list introduced by "The description of the accident management program should include <u>high level information on:</u>" third list, item 3 changed to "meet the <u>applicable</u> expectations of ..."
204.	Bruce Power	9.7	Again the level of detail should be appropriate for the stage of the design. Procurement of specific equipment will not be known until later in the construction phase. Information provided in the CLA should be at the level appropriate and updated as more detailed information becomes available.	<p>No change. A high level description of the programs for operation and how it links to the construction and commissioning phase should be available. Without this linkage, important baseline information may not be recoverable. The applicant is asked to provide timelines and milestones for more specific deliverables.</p> <p>Note that section 9.7 has been revised as per comments 95 to 100.</p>
205.	OPG	9.8. 1 st paragraph	Revise text as follows: "This section should describe the industry research and operating experience-based approach that will be used for the chemical control of plant fluid systems important to safety during construction and commissioning, and later on in all at a programmatic level for operational states." Focus should be on those systems important to safety.	Agree. Text changed "This section should describe the industry research and operating experience-based approach that will be used for the chemical control of plant fluid systems important to safety during construction and commissioning, and at a programmatic level for operational states."
206.	AECL	9.8, item 2	Section 9.8, bullet 2 requests information on chemistry procedures, specifications and methods of control and how they will be monitored through the use of adequate performance indicators. AECL recommends adding the words "or timeline and milestones for development of information" to the bullet.	Partly agree. See changes in response to comment 205.
207.	AECL	9.8	Section 9.8 Chemistry Control bullet #2 requests "chemistry procedures". At the time of the application for the Licence to Construct, these specific procedures are not likely to be available. This is also the case for many of the commissioning and operating phase information requests in GD-369. To write generic procedures across many subject areas would require significantly extra time and significantly extra staff during the early project phase. This will result in a major change to the assumptions for project start, staffing and funding with resulting impacts on the owner and vendor. These generic procedures would have to be re-written once plant specific equipment is purchased. To address the above concern, AECL recommends including text such as: "the overriding program (including strategy) is to be described in detail and if the specific procedures and activities cannot be provided then a listing of those documents or document groupings are to be provided along with a general outline of their content and the timeline and milestones by which the procedures and activities will be prepared".	No change. Section 9.8 asks for the "approach that will be used for the chemical control of plant fluid systems". Note change made to this section in response to comment 205.
208.	OPG	9.9	Revise the section to state "This section of the application should describe, at a high level, the programs and processes respecting core management, fuel-handling and storage that will be applied prior to and following initial fuel load. This section should be linked to and complement section 9.11, Qualification and training of personnel, and	Agree. Text changed as suggested.

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			section 9.12, Certification of personnel.” There will be no activities related to core management, fuel handling and storage during the construction and commissioning program covered by the Licence to Construct.	
209.	AECL	9.9	The text should acknowledge that the activities related to core management, fuel-handling of irradiated fuel and storage of irradiated fuel are not included in the license activities under a Licence to Construct. Therefore, the level of detail required for the application for the Licence to Construct should be consistent with the activities that will be performed.	Licence to construct must show acceptable safety performance in the operating phase. See response to comment 147. Note that the high level of information expected in this section has been emphasized in changes made in response to comment 208.
210.	OPG	9.10	This section should be revised to be included in section 8. Modification control under the Licence to Construct is with respect to the construction program through field changes or discoveries during pre-fuel commissioning.	Partly agree. Additional text has been added to section 8.1 and 8.3 to address control of modifications during construction. Section 8.1 paragraph 4, list changed as follows: Item 2 revised to: “2. provisions made for <u>making permanent and temporary</u> design changes” New items 3,4 and 5 added: “3. provisions made for the identification, resolution and approval of deviations from the design 4. provisions to ensure that changes to the design baseline are identified, reviewed, approved and documented for the handover of completed work from the construction organization to the commissioning organization to the operating organization 5. provisions to ensure the maintenance of SSCs during construction and commissioning” Item 6 (was item 3) added “on-site fabrication” Last item revised to “11. provisions for the validation at the end of construction, of records that will be transferred to the commissioning or operating organization to be maintained for the lifetime of the installation (see section 9.16, Documents and records)” Section 8.3, paragraph 6 (after second list) changed “control of modifications” to “control of permanent and temporary design changes”
211.	OPG	9.10	Focus should be on change management up to fuel load. Initially, only a general description for change management post-fuel load should be required, with details to follow. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change to text. Chapter 9 is about preparation for the operational phase of the plant life. The focus is on preparing the programs that will be needed in the operational phase and establishing continuity with the construction and commissioning.
