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**From:** McGee, Kayleigh <personal information redacted>  
**Sent:** February 6, 2020 2:47 PM  
**To:** Torrie, Brian (CNSC/CCSN)  
**Cc:** Murthy, Kavita (CNSC/CCSN); Forms / Formulaires (CNSC/CCSN); Consultation (CNSC/CCSN); Boyle, Phillip; Brewer, Sarah; Cotnam, Shaun; Garrick, David; Gull, Michael; Morris, Stephen; Senaratne, Uditha PM; Swartz, Randall; Vickard, Meggan; Williams, Cynthia; Parnell, Scott; Schruder, Kristan; McBrearty, Joseph; Karivelil, Solly; Graydon, William; Clark, Chris; Wieclawek, Ted; CNLRPD Site Office / Bureau régional de CNLRPD (CNSC/CCSN)  
**Subject:** 145-CNNO-20-0004-L - CANADIAN NUCLEAR LABORATORIES COMMENTS ON DRAFT REGDOC-2.10.2, FIRE PROTECTION  
**Attachments:** 145-CNNO-20-0004-L - Comments on REGDOC 2.10.2 - FINAL.PDF  
**Categories:** Green Category

UNRESTRICTED / ILLIMITÉE

Good Afternoon Mr. Torrie,

Please see attached letter from S. Karivelil entitled, "Canadian Nuclear Laboratories Comments On Draft REGDOC-2.10.2, Fire Protection."

If you should have any questions regarding this submission, please contact Ms. Karivelil at 613-584-3311 Ext. 48021.

Thank You,

## Kayleigh McGee

Compliance & Regulatory Affairs Coordinator | Regulatory Affairs Canadian Nuclear Laboratories (CNL) | Chalk River Site

✉ B887, Stn. E5, personal information redacted

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2020 February 06

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

**COMPLIANCE**  
Regulatory Affairs

Dear Mr. Torrie:

### **CANADIAN NUCLEAR LABORATORIES COMMENTS ON DRAFT REGDOC-2.10.2, FIRE PROTECTION**

Canadian Nuclear Laboratories (CNL) has reviewed the proposed Industry comments on draft REGDOC-2.10.2, *Fire Protection*, and has consulted with its industry partners to produce a set of consolidated comments which are presented in Attachment A.

CNL has concerns with this draft REGDOC and its appendices, which inadvertently confuse and re-interpret well-understood requirements in CSA fire protection standards N293 and N393.

While industry always welcomes new tools to improve safety, licensees do not believe this REGDOC as currently written will advance fire protection programs already governed by a full suite of existing codes and standards. These include national fire and building codes in addition to the CSA standards. Rather, licensees are concerned the REGDOC generates more questions than clarity and introduces new requirements and compliance interpretations in what is meant to be a guidance document.

If the CNSC determines it needs a fire protection REGDOC to educate the public and complete its regulatory framework, industry strongly encourages staff to rewrite this draft to ensure it fully aligns with the CSA standards that serve as licensees' compliance verification. This means paring it back significantly by eliminating the appendices, which currently read as a lengthy mix of best practice ideas, guidance statements and requirements paraphrased from both N293 and N393.

CNL appreciates how difficult it can be to transpose ideas from existing standards into a new document and encourages the CNSC to host a workshop to discuss ways to create a document that is valuable to all readers. To start that process, please consider the attached set of comments, which emerged from a collective review of the REGDOC by industry.



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

Yours sincerely,

Solly Karivelil, Manager  
Regulatory Affairs  
Phone: personal information redacted  
Email: [personal information redacted](#)

SK/kam

Attachment (1)

- |   |                      |                      |   |              |
|---|----------------------|----------------------|---|--------------|
| c | K. Murthy (CNSC)     | Consultations (CNSC) | <a href="https://www.cnsccanada.ca/forms-formulaires">cnsccanada.ca/forms-formulaires</a> |              |
|   | P. Boyle             | S. Brewer            | S. Cotnam   | J.D. Garrick |
|   | W. Graydon           | M. Gull              | S. Parnell  | K. Schruder  |
|   | U. Senaratne         | M. Vickard           | T. Wieclawek  | C. Williams  |
|   | >CR CNSC Site Office | >CR Licensing        |   |              |

**ATTACHMENT A**  
**CANADIAN NUCLEAR LABORATORIES COMMENTS ON DRAFT COMMENTS ON DRAFT REGDOC-2.10.2, FIRE PROTECTION**

	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification <sup>1</sup>	Impact on Industry, if major comment
1.	<b>General</b>	<p>The need for this REGDOC is not clear to licensees who were assured by the CNSC when they agreed to collectively fund and develop CSA fire protections standards <i>N293</i> and <i>N393</i> that no regulatory document on this subject would be required.</p> <p>Now, industry has been asked to review a draft REGDOC that introduces requirements beyond those standards and interprets other requirements in ways that are contrary to licensees' understanding. For mines and mills, this REGDOC creates requirements that are not commensurate with the risk given the nature and location of their facilities and applicable provincial requirements.</p> <p>Industry sees no obvious gap that is closed by this REGDOC. Compliance requirements are already identified in <i>N293/N393</i> and all aspects of fire protection are thoroughly covered through the National Fire Code of Canada, the National Building Code and National Fire Protection Association codes.</p> <p>Adding another regulatory layer seems unnecessary and only heightens the potential for compliance confusion.</p>	<p>If the CNSC requires a document for public communication reasons or to ensure each safety and control area carries its own REGDOC, it is strongly encouraged to host an industry workshop to discuss how:</p> <ul style="list-style-type: none"> <li>To amend this draft to truly align with the intent, interpretations and literal wording of requirements in <i>N293</i> and <i>N393</i>.</li> <li>Eliminate the appendices, which currently read as a lengthy mix of best practice ideas, guidance statements and requirements. paraphrased from the CSA standards</li> <li>Clearly indicate in the Preface and Scope why this REGDOC is even needed given the existing suite of mature codes, standards and regulatory guidance on the subject.</li> </ul>	<b>MAJOR</b>	<p>Multi-layered regulatory documents and standards on the same subject introduce more confusion than clarity. By translating elements of existing standards like <i>N293/393</i> into a REGDOC, the CNSC has inserted slightly different wording into some sections of this draft. Even minor wording variations increase the risk of misunderstandings and compliance challenges.</p> <p>If this is truly an explanatory document, it should refer to the CSA standards more often and avoid paraphrasing their content or interpreting their intent.</p>
2.	<b>Preface</b>	<p>As with other recent draft REGDOCs, this document uses the term "must" to express requirements. This is a departure from other nuclear standards, which traditionally use only "shall." It also uses "should", "may" and "can" to describe various levels of guidance, which inadvertently</p>	<p>As a guidance-only document, licensees believe the word "shall" is misplaced in this REGDOC.</p> <p>As a general rule, industry encourages the CNSC to only use "shall" statements to express requirements and</p>	<b>MAJOR</b>	<p>On its surface, the use of different words to express requirements or guidance appears inconsequential. It is not. Readers of recent draft REGDOCs have found it increasingly difficult to determine what is</p>