212.	Bruce Power	9.11	"This section should also describe the qualification and training requirements for personnel engaged in the site evaluation" There are not specific qualification for site evaluation per say. This should only describe qualification of personnel for specific subject	Agree. “site evaluation” has been removed.

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			area...ie. Security, environment, etc. Some staff will be external organizations involved in the EA work. Suggest changing to “This section should also describe the qualification and training requirements in the specific subject areas needed for personnel engaged in the site evaluation”. Write a separate sentence for personnel training and qualification for design.	
213.	OPG	9.11, 9.12	Focus on construction/commissioning phases only. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change. The focus of chapter 9 is preparation for the operational phase of the plant lifetime. Because of the long lead time, the training for certification must begin well before the operating phase. The foundation of the certification program (program definition, needs assessments, etc.) must be laid even earlier. Information submitted should include the outline of the program and major milestones in readiness for eventual operation.
214.	OPG	9.11, 5 th paragraph	Fifth paragraph is a duplicate of part of previous paragraph.	Agree. Duplicate text removed from end of fourth paragraph.
215.	OPG	9.11	Modify the following requirements to indicate initial submission only requires this information at a general level: “During its lifetime, the plant will undergo changes to its SSC, procedures and regulations and these could affect plant training programs. An explanation should be provided to demonstrate how the training department plans will ensure that training programs capture the changes that take place and continue to reflect the “as operating” status of the plant. The section should also indicate the identity of the staff positions planned to cover all plant states, along with the proposed personnel occupational groupings at the plant. It should explain how the analysis connecting the two has been performed and how the individual personnel will be recruited, their skills assessed, and the ensuing performance gaps identified to determine the required level of training programs. Finally, the section should explain the qualification and skill requirements that have been set for contracting organizations and their personnel who perform activities relating to the plant. Where detailed specific qualification and training documentation is to be developed later on, the section should provide a proposed timeline and milestones for completion of the work.” Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Partly agree. The initial part of the quoted text (paragraph 5) is not asking for detailed information, merely an explanation of how changes will be accommodated in the training programs. The text in paragraph 6 has been modified as follows. Second sentence changed to “It should explain <u>in general terms</u> how the analysis ...”. Third sentence changed to “Finally, the section should <u>outline</u> the qualification and skill requirements ...”
216.	OPG	9.12	Second sentence of this section should be revised to state “For the positions requiring certification, as set out in RD 204, Certification of Persons Working at Nuclear Power Plants, and to be confirmed in the Licence to Construct, the section should describe the program that will be implemented to achieve the specified expectations for certification training, including what proposed alternatives approaches will be	Agree. Text changed to “For the positions requiring certification, as set out in RD-204, Certification of Persons Working at Nuclear Power Plants, this section should describe the program that will be implemented to achieve the specified requirements for certification training. The description should also include any proposed alternative approaches that will be implemented to

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			implemented to achieve certification in advance of the first fuel load.” The positions to be certified are defined through licence condition, and this section should indicate which positions will require certification. Alternative approaches will need to be proposed to address the requirements of RD-204 that are not practical to achieve in the absence of an operating Class 1A nuclear facility.	achieve certification in advance of the first fuel load.”
217.	OPG	9.15	Revise to indicate initial submission only requires a high level description for operations, with detailed information to follow. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change. The operational experience program should begin during the design stage. Lessons learned from the site preparation, construction, commissioning of other NPPs should be taken into account.
218.	OPG	9.17	Revise to indicate initial submission only requires a high level description for operations, with detailed information to follow. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Second sentence revised to “The applicant should <u>outline</u> the human resources approach ...”. The rest of the paragraph is asking for high level information.
219.	OPG	10.0	Revise to indicate initial submission only requires a high level description for operations, with detailed information to follow. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	No change. It is recognized that detailed values are still subject to change, but provisional values for all operating limits and setpoints must be available at the design stage for use in safety analysis, preparation of operating and accident management procedures and many other things. In particular instrument uncertainties and equipment response times will require confirmation or revision following commissioning tests.
220.	NB Power	10.1	This is a function of the actual components with specific uncertainties, time constant etc. It may be difficult too difficult to complete for the application of the construction licence.	No change. Preliminary values will be available. These will require confirmation at commissioning and OLCs are likely to need detailed revision.
221.	Candesco Corporation	10.1, 5 th paragraph	“The OLCs described should contain numerical values of limiting parameters and operability conditions of systems and components.” Many of the numerical values of the OLCs would not likely be finalized for the Application for Construction Licence. Suggest that the requirement for numerical values be moved to guidelines for Application for Operating Licence. This approach is also more consistent with international practice such as that of US NRC for which most of the key Technical Specification values are provided when the Combined Operating Licence is requested, not at the time of design certification.	No change. Agree that the final values will be set later. However, preliminary values must be available in order, for example, to perform the safety analysis.
222.	OPG	11.0	Clarify that this applies to design aspects for radiation, and initially only high level information is required for programs / procedures. Details may be provided in a staged approach to align with approvals. Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.	Agree. First sentence of paragraph 1 changed to “.. <u>design</u> provisions made ...” and second sentence to “including <u>an outline of</u> measures ...”

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223.	Bruce Power	11.6	<p>“It should detail the administrative organization, equipment, instrumentation and facilities, and procedures established to support the program”</p> <p>Again the level of detail should be appropriate for the stage of the design. Procurement of specific equipment will not be known until later in the construction phase. Information provided in the CLA should be at the level appropriate and updated as more detailed information becomes available.</p>	Agree. Changed to “It should <u>outline</u> the administrative ...”
224.	Bruce Power	11.6	<p>The radiation protection program submitted for the construction licence will likely only include protection measures for sources being used for such things as radiography. It will not be to the detail being requested, the RP program for the operating plant would be submitted with the operating licence application.</p>	Agree. Changed to “It should <u>outline</u> the administrative ...”
225.	AECL	11.6	<p>Section 11.6 requests details on the administrative organization, equipment, instrumentation and facilities, and procedures established to support the Radiation Protection program. The level of detail required for the application should be commensurate the requirements in paragraph 24(4)(b) of the Nuclear safety and Control Act.</p> <p>For the Licence to Construct, the typical set of activities include:</p> <ul style="list-style-type: none"> • Construction • System (Phase A) commissioning • Handling, transferring and storing fresh fuel bundles • Handling, transferring and storing heavy water (which may contain tritium and other radioactive substances) • Handling, transferring and storing radioactive sources <p>The text should recognize that the level of detail for the full Radiation Protection program for operation of the nuclear power plant may not be available at the time of the application for the Licence to Construct. This could be achieved by including a phrase such as “or timeline and milestones for development of information for the full Radiation Protection program” at the end of the second sentence in the first paragraph.</p>	Agree. Changed to “It should <u>outline</u> the administrative ...”
226.	OPG	12.0	<p>Describe in general terms for up to first fuel load. Existing site emergency preparedness plans should be modified to accommodate the project until first fuel load</p> <p>Development of detailed material requires an acceptable design. Provision in the document is required for staged Commission approvals, to allow for procurement, and the development of the operating information.</p>	<p>Partly agree. Paragraph 2, second sentence changed to “... the application should include <u>general</u> information ...”.</p> <p>Also, a new final paragraph is added: “If the application relates to a site with an existing Class 1 nuclear facility, any changes to the existing site emergency plan are dealt with under the existing licence.”</p>

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227.	Bruce Power	12.1	As mentioned in other earlier comments, the level of detail being requested is inappropriate. The emergency preparedness procedures for the operational phase are unlikely to be available at the time of the construction licence application and the decommissioning EP plans will definitely not be available.	Procedures are only asked for in relation to activities covered under the licence to construct. However, emergency preparedness for the new facility needs to take into account all external hazards, including nearby facilities. See changes in response to comment 226 for related change.