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		generates more confusion than clarity.	“may” to discuss guidance in this and all other regulatory documents.		truly obligatory and what is optional.
3.	1.1	As per comment #1, the Purpose should very clearly say this is a guidance document, not a compliance one. Accordingly, it should not include the word “shall,” but should direct readers to either <i>N293</i> or <i>N393</i> for requirements. This will ensure its intent is better understood by all readers.	Amend the Purpose statement to read, “ <i>REGDOC-2.10.2, Fire Protection</i> <u>is not a compliance document, but does</u> provide guidance for the development and implementation of a fire protection program (FPP) for nuclear facilities in Canada.”	<b>MAJOR</b>	If this REGDOC were ever included in power reactor operating licenses or licence condition handbooks, significant work – including physical modifications - would be required to address compliance gaps to items in the REGDOC that are above CSA requirements. This would require resources from other critical safety areas to be diverted with no corresponding impact on nuclear safety.
4.	1.2	As per comment #1, this document lists several requirements from <i>N293</i> and <i>N393</i> , but fails to cite the exemptions and exceptions from those standards.  Also, both AHJ and CNSC are used throughout the document where the CNSC would be AHJ. For consistency and clarity for fire marshals/regulators, CNSC should be used throughout.	Amend the Scope to read, “This document elaborates on FPP requirements contained in CSA standards <i>CSA N293, Fire protection for nuclear power plants</i> , and <i>CSA N393, Fire protection for facilities that process, handle or store nuclear substances</i> . <u>It does not override any exemptions or exceptions in either <i>N293</i> or <i>N393</i>, for which the CNSC is the authority having jurisdiction (AHJ)</u> . Licensees whose licencing basis <u>does</u> not include <i>CSA N293</i> and <i>N393</i> are encouraged to use this document as information concerning FPPs at nuclear facilities.”	<b>MAJOR</b>	Without adopting the exemptions from the standards, this document would require licensees to go beyond the intent of <i>N293</i> and <i>N393</i>
5.	4	Preventing economic loss is missing from the list of Fire Protection Objectives on page 7. It is one of the long-standing objectives in <i>N293</i> and appropriately included in the 1 <sup>st</sup> sentence of section 6.2 of this draft REGDOC.	Amend the bulleted list to read, “In accordance with this mandate, the regulatory fire protection objectives (as applicable) are to ensure: <ul style="list-style-type: none"> <li>• health and safety of persons</li> <li>• protection of the environment</li> <li>• nuclear substances safety</li> <li>• nuclear criticality safety</li> <li>• reactor safety</li> <li>• <u>economic loss prevention</u>”</li> </ul>	<b>MAJOR</b>	Not listing ‘economic loss prevention’ could indirectly imply the CNSC finds it acceptable to have a fire if the other listed objectives are met. As per comment #1, it appears the CNSC has inconsistently picked items from the fire protection goals and objectives in <i>N293</i> , which raises concerns about consistency.

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6.	5	<p>Licensees have several concerns with the section on defence in depth (DID). As per comment #1, N293 and N393 differ in how they describe defence in depth and it appears this document takes bits and pieces from both. This confuses the intent since these standards are in Licence Condition Handbooks as compliance documents. In addition:</p> <ol style="list-style-type: none"> <li>1) The 2<sup>nd</sup> paragraph suggests defence in depth requires means of timely detection, which is already within the FPA goals and overarching nuclear safety principles. If licensees adhere to N293, NBCC and NFCC, this REGDOC should not require physical design requirement beyond the codes and standards which already consider the required redundancies and means to reduce/ minimize risks and consequences in the design.</li> <li>2) The 4<sup>th</sup> paragraph fails to confirm that design clauses are not retroactive, saying only that "... DID is achieved through a combination of design (e.g., physical barriers, spatial separation, fire detection and suppression systems)..." Since design clauses are not retroactive, as per clause 4.3.1 in N293, DID in design is to be applied only to modifications or new builds.</li> <li>3) The objective of DID is to minimize the risk of failures, but this draft suggests all five levels in Figure 1 must be fulfilled to satisfy DID. As per comment #1, this expands the requirements in N293/N393. Meeting all levels is not always required to achieve fire protection and nuclear safety goals.</li> </ol>	<p>Licensees urge the CNSC to delete Section 5 given the level of confusion it creates. Readers should simply be referred to N293/N393 for information on defence in depth.</p> <p>Otherwise, the section will require significant clarifications to ensure alignment with the standards and its requirements, including:</p> <ol style="list-style-type: none"> <li>1) Adding a note in the 1<sup>st</sup> or 2<sup>nd</sup> paragraphs to clearly say, "<u>Defence in depth can be achieved by meeting the requirements of CSA N293 or N393.</u>"</li> <li>2) Adding a note to the 4<sup>th</sup> paragraph that says, "<u>Design and construction requirements shall not be retroactively applied to existing structures, systems, and components.</u>" This aligns with clause 4.3.1 in N293 and will confirm for readers that DID should be met as per N293/393 and FHAs.</li> <li>3) Deleting Figure 1. If not, adding a note to confirm that meeting all five levels it cites is <u>not</u> mandatory when supported by FPA analysis. The 4<sup>th</sup> paragraph could be amended to read, "From a fire protection perspective, DID is achieved through a combination <u>of some, or all, levels</u> of design (e.g., physical barriers, spatial separation, fire detection and/or suppression systems), management of fire protection (e.g., operational procedures), quality assurance and emergency arrangements <u>to meet the FPA goals as identified in CSA N293 and N393.</u>"</li> <li>4) Amending the 5<sup>th</sup> paragraph to read, "FPPs maintain an appropriate level of DID throughout the <u>lifecycle lifetime</u> of a facility. <u>This is achieved through the-</u></li> </ol>	<p><b>MAJOR</b></p>	<p>As written, this section adds design requirements beyond code, which increases regulatory burden with no corresponding impact on nuclear safety. In addition, full compliance with the draft requirement for legacy designs is not practical and meeting all levels for every DID will increase regulatory burden. This should be analysis-based.</p>

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		4) The 5 <sup>th</sup> paragraph introduces words not used in the CSA standards such as “lifetime” rather than “lifecyle.” Even small inconsistencies can raise doubts and confusion among readers.	<del>fulfilment of the five elements of the DID principles as outlined in figure 1.”</del>		
7.	6	As currently written, the 1 <sup>st</sup> sentence of the 3 <sup>rd</sup> paragraph on page 8 is vague and seems to tie resource allocations to governance documents. It’s also potentially onerous to determine for each of the 12 listed fire protection program elements since resources are typically listed for only Emergency Response Teams (ERT) due to minimum complement needs.	Amend to read, “Each program element requires sufficient resources. <del>governed by licensee’s approved policies, processes and procedures.”</del>	<b>MAJOR</b>	It’s inappropriate to so directly tie resources to policies, processes or procedures. Resource needs and risks change as operations evolve. Licensees need to be flexible to manage their businesses and apply resources that are appropriate to the risks at a given point in time. As currently written, the phrase “...resource governed by licensee’s approved policies ...” suggests that a resource needs analysis is required to determine adequate staffing for fire protection programs, ITM, impairment management, fire preventing operational controls, etc. This may also imply that identification of minimum staffing is required for each of the 12 elements. This level of detail is not warranted for non-ERT functions and will introduce an administrative burden on licensees with no corresponding safety improvement. It also introduces the risk of establishing staffing levels that are not commensurate with the fire prevention risk.
8.	6.0	Licensees have one major concern and an editorial comment for the list on page 9. Specifically: <ul style="list-style-type: none"> <li>The 2<sup>nd</sup> bullet says FPPs should detail fire safety assessments. This is not a requirement of N293/N393 and should not be in a guidance document. Current FPPs, per license, are deterministic not probabilistic. There is a requirement to have a fire PSA in the licence,</li> </ul>	Delete the 2 <sup>nd</sup> and 6 <sup>th</sup> bullets so the list reads, “FPPs should detail: <ul style="list-style-type: none"> <li>roles, responsibilities and accountabilities</li> <li><del>fire safety assessment (e.g., code compliance, fire hazard assessments, fire safe shutdown analysis and fire probabilistic safety assessment)</del></li> <li>fire prevention operation controls</li> </ul>	<b>MAJOR</b>	As per comment #1, the 2 <sup>nd</sup> bullet represents a major change to fire program structure and adds a new requirement that is inconsistent with N293/393.

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		<p>but it is not currently required to be implemented within the program.</p> <ul style="list-style-type: none"> <li>The 6<sup>th</sup> bullet repeats information already covered by the 5<sup>th</sup> bullet.</li> </ul>	<ul style="list-style-type: none"> <li>design (e.g., fire detection and notification, fire suppression, fire resistance rating of building structures, building materials, egress and water supply)</li> <li>prevention (e.g., control of ignition sources; inspection, testing and maintenance (ITM) of fire protection features; and control of flammable, combustible materials)</li> <li><del>inspection, testing and maintenance</del></li> </ul>		
9.	6.1	Depending on the size and structure of some larger organizations, a 'senior manager' may not have immediate authority for a fire protection program.	<p>To avoid unintended confusion over what various organizations consider 'senior management,' licensees urge the CNSC to amend the 1<sup>st</sup> bullet to read, "The FPP should:</p> <ul style="list-style-type: none"> <li>identify the <del>senior management</del> position that has immediate authority and responsibility for the FPP"</li> </ul>	Clarification	
10.	6.2	<p>This section:</p> <ol style="list-style-type: none"> <li>Introduces the acronym FPA, but it is not included in the acronyms list in the appendix.</li> <li>Incorrectly cites Appendix B instead of Appendix C.</li> </ol>	<p>For clarity, the CNSC is urged to:</p> <ol style="list-style-type: none"> <li>Add FPA to the list of acronyms.</li> <li>Delete the appendices. If not, amend the final sentence in the 1<sup>st</sup> paragraph on page 20 to read, "For additional information on fire modelling, refer to appendix <del>C B.</del>"</li> </ol>	Clarification	
11.	6.2.1	<p>Licensees have several concerns with the section on code compliance review. Specifically:</p> <ol style="list-style-type: none"> <li>Facilities are mandated to follow the version of the codes in their operating licenses, not necessarily the "current" ones as the 1<sup>st</sup> sentence infers.</li> </ol>	<p>For clarity and consistency with the CSA standards, the CNSC is encouraged to:</p> <ol style="list-style-type: none"> <li>Amend the 1<sup>st</sup> sentence to read, "The CCR assesses the facility's design and operation against the applicable codes of construction (e.g., the National Building Code of Canada), <u>provincial fuel safety regulations</u>, the <del>current</del> fire code <u>version</u> and <del>the</del></li> </ol>	<b>MAJOR</b>	Licensees are mandated to comply with the version of the codes and standards as identified in their License Condition Handbooks. Ensuring compliance with the latest codes requires significant work. As currently written, this section could require modifications or changes to processes and programs, which would divert limited resources from other key