228.	OPG	13.0	This section should discuss the relationship to the effects assessment that may have been performed in an environmental assessment either for the Licence to Prepare Site phase or that is expected to occur concurrently with the consideration of the Licence to Construct application. Such description, as it pertains to subsequent licences, such as the Licence to Operate and the Licence to Decommission, should be provided “in general terms”, and specifics should be limited to the activities to be approved under the Licence to Construct. Design aspects of environmental protection should be incorporated into sections 5 or 6, as was done for the radiation protection program, so that equivalent levels of information are provided respecting the consideration of the environment in the design process, and the design documentation to be provided for the treatment and protective systems. The document does not provide the clarity expected by the applicant respecting the consideration of environmental protection and monitoring systems that are incorporated into the design and which will be constructed and commissioned. As in other areas of the document, effort should be made to distinguish between programmatic expectations and design expectations.	Partly agree. Design aspects of environmental protection are described in section 6.13. Section 13.4 has been linked to section 6.13. Final sentence of section 13.4 paragraph 1 has been changed to “With reference to section 6.13, Radioactive and hazardous waste treatment systems, this section should demonstrate that best available technology economically achievable has been incorporated into the plant design ...”
229.	Candesco Corporation	13.0	This section appears to be overly specific for construction. Suggest that some of the guidelines be moved to the Application for Operating Licence.	No change. These provisions are needed to support commissioning activities under this licence.
230.	Environmental Law Centre	13.1	We agree that a precautionary approach should be used. However we are concerned that there is no mention of ALARA principles in relation to the general release of radioactive and hazardous substances into the environment. The use of ALARA in the environmental, as opposed to the health and safety context must be clear. We do not agree that there should be any cases where documentation for the management of environmental aspects are not part of the plant design. These elements are core to the CNSC mandate and should be included in the application. It is unsatisfactory to allow these items to be developed at a later date, outside the normal regulatory process. The inclusion of this paragraph suggests that environmental protection is of lesser importance than other elements of the application and is not appropriate.	Partly agree. For clarity, reference to P-223 <i>Protection of the Environment</i> has been added to section 13.1. P-223 includes the text: “The measures taken by CNSC licensees to protect environment should: recognize that uncertainty exists in science and therefore prevent unreasonable risk by keeping all releases to the environment as low as reasonably achievable , social and economic factors taken in to account (ALARA).” Furthermore, G-296 is referenced in section 13.1 and this provides more detailed guidance on establishing an environmental management system that maintains doses ALARA in accordance with the requirements of the <i>Radiation Protection Regulations</i> . G-296 also discusses risks to non-human biota. Design aspects are highly integrated into RD/GD-369. The design of radioactive and hazardous waste treatment systems is discussed in section 6.13.

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				Documentation that does not apply to the construction phase may be submitted later, with the application for a licence to operate. This will be subject to regulatory review at that time. Text has been revised to clarify. The wording “plant design”, has been replaced by “environmental protection programs”. A licensee’s environmental management system (EMS) is required to identify environmental aspects and evaluate them for significance so that control measures such as environmental monitoring programs are developed. Environmental aspects and their monitoring will depend on the type of the licensed activity.
231.	Environmental Law Centre	13.2	We are dismayed at self-setting of authorized limits and operational targets for the facility. The CNSC should develop clear and transparent expectations and standards based on the best available technology to ensure that these limits and operational targets are truly ALARA. The ELC notes ongoing confusion in the regulatory process and documentation over releases, dose descriptions and methodology. There should be a standard format for the expression of operational targets and authorized limits to the environment and these should be based upon end of pipe releases. The assumption should be that releases should be safe at the end of the pipe and this is where measurements should be taken for the purposes of compliance. Critical Doses estimated from these limits should always be described in an appropriate manner, and consistently (i.e. absorbed dose, effective dose, etc.). The assumptions for the age and behaviour of critical groups must be transparent and clearly explained. The document here only says "doses to the public" we do not know what this means or whether it will be expressed appropriately (effective dose? committed dose? absorbed dose?). We would like to see clear guidance from the regulator on this issue. It is unclear if point two is intended to apply to critical groups or the public generally. There is a lack of regulatory clarity around this issue. We note that the entire emphasis of this portion appears to be on human doses rather than doses to environmental receptors. The utilization of human dose calculations from critical groups for this purpose has been rejected by the ICRP and IAEA. This is the reason for the critical group versus end of pipe problem. There is no indication in this section that the CNSC is addressing this issue through the adoption of standard expectations for predicting environmental effects from radioactive releases, such as the use of VECs or end of pipe precautionary methods. We hope to see additional work on this issue in the future.	Text has been revised for clarity. Text in item 1 has been revised as follows: “identify any authorized limits and specify operational targets...” The authorized limits are those stipulated by the <i>Nuclear Safety and Control Act</i> , CNSC regulations and regulatory limits, regulatory standards, permits, provincial certificates of approvals, other federal regulations, etc. The applicable regulatory documents are referenced in RD/GD-369. The revised text clarifies that the applicant identifies the applicable limits but does not set them. Environmental “receptors” are both non-human biota and humans. The end of pipe release is only one small part of the story of the behaviour of the contaminants released by the licensed activities in the environment. There are several contaminant specific pathways through which the contaminant transfers and reaches the receptor. The process is described in the CSA document on Derived Release Limits N288.1-08 which the CNSC requires for all licensees. These pathways do include both human and non-human biota. There are no “critical doses” there is only dose to the members of the public estimated to a “representative person” (previously critical group member). The dose limit to members of the public is 1 millisievert committed effective dose per annum. These are described in the CNSC Radiation Protection Regulations. The CSA DRL document and CNSC regulatory documents are all public. See also N288.4-10 Environmental Monitoring (note that Draft N288.5 on Effluent Monitoring is under development).
232.	Environmental Law Centre	13.3	As with radiological limits, we are dismayed to see that self-setting of hazardous waste limits is encouraged by this document. We note that provincial and federal regulators can provide useful guidance on hazardous waste effluent standards. There should be an indication that the applicant must show they can comply with CCME, federal,	There is no self-setting of limits. Item 2 states that the applicant is requested to <u>identify</u> authorized limits. Please see responses to comments 230 and 231. Further, the hazardous substances are regulated by CNSC, Federal and Provincial regulations and standards such as CSA Standard N288

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			<p>provincial and international standards if applicable. Likewise, clear reference to the ALARA principle, and the use of the best available technology must be made a clear expectation. As with other sections, point of discharge and volume, quantity, concentration and toxicity information should be provided. We note a lack of emphasis on the control of releases to the environment and the absence of clear expectations of precaution and minimization. There should be clear expectations that the best available technology will be used to minimize the release of hazardous substances. We are pleased to see specific reference to habitat and impingement and entrainment, however it appears not to "fit" in this section of the guide. Impacts on fish and wildlife, habitat, water temperature and water quality and quantity should have their own sections in the guide.</p>	<p>series and guidelines produced by the Canadian Council of Ministers of the Environment. Please see CNSC General Nuclear Safety and Control Regulations and Class 1 Nuclear Facilities Regulations which clearly require identification, name quantity etc of the releases.</p>
233.	Environmental Law Centre	13.4	<p>We are pleased to see emphasis on the best available technology in this section and emphasis on prevention and minimization. Once again however, the lack of reference to external standards such as CCME effluent guidelines and provincial standards is concerning. We believe strongly that the CNSC should strive to incorporate the highest standards of environmental protection into this document. We also believe that this approach would demand clear quantitative standard-setting and expectations for releases and effluent. The use of project by project and case by case risk management puts a heavy burden on the applicant, the regulator and the public by reinventing the wheel in terms of determinations of acceptability with each new application. This is inefficient and time consuming and results in a wide variation in release standards and expectations between facilities. It also results in a lack of guidance on available technologies, methods and approaches of reducing environmental impact. Clarity on key items, such as monitoring and release expectations, whether a tritium removal facility and cooling towers should be required, would end needless and repetitive debates about these issues with each new application. The CNSC could, by striving to set clear and transparent standards engage the public on these issues at the regulatory level and in doing so make application expectations more transparent.</p>	<p>Please see responses to comments 230 and 231 Further, the hazardous substances are regulated by CNSC, Federal and Provincial regulations and standards such as CSA Standard N288 series and guidelines produced by the Canadian Council of Ministers of the Environment. The reference is made to the proponent "identifying all standards, guidelines or criteria that have been applied". Provincial standards will vary from province to province. The CNSC has adopted Environmental Risk Assessment methodologies that are linked directly to the site-specific receiving environment, to identify contaminants of potential concern (COPC) and aspects of the environment at risk at each facility. Extensive environmental effects monitoring programs have also been implemented at facilities to identify any impacts in the receiving environment and to ensure that licensees have taken all reasonable precautions to control releases. Effluent and environmental monitoring programs are developed on a risk basis and are dependent upon the complexity of the released effluents, the sensitivity of the receiving environment and the anticipated effects on the environment. The CNSC mandate is not to provide guidance on various technologies but rather to regulate the use and acceptance of proposed technologies. Monitoring programs will depend upon the receiving environment and will vary from site to site. CNSC will assist the proponent in determining the monitoring program as required and will evaluate and approve the proposed monitoring program. Release expectations are ALARA as per P-223 Protection of the Environment.</p>