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		<p>2) The 2<sup>nd</sup> paragraph is not needed. It will be almost impossible, or extremely onerous, to reference all TPR reports in the CCR for retroactive designs. Discretion is required since not all TPRs are necessarily pertinent for reference in the CCR. Also, when a design in direct compliance with the code is reviewed by TPRs, those reviews are verified under QA programs. The CCR confirms compliance. Where there is an alternative solution, perhaps a TPR could be referenced in the CCR.</p> <p>3) Regarding the 1<sup>st</sup> sentence of the 3<sup>rd</sup> paragraph, it is not practical to outline the entire alternative intent in the CCR when a simple reference to the applicable compliance document can be made.</p>	<p>applicable nuclear standards (e.g., CSA N293, CSA N393) <u>cited in licensees' Licence Conditions Handbooks.</u>"</p> <p>2) Delete the 2<sup>nd</sup> paragraph. Referencing all TPR reports in the CCR does not apply and is not required. <b>At a minimum</b>, a note is required to say this only applies to alternative solutions.</p> <p>3) Amend the 1<sup>st</sup> sentence of the 3<sup>rd</sup> paragraph to read, "If alternative solutions are used, the CCR must outline <u>or reference the applicable compliance documents that explain</u> how the intent of the requirements is met."</p>		<p>areas with no corresponding improvement to nuclear safety.</p> <p>Referencing all TPR reports in the manner cited here adds a new requirement, which is contrary to the REGDOC's purpose as a guidance document. This material is already available to the CNSC and covered by existing processes such as engineering change controls. Again, this amounts to double-reporting, which is an additional administrative duty with no corresponding improvement to nuclear safety.</p> <p>Also, having full descriptions of alternate solutions in the CCR is not practical. A reference to the accepted alternate solution should suffice.</p>
12.	6.2.2 and 6.3.1	This draft REGDOC confuses readers regarding the PSA process. The last line in each of these sections says the FHA/FSSA can be an input for PSAs, which provides no value to licensees.	Delete the final line in both sections.	Clarification	
13.	6.3.2	As per the previous comment, this draft REGDOC confuses the PSA process. Fire PSAs are not required under <i>N293 or N393</i> and licensees comply with <i>REGDOC-2.4.2, Probabilistic Safety Assessment (PSA) for Nuclear Power Plants</i> outside the fire protection program. <i>REGDOC 2.4.2</i> does not include the level of detail cited in this draft, which creates confusion and overlap between regulatory documents with different requirements.	Since the objective of this REGDOC is to outline the requirements for a Fire Protection Program, any references to PSAs should be removed. Alternatively, section 6.3.2 should simply reference <i>REGDOC-2.4.2</i> for any PSA requirements. Or, the last paragraph could be amended to read, "Fire PSAs are not required <u>to be part of the FPP</u> under <i>CSA N293 or CSA N393</i> . However, licensees are required to comply with regulatory document <i>REGDOC-2.4.2, Probabilistic Safety Assessment (PSA) for Nuclear Power Plants</i> [8].	<b>MAJOR</b>	Any PSA methodology already requires CNSC acceptance prior to use as part of <i>REGDOC 2.4.2</i> . Without changing this section, there is a risk of creating additional requirements in the Fire Protection Program even though the creation and maintenance of PSAs is governed by another regulatory document. This would make it difficult for industry to comply.

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14.	6.5	The title of this section, “Fire Protection Assessments,” is typically used for CCR+FHA+FSSA (=FPAs). However, the concepts presented in the section relate to fire prevention, not CCR/FHA/FSSA.	Amend the title of section 6.5 to avoid confusion. Suggested titles include: “ <a href="#">Fire Prevention</a> ” or “ <a href="#">Fire Prevention - Operational Controls</a> ”	<b>MAJOR</b>	As currently written, the section title could generate potential confusion between terms that are already familiar to licensees. The definition of FPA in N293 is not in line with the concepts presented in Section 6.5
15.	6.6.1	As per comment #11, the 2 <sup>nd</sup> bullet says, “the current editions of the codes and standards when upgrades or modifications are made.” Facilities are mandated to follow versions of the codes and standards cited in their Licence Conditions Handbook.	Amend the 2 <sup>nd</sup> bullet to read, “the <del>current</del> editions of the codes and standards <a href="#">listed in License Condition Handbooks</a> when upgrades or modifications are made.”	<b>MAJOR</b>	Licensees are mandated to comply with the version of the codes and standards as identified in their License Condition Handbooks. Ensuring compliance with the latest codes requires significant work. As currently written, this section could require modifications or changes to processes and programs, which would divert limited resources from other key areas with no corresponding improvement to nuclear safety.
16.	6.6.2	Licensees seek clarification on the following: <ol style="list-style-type: none"> <li>1) As per comment #1, the term “safety analysis” as cited in the 3<sup>rd</sup> bullet is not a defined term in N293. Does this refer to the Facility’s Fire Protection Assessments (FPA)?</li> <li>2) The 1<sup>st</sup> sentence on page 14 currently reads, “In some cases, at the discretion of the reviewer, field inspections or Commission test witnessing is undertaken.” Since commissioning occurs after a design review – and this section relates to an independent TPR – the statement’s relevance needs further elaboration.</li> <li>3) The last line refers to appendix H, but should be Appendix G.</li> </ol>	The CNSC is urged to: <ol style="list-style-type: none"> <li>1) Amend the 3<sup>rd</sup> bullet to read, “review of impact to the facility’s <del>FPA safety analysis</del> or FHA, or ensuring <del>that</del> the FHA impact was addressed”</li> <li>2) Clarify the relevance of the 1<sup>st</sup> sentence on page 14 or delete it from future drafts.</li> <li>3) Delete the appendices. Otherwise, amend the final line to cite Appendix G.</li> </ol>	Clarification	

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17.	6.7	Licensees have concerns with the 3 <sup>rd</sup> bullet, which says, “the procedure should include referencing of the required tasks to the applicable code or standard requirement.” This would add no value to the end-user of the procedure. The link between code and standard requirements and procedures that support compliance is already established in facilities’ ITM reports.	Delete the 3 <sup>rd</sup> bullet.	<b>MAJOR</b>	This requirement would be extremely labour intensive since current procedures do not reference required tasks to the applicable codes or standards. This would add little value to procedures used by staff in the field. The ITM report currently references the applicable procedures to meet the various codes and standards requirements.
18.	6.8	Licensees have a major concern with the final bullet, which says, “implement compensatory measures to maintain a level of safety equivalent to that provided by the impaired system.” As per comment #1, this is very different language than current CSA requirements. Compensatory measures are temporary means of providing reasonable assurance that the affected fire protection function will be compensated for during impairment.  Also, the last line refers to appendix G instead of Appendix H.	Delete the bullet or align requirements with the CSA standards.  Delete the appendices. Otherwise, amend the final line to refer to appendix H.	<b>MAJOR</b>	The expectation that a compensatory measure will be equivalent is not reasonable and may not be achievable. For example: compensatory measures for an out-of-service 3000GPM deluge system would require a similar-sized system. It would be clearer to say that compensatory measures should be ‘comparable’, not ‘equivalent’.
19.	6.8.1	Licensees have concerns with the 10 <sup>th</sup> bullet on page 15. Not all impairments require an increase in the number of industrial fire brigade members.	Amend the bullet to read, “Increase in the number of industrial fire brigade members at the facility during impairment <u>if necessary.</u> ”	Clarification	
20.	6.9 and 6.10	As per comment #1, the language in this REGDOC regarding training is inconsistent with the CSA standards and introduces confusion regarding employee status and the SAT process.	Delete 6.10 and amend 6.9 to simply read, “Training-related requirements can be found in CSA N293 and CSA N393. <del>Training should include training for workers who are not full-time employees at the facility. A systematic approach to training (SAT) provides the licensee with direction for establishing the training needs, along with guidance for training program development and delivery.</del> ”	<b>MAJOR</b>	Multi-layered regulatory documents and standards on the same subject can introduce more confusion than clarity. By translating elements of existing standards like N293/393 into a REGDOC, the CNSC has introduced slightly different wording into some sections of this draft. Even minor wording variations increase the risk of misunderstandings and compliance challenges

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21.	6.10.1	Licensees support the wording of the 6 <sup>th</sup> bullet, which complements guidance in <i>N293</i> , section 8.2.1.4 (h). The restricted locations are already available via FHA. Facility staff knowledge of these locations will allow them to make risk-informed decisions in their day-to-day work planning. However, licensees have concerns with the final bullet, which reads, “live practice fires using extinguishment equipment.” The 1 <sup>st</sup> sentence contains a typo. It should say “fire” safety training, not “facility” safety training.	More closely align the final bullet to <i>N293</i> , clause 8.2.1.5, so it reads, “ <u>live practice fires using a portable fire extinguisher in the suppression of a live fire or interactive simulation extinguishment equipment.</u> ”  Amend the 1st sentence to read, “Requirements related to <u>fire facility</u> safety training can be found in CSA <i>N293</i> and CSA <i>N393</i> ”	<b>MAJOR</b>	Though written as guidance, live practice fire training of all facility employees is simply not practical. Nor does the final bullet align with <i>N293</i> . Flexibility should be allowed for interactive simulations and to ensure guidance is consistent between the REGDOC and CSA standard.
22.	6.10.2	It’s not clear why fire watch is specifically highlighted in section 6.10. There are several other responsibilities that are as important. Highlighting one over the other is inconsistent.	Either delete 6.10.2 or move it to an appendix.	Clarification	
23.	6.13.1	Licensees have several concerns regarding the section on fire protection program audits. Specifically:  1) As per comment #1, this section increases the scope of a fire protection audit as defined in <i>N293</i> or <i>N393</i> and is unclear regarding what elements should be audited.  2) The 4 <sup>th</sup> bullet is not a practical item to review given the changing operations of a nuclear facility. For facilities that generate power and fall under <i>N293</i> , fire hazards vary depending on the operational state of the units. For example, fire hazards are larger than that indicated in an FHA for outage/refurbishment/decommissioned units. The audit should assess programmatic issues, not current fire hazard conditions. This item would be captured in an FHA update, not an FPP audit.	The CNSC is strongly urged to remove the bullet points in 6.13.1 and simply refer readers to <i>N293/393</i> for more information regarding fire protection program audits.  Otherwise, at a minimum, the section will require amendments to:  1) Clarify what elements should be audited and remove the requirement for auditors to make recommendations on identified problem areas. Similar language does not exist in either <i>N293</i> or <i>N393</i> . It should also clarify the QMS requirements for the audit function to confirm the third party’s QMS is appropriate if it has been reviewed and accepted by the licensee.  2) Delete the 4 <sup>th</sup> bullet	<b>MAJOR</b>	Multi-layered regulatory documents and standards on the same subject introduce more confusion than clarity. By translating elements of existing standards like <i>N293/393</i> into a REGDOC, the CNSC has inserted slightly different wording into some sections of this draft. Even minor wording variations increase the risk of misunderstandings and compliance challenges.  For instance, the 4 <sup>th</sup> bullet is not compatible with the intent of an FPP audit. As written, this is redundant work since the change in fire hazards would be captured in the next revision of the facility’s FHA.  If this is truly an explanatory document, it should refer to the CSA standards more often and avoid paraphrasing their content or interpreting their intent.