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234.	Environmental Law Centre	13.5	This section should clarify expectations around the goals and objectives of a monitoring program. The environmental (not just health and safety) goal of this program should be clarified and emphasized. The lack of clarity regarding how environmental effects will be assessed and measured must make developing a coherent monitoring program very challenging. Can an operator use VECs? Should they take an end of pipe approach? Without this clarity, there is no way to properly evaluate the monitoring program from an environmental perspective.	The licensee's EMS documents will describe details (objectives, design of monitoring program, contaminants to be sampled, etc. in the effluent monitoring and environmental monitoring programs). This is a requirement as noted in above responses to comments 230 to 233. An operator cannot use VECs. They can use an end of pipe approach. This is an effluent monitoring program.
235.	Environmental Law Centre	13.6	We think it is the regulator and not the applicant who should define the objectives and rationale for monitoring. Likewise, the environmental media to be sampled must be based upon some justification or rationale. This justification and rationale should be transparent and the public should be engaged in its development. Addressing this issue on an application by application basis is not efficient or transparent.	CSA Standard N288.4-10 defines the environmental monitoring objectives and rationale to establish an environmental monitoring program. See also responses to comments 230 to 233.
236.	OPG	14.0	This section should be removed except for section 14.3, which should be incorporated into section 5 or 6. There is no radioactive waste anticipated during the construction period as there will be no fuel within the facility. This section is premature except as waste management is considered in the design. The program elements of this section are already identified in section 13, or section 13 can be expanded to incorporate such additional program information as contained in this section. For example, measures developed for hazardous chemical handling will be generally consistent regardless of whether the substance is introduced to the site or identified as a waste product.	No change. Preparation of a program to handle radioactive waste must be in place before operation begins so the program must be outlined at an early stage. Also, design options to minimise generation of waste should be described. Measures for control, handling, conditioning, storage and disposal of waste must be designed and it is appropriate that the design provisions are reviewed with the licence to construct the NPP. Note that this section covers hazardous waste as well as radioactive waste and this will be generated during construction and commissioning.
237.	Environmental Law Centre	14.1	We commend the emphasis on control and minimization in this section. However, the lack of parameters around what acceptable control and minimization are, and how they can be considered ALARA is left to the imagination. Once again the idea that the arrangement for the management of radioactive and hazardous waste may be left outside the regulatory process, the object of which is to risk manage that very issue is very distressing. This suggests that the CNSC will approve incomplete or inaccurate applications that do not explain how they will manage those risks or whether they are reasonable. This is a weak commitment to regulatory efficacy and public transparency. We believe strongly that all applications must be complete at the time of submission.	No change. The minimization of radioactive waste is accomplished by using industry best practices and technology. There are no set criteria by which the CNSC will evaluate an applicant's approach to minimization. Waste minimization can be achieved by a combination of different strategies such as product changes, contamination control, technology, design measures, operating procedures, and decommissioning. It should be recognized that operational radioactive waste and decommissioning waste will never be eliminated but its generation can be reduced.

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238.	Environmental Law Centre	14.2	This section should be more detailed, it is unclear if it relates simply to the control of releases to workers or the public or if it also relates to environmental releases. For example, ventilation can be a control measure for workers within the plant but effectively result in an uncontrolled release to the environment. These kinds of tradeoffs should be fully described in the application. We suggest that the words "As appropriate" should be removed, as we do not understand why those measures would not be included.	No change. There is a significant difference between a planned release and an unplanned release. The operation of the facility can result in planned releases to the environment that form part of the safety case for the facility. The safety case considers such strategies as ventilation control and the releases of the ventilation to the environment. For unplanned releases, these are releases that do not form part of the operational activities for the facility. Scenarios are however considered where unplanned events may occur to demonstrate their potential consequences.