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		3) Are the “impairment forms” referenced in the 10 <sup>th</sup> bullet the same as notification forms? Is the CNSC expecting a different impairment form?	3) Clarify what is meant by “impairment forms” in the 10 <sup>th</sup> bullet.		
24.	6.14	It’s unclear if this is the immediate reporting requirement or part of the 60-day report. Also, it’s not clear whether “reporting” relates to the person who identified the fire to the Main Control Room or the Licensee who reports it to the CNSC.	Clarify	Clarification	
25.	6.16	The use of the phrase “present a higher risk” in the 3 <sup>rd</sup> paragraph is subjective. Also, FRNAs are required by all facilities under CSA N293 and N393.	Remove the 3 <sup>rd</sup> paragraph.	<b>MAJOR</b>	Licensees require a clear understanding of regulatory expectations with regards to FRNAs.
26.	6.16	As per comment #1, familiarization tours are not required by N293 and N393. Nor are they necessary.  Off-site brigades, who are the primary responders to Nuclear Waste Management’s Facilities as an example, review fire protection documents like Fire Safety Plans and Pre-Fire Plans. They also participate in facility fire drills. These activities provide them with adequate familiarization with the facilities’ operations and potential hazards.	Amend the section to exclude Off-Site Fire Brigade familiarization tours if they participate in facility fire drills. Perhaps include a qualifying statement such as, “The facility should demonstrate effective collaborative response between on- and off-site responders.”	<b>MAJOR</b>	Familiarization tours for off-site responders are beyond the requirements of N293 and N393 and would require resources from other critical safety areas to be diverted with no corresponding impact on nuclear safety.
27.	Appendices	As currently written, the Appendices seem to be a lengthy mix of best practice ideas, guidance statements and requirements paraphrased from both N293 and N393. Reviewers found they added little value as explanatory notes and did not clearly indicate they were not mandatory, but for information only.  As per comment #1, the appendices also expand the scope of the fire protection program to include other nuclear	Remove the Appendices.  Otherwise, the CNSC is strongly encouraged to host a workshop to discuss the significant licensee concerns and suggested amendments detailed in the remainder of this table.  Of particular concern -- and since the objective of this document is to outline the requirements for a Fire Protection Program (as per section 1.1) -- the CNSC is	<b>MAJOR</b>	Licensees believe the Appendices generate more confusion than clarity and should not be included in the REGDOC. They cite additional requirements that are not part of the FPP as per N293 and N393. As per several previous comments, incorporating these elements would result in regulatory burden with no corresponding improvement to nuclear safety.

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		<p>programs such as design, conventional safety and radiation safety which each have their own regulations, codes and standards. In its current form, the document implies that a fire protection program has jurisdiction above and beyond what is mentioned in NBCC/NFCC, CSA N293 and N393.</p>	<p>urged to remove the following at a minimum and refer readers to N293 and N393 for their scope:</p> <ol style="list-style-type: none"> <li>1) A.1 (the performance criteria that are related to design, operation or any other programs outside of the scope of the FPP)</li> <li>2) A.2 Protection of the Environment</li> <li>3) A.3 Radiation Safety</li> <li>4) A.4 Nuclear Criticality Safety</li> <li>5) A.5 Reactor Safety</li> <li>6) E.1 Control of Radioactive Material and Nuclear Substances</li> <li>7) E.2 Control of Hazardous Substances</li> <li>8) E.3 Control of Compressed Gases, Flammable Liquids and Combustible Liquids</li> <li>9) E.10 Operation of Fire Protection Equipment</li> <li>10) All of Appendix F</li> </ol>		
28.	A.1	<p>Appendix A reads like a list of requirements to be audited against when clearly an appendix should be guidance only. In particular, under A.1:</p> <ol style="list-style-type: none"> <li>1) Point #20 is unclear</li> <li>2) Point #25 needs to be clarified. For some events, the point would not be true. The facility would need to over-rely on one aspect of fire protection. Some rooms may not have any detection, but have appropriate fire separations and fire stopping and are able to confine the fire in one location and potentially</li> </ol>	<p>Remove Appendix A. Otherwise, at a minimum:</p> <ol style="list-style-type: none"> <li>1) Clarify the intent of point #20, which says, "Appropriate measures are provided for drainage and containment of flammable and combustible liquids, combustible dust, hazardous substances, nuclear substances and radioactive material."</li> <li>2) Amend point #25 to read, "Fire protection measures are balanced with prevention, early detection, and</li> </ol>	<b>MAJOR</b>	<p>Licensees would find it difficult to demonstrate compliance due to subjectivity of the content in Appendix A.</p> <p>Point #20 is beyond the requirements of N293/N393. So is point #25 and full compliance to it would not be practical.</p>

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		suffocate it. Detection and suppression may not be involved in this event. Hence, there are postulated situations where licensees can rely on a single aspect of fire protection.	early suppression and confinement <del>without over-reliance on any single aspect of fire protection.</del>		
29.	A.3	The final bullet point is not within the scope of fire protection or emergency response. Is the intent of this bullet that existing fire protection measures help protect other non-fire protection equipment, which can detect radioactive releases, from being damaged during a fire event?	Remove the final bullet, " <del>Nuclear substances can be quickly located and safely recovered.</del> "	MAJOR	This is above the requirements of N293 and N393.
30.	A.5	As written, the final bullet implies the CNSC is driving probabilistic requirements into program implementation, which is currently not a requirement of N293	If the appendices are not removed, amend the final bullet to read, "The rupture, <del>or</del> spurious or inadvertent operation of fire suppression systems will not significantly impair the capability of SSCs important to safety <del>or</del> <del>invalidate the assumption of single failure criterion in the safety analysis.</del> "	MAJOR	This bullet implies the CNSC is driving probabilistic requirements into program implementation, which is currently not a requirement of N293
31.	B	Meeting all the defence in depth levels cited in Appendix B is not practicable. Facilities require flexibility to use levels as supported by appropriate analysis. Also: 1) The 1 <sup>st</sup> bullet under 'Essential means' in Level 1, Table 2 is unclear. 2) The 1 <sup>st</sup> bullet in Level 2 of Table 2 is unclear. Some areas may not be equipped with detection or automatic suppression based on the code of record requirements. Will these areas be exempt from meeting this requirement? How can these areas meet DID with no detection or automatic suppression while they are in compliance with the code of record?	Remove Appendix B. Otherwise, at a minimum, a note should be added to provide facilities the flexibility to meet the appropriate levels as supported by fire safety analysis. Also, amend: 1) The 1 <sup>st</sup> bullet to read, "Controlling and monitoring <del>ignition fire</del> sources that could initiate fire." 2) The 1 <sup>st</sup> bullet of Level 2 to read, "Provision of adequate fire detection and automatic fire suppression system <del>where required by the construction code of record.</del> "	MAJOR	Appendix B cites items beyond the requirements of N293 and N393 and levels that are not practical in all situations.