239.	Environmental Law Centre	14.4	We are pleased to see the inclusion of this section. However, without an explanation of alternatives considered it is unclear how a member of the public can evaluate this section to see that it is ALARA. It would also be helpful to see that methods, materials and operational practices be outlined separately so that it is clear and transparent what approaches will be taken to minimize waste.	For clarification, text has been added to section 6.2, as item 2 d) "measures taken to minimize the generation of hazardous and radioactive waste through design". Note also that the following is specified in section 5.2.3: "Design features for radiation protection are discussed in section 11.4, Design features for radiation protection, of the application, while ALARA is discussed in section 11.2, Application of the ALARA principle." Waste minimization can be achieved by a combination of different strategies such as product changes, contamination control, technology, design measures, operating procedures, and decommissioning. A waste management program that includes strategies for waste minimization should be provided. According to CNSC Regulatory Policy P-290 "the generation of radioactive waste is minimized to the extent practicable by the implementation of design features, operating procedures and decommissioning practices". The minimization of radioactive waste is accomplished by using industry best practices and technology. There are no set criteria by which the CNSC will evaluate an applicant's approach to minimization. Waste minimization can be achieved by a combination of different strategies such as product changes, contamination control, technology, design measures, operating procedures, and decommissioning. According to the IAEA Standard "Predisposal Management of Radioactive Waste" measures to prevent or restrict the generation of radioactive waste have to be put in place in the design of facilities and the planning of activities that have the potential to generate radioactive waste. The reuse and recycling of material is sometimes carried out as a means of minimizing the amount of radioactive waste from an activity or facility. The remaining radioactive waste from all sources that is not cleared, discharged or reused needs to be managed safely over its entire lifetime, and there is, therefore, a need for the establishment of a national policy and strategy for the safe management of radioactive waste. According to CSA N292.3-08 "Management of low- and intermediate-level radioactive waste" section 5.2.2.2, it states that

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				<p>the waste generator shall ensure that the generation of radioactive waste is minimized as much as is practicable. It further states in section 5.7.2 that the minimization can be accomplished through the application of clearance levels for conditional and unconditional clearance of radioactive waste. The generation of radioactive waste shall be minimized at its origin to the extent practicable by the implementation of reduction methods such as product changes, contamination control, technology, design measures, operating procedures, and decommissioning. Each waste generator shall develop a waste management program that includes strategies for waste minimization. The generator should develop a waste management program that helps to reduce the overall volume of radioactive waste requiring long-term management.</p> <p>For new facilities, the production of radioactive waste throughout the life of the facility and the generation of decommissioning waste should be considered in the design and construction stage. Each facility will have its own unique approach to the minimization of operational radioactive waste and decommissioning waste. The CNSC looks to national and international best available technology and practices that demonstrate the minimization of radioactive waste to the extent practicable. It should be recognized that operational radioactive waste and decommissioning waste will never be eliminated but its generation can be reduced.</p>
240.	OPG	15.0	<p>This section should be separated. Section 15.2 related to the consideration of the eventual decommissioning of the facility should be included in sections 5 or 6. This section should simply address the requirements for provision of a preliminary decommissioning plan that addresses the potential for decommissioning of the facility at the conclusion of construction.</p> <p>As written the section contains two separate concepts. Information pertaining to the consideration of decommissioning in the design process is consistent with the information requested in sections 5 and 6.</p>	<p>No change. Cross reference to the appropriate design provisions in sections 5 and 6 is encouraged.</p>
241.	OPG	16.0	<p>This section does not provide guidance as to the content of the application that is expected. The section should be revised to clearly indicate the safeguards equipment to be included in the design and how it will be commissioned with the oversight of the IAEA. Specific references to the requirements of RD 337 should be included, for example, RD 337 section 8.12.</p> <p>This section is problematic as it notes that the “essential requirements for the application of IAEA safeguards are inscribed in specific conditions that form part of the plant licence when it is issued”. If so, the applicant will be unable to indicate what equipment will be</p>	<p>Partly agree. Reference to RD-337 section 7.23 and 8.12 added.</p> <p>The applicant, IAEA and CNSC must discuss the safeguards provisions at an early stage.</p>

	Organization	Section	Comment	CNSC Response
			installed during construction and what measures will be established in the programs supporting the commissioning of the reactor. It would benefit the applicant if the CNSC could be more definitive as to the nature of the equipment to be installed and the design objectives it must meet. For example, whether the information provided by the equipment must be capable of being remotely monitored.	
242.	OPG	Glossary, first definition	In the definition of accident conditions, replace “severe accidents” with “beyond design basis accidents”. Use the more general term of beyond design basis accidents (BDBAs) rather than severe accidents since BDBAs include severe accidents.	Agree. Text changed as suggested.
243.	OPG	Glossary	Add a definition for beyond design basis accidents and note that they include severe accidents. The usage of the term ‘severe accidents’ in the document leaves the impression that they are separate from BDBAs rather than being a subset of BDBAs.	Agree. Definition from RD-310 used: “Beyond design basis accident (BDBA) Accident conditions less frequent and more severe than a design basis accident. A BDBA may or may not involve core degradation.”
244.	Bruce Power	Glossary	The following definition of Design Basis is taken from RD-360: “The range of conditions and events taken into account in the design of the facility, according to established criteria, such that the facility can withstand them without exceeding authorized limits for the planned operation of safety systems.” This definition of Design Basis differs from the definition in the IAEA Safety Glossary in the use of “explicitly” in “The range of conditions and events taken explicitly into account in the design of a facility, ...” Bruce Power recommends that the CNSC consider using the IAEA definitions for Design Basis verbatim.	Agree. Text changed to “The range of conditions and events taken <u>explicitly</u> into account in the design of a facility, according to established criteria, such that the facility can withstand them without exceeding authorized limits <u>by</u> the planned operation of safety systems.”
245.	AECL	Glossary	The following definition of Design Basis is taken from RD-360: “The range of conditions and events taken into account in the design of the facility, according to established criteria, such that the facility can withstand them without exceeding authorized limits for the planned operation of safety systems.” This definition of Design Basis differs from the definition in the IAEA Safety Glossary in the use of “explicitly” in “The range of conditions and events taken <u>explicitly</u> into account in the design of a facility, ...” AECL recommends that the CNSC consider whether there need to be a difference between the CNSC and IAEA definitions for Design Basis.	See response to comment 244.

	Organization	Section	Comment	CNSC Response
Comments received from AECL during second consultation.				
246.	AECL	OPG # 36, section 2.5	The OPG's suggestion highlights additional examples of documentation that can be incorporated by reference. AECL believes that the CNSC's original text has sufficient flexibility to cover OPG's suggestion.	CNSC accepted OPG's comment slightly modified. Text added as a new paragraph in section 2.5: "These documents are also those that have been submitted to, received from, or published by a foreign national regulatory body. Materials incorporated by reference may also include information published by a national agency or an international nuclear agency such as, the International Atomic Energy Agency or the International Commission on Radiological Protection."
247.	AECL	Environmental Law Centre	A number of comments made by the "Environmental Law Centre" seem to ask for details that are normally included in detailed design or operation documentation and in some cases for information that would have been covered in an environmental assessment.	Applicable sections of RD/GD-369 have been revised to reflect the appropriate level of detail for a licence to construct.
248.	AECL	Environmental Law Centre	There appears to be a lack of understanding on behalf of Environmental Law Centre on the level of detail such a guidance document (GD) is expected to provide versus more detailed technical requirements and expectations that are contained in other CNSC regulations and/or regulatory documents. It is AECL's understanding that the technical documentation that is submitted with the application for the licence to construct would address the detailed technical requirements and expectations that are contained in other CNSC regulations and/or regulatory documents	Applicable sections of RD/GD-369 have been revised to reflect the appropriate level of detail for a licence to construct.
249.	AECL	Environmental Law Centre	There also seems to be a confusion regarding CNSC's expectations for the applicant to report/document in an application limits and targets, which not all are self-set; in most cases limits are set by regulatory requirements, standards, laws, while targets (which are normally more conservative) are self-imposed by the designer and operator to ensure limits are met with sufficient margin/confidence.	Agreed. See responses to comments 231 and 232