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32.	C	The scope of Appendix C is unclear. Does it apply only to stand-alone fire modelling reports? Or, does it also apply to fire models used for analysis in the FSSA and FHA reports? As currently written, this appendix is missing the purpose of fire modeling, which is not referenced in the body of the REGDOC. Without identifying the need for fire modelling (e.g. for combustible material permit, for FHA, etc.) the Appendix seems to have no connection with the REGDOC. Licensees question the need for this appendix since various fire modeling tools are available in NIST, SFPE, NUREG, etc.	Delete the Appendix since fire modelling is not the only method to justify adequate fire prevention measures. Otherwise, at a minimum, identify where fire modelling can be used as an input and add a note to say, " <a href="#">Appendix C is applicable to stand-alone fire modelling reports</a> "	<b>MAJOR</b>	This is above the requirements of N293 and N393. Including all of the requirements of this appendix to fire models in the FSSA and FHA is impractical and a regulatory burden with no corresponding improvement to nuclear safety.
33.	D	As per comment #1, Appendix D introduces terms that are not consistent with those in N293 or License Conditions Handbooks.	Delete Appendix D.	<b>MAJOR</b>	Appendix D generates more confusion than clarity.
34.	E.2	Clarity is sought for the phrase, "...in a manner that provides optimal minimization of fire risk." Optimal minimization of fire risk is subjective based on the task. This should be revised to "minimize fire risk to a mitigatable level" or something similar.	Delete Appendix E. Otherwise, clarify its wording.	Clarification	
35.	E.3	The final bullet, "Assessment of the potential for dispersion or migration of the substances and the associated consequences" is beyond the requirements of NFCC for control of hazardous goods and needs further clarification.	Delete Appendix E. Otherwise, clarify its wording.	Clarification	
36.	E.4	Licensees found:  1) The 1 <sup>st</sup> bullet to be ambiguous. "Prohibit" and "minimize" have two very different means.	Delete Appendix E. Otherwise, clarify its wording.	Clarification	

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		<p>2) The 3<sup>rd</sup> bullet to be unclear. This document does not define the operational area. Is this only classified as the power block?</p> <p>3) The 4<sup>th</sup> bullet to be unclear. It mentions security activities. In analysis, licensees only look at a single fire, not two events concurrently. It's unclear what the tie to security is supposed to include.</p> <p>4) The reference to "display clear and prominent labelling" in the 9<sup>th</sup> bullet to be beyond the requirements of the NFCC. This should point to NFCC/WHMIS rather than create another requirement.</p>			
37.	E.6	The 1 <sup>st</sup> sentence of the 5 <sup>th</sup> paragraph is unclear when it says, "Facility administrative controls should provide and engineering review of temporary electrical installations and temporary heating devices." What is considered a temporary electrical installation? An extension cord for a tool?	Delete Appendix E. Otherwise, clarify its wording.	Clarification	
38.	E.9	This requirement is not currently listed within N293 or N393. Although the statement in E.9 is important and should be captured somewhere, its intent seems to be outside the scope of fire protection.	Delete E.9. This document should remain within the jurisdiction of the N293 and N393. Operations should not be outlined within the scope of this guide.	<b>MAJOR</b>	This is above the requirements of N293 and N393.
39.	E.10	Licensees have concerns with the final sentence in E.10, which says, "The procedures for using the fire protection equipment should include information on applicable training and drill requirements."	Delete Appendix E. Otherwise, at a minimum, remove the final sentence in E.10 or clarify it to say the requirements for using fire protection equipment, including information on applicable training and drill requirements, should be outlined in the management system. This should be further clarified to plant systems, not equipment.	<b>MAJOR</b>	This is not a requirement of N293 or N393 and very broad. It would be abnormal to have individual procedures beyond training for each piece of response gear

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40.	F.3	The 1 <sup>st</sup> bullet is unclear. If the intent is to apply it to the entire the site, not all construction material is required to be non-combustible. This needs to be clarified to the nuclear-specific N293-compliant building. However, this is redundant since these requirements are included in N293.	Delete Appendix F. Otherwise, clarify its wording.	Clarification	
41.	F.7	This information here is very specific to one scenario and does not provide benefit. It is specific operating experience and seems beyond the intent of the REGDOC.	Delete F.7.	Clarification	
42.	F.12	The bullets in this section are beyond the requirements of N293 and N393. Also, the final bullet, “environmental qualification” does not seem to be the correct term in this case.	Remove the bullet points.	<b>MAJOR</b>	This is above the requirements of N293 and N393.
43.	F.13	For existing facilities, areas of refuge are a new requirement that is beyond the requirements of N293 and N393. This is an NBCC item that does not need to be explicitly stated in this REGDOC.	Remove F.13.	<b>MAJOR</b>	This is above the requirements of N293 and N393.
44.	G.2	Incorrectly references section 6.9.2	Remove Appendix G. Otherwise, update the reference to 6.13.2	Clarification	
45.	H.2	Facilities are required to make impairment notification as per CSA N293/N393.	Refer readers to N293/N393 for impairment notifications	<b>MAJOR</b>	This is beyond the requirements of N293, which has specifics in its appendix to provide notification for some impairments, not all. The same flexibility is not provided here.
46.	I.3	The 1 <sup>st</sup> paragraph says the “FPP should establish... for maintaining the FPP.” It’s unclear if the second FPP reference should be PFP since it’s in the PFP section or if the whole paragraph is incorrect. Clarification needed. Also,	Remove Appendix I. Otherwise, clarify its wording to align with N293.	<b>MAJOR</b>	As written, this list is beyond that of N293 and will increase the PFP requirements.

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		the list provided for PFP's does not align with <i>N293</i> . For example, its reference to natural disasters.			
47.	I.3	<p>Neither <i>N293-12</i> nor <i>N393-13</i> requires an annual review of pre-fire plans.</p> <p><i>N293-12</i>, Clause 10.3.3 says, "Pre-fire plans shall be reviewed and updated as necessary, including when changes are made to the FPA." However, Annex A.10.3.3 of the standard says the "Pre-fire plans should be reviewed and updated at least once every three years."</p> <p><i>N393-13</i>, Clause 11.2.2.3 says pre-fire plans shall be reviewed and updated as necessary, to reflect changes to facility configuration, hazards, and systems. It does not call for any periodic time of review.</p>	Remove Appendix I. Otherwise, amend the review frequency of the pre-fire plans in this document to three years to align with the requirement of <i>N293</i> and <i>N393</i> .	<b>MAJOR</b>	Reviewing the pre-fire plans annually instead of every three years as per <i>N293</i> and <i>N393</i> is above the CSA requirements and an additional regulatory burden with no corresponding improvement to nuclear safety.
48.	I.4	<p>The 1<sup>st</sup> paragraph and last bullet state that firefighting capability should include interior structural firefighting capability as defined by <i>NFPA-600</i>. This is inconsistent with <i>N393</i>, clause 11.1.2, which says a facility "should be capable of identifying how their program aligns with the requirements of <i>NFPA-600</i>."</p> <p>Clauses 11.5.8.2 and 11.5.5.2 say <i>NFPA 600</i> and <i>NFPA 1081</i> are guidance documents. Uranium mines and mills fire response does not include structural firefighting capabilities as defined in <i>NFPA-600</i>. To do so would require these facilities to have the same firefighting capability as urban or municipal fire services – a requirement that is not appropriate for the nature of the product or the value of the buildings at the sites. This section also introduces <i>NFPA1561/1026</i>, which are not referenced in licenses and should not be referenced in this REGDOC.</p>	<p>Amend the 1<sup>st</sup> paragraph to read, "...should include interior structural firefighting capability as defined in <i>NFPA-600</i> <u>or based on <i>NFPA-600</i> guidance, as appropriate.</u>"</p> <p>Delete references in this section, and elsewhere in the REGDOC, to <i>NFPA1561/1026</i>.</p>	<b>MAJOR</b>	The cost to comply with <i>NFPA-600</i> for uranium mines and mills would be disproportionate to any safety or environmental protection benefit.

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49.	I.5	<p>As per the previous comment, licensees have concerns with references to <i>NFPA-1561</i>, including in the sentence, “The incident management system (IMS) should follow the guidance of <i>NFPA-1561</i>. If elements are not implemented or if alternative approaches are used, they are explained and justified.” Training and qualifications of IMS personnel should follow the guidance of <i>NFPA-1026, Standard for Incident Management Personnel Professional Qualifications</i>.”</p> <p><i>NFPA-1561</i> and <i>NFPA-1026</i> are not referenced in <i>N293</i>. <i>N393</i> does not reference <i>NFPA-1026</i> and only states that <i>NFPA-1561</i> should be used as guidance.</p> <p>What is the CNSC’s expectation with regards to the use of these two standards (i.e. are they to be used as guide and not mandated to follow?)</p>	Delete references in this section, and elsewhere in the REGDOC, to <i>NFPA1561/1026</i> .	Clarification	
50.	I.9	Licensees have concerns with the final sentence.	Delete Appendix I. Otherwise, amend the final sentence to read, “Firefighting equipment should be tested and maintained as per manufacturer recommendations <del>or and</del> national fire protection standards.”	<b>MAJOR</b>	Adding both OEM and NFPA requirements could duplicate testing requirements and be a burden on maintenance and the equipment.
51.	I.10	<i>NFPA 1081</i> is the incorrect reference. The section should reference <i>N293</i> and <i>N393</i> .	Delete Appendix I. Otherwise, ensure it makes the proper references.	Clarification	
52.	I.13	Licensees have significant concern with the final paragraph, which says, “Offsite responders should also be offered training with respect to radioactive materials, radiation and hazardous substances that could be present. The training, capabilities and equipment used by offsite emergency service providers should be commensurate with their respective roles and functions for which they are certified.”	Delete Appendix I. Otherwise, remove this requirement and refer to <i>N293</i> and <i>N393</i> for information on radiation protection for off-site responders.	<b>MAJOR</b>	If not amended, licensees would be required to invest significantly to train off-site responders. This is not necessary, as on-site responders are trained to provide radiation protection and escorting to off-site responders.

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		This is a new requirement that is currently not in N293 or N393. As per N293, on-site fire response team members are trained to provide radiation protection escorting to off-site responders.			
53.	I.14	The final paragraph implies that off-site responders should be invited to participate in regular fire drills and exercises regardless of whether or not they are the primary responders. This requires clarification.	Delete Appendix I. Otherwise, amend the final paragraph to read, "The offsite responders <u>responsible for primary response</u> should be invited to participate in regular fire drills and exercises."	MAJOR	This is above the requirements of N293 and N393.
54.	I.16	The section suggests the fire response resource requirements should be capable of combating the design-basis fire. By definition, the design-basis fire is a hypothetical fire postulated in the absence of automatic or manual fire suppression.	Amend this section to change design basis fire to "credible fire" to be consistent with section 6.16, N293 clause 10.1.4, N393 clause 11.2 and NFPA 801 4.7.2, which do not prescriptively exclude the assessment from crediting automatic or manual suppression.	MAJOR	This is above the requirements of N293 and N393 and is an inconsistent use of terminology.
55.	I.17	Licensees have significant concerns with this section. Specifically, a firefighter wellness program is a new requirement that is not in N293 or N393. The section also requires physical fitness and performance targets and evaluations on an annual basis, though it should reference physical fitness performance targets and evaluations as per NFPA standards.  NFPA 1081 does not use the term Firefighter Wellness or strength training. Though the statements in this section are "should" statements, it could affect labour relations. Currently, some licensees' assessment is an annual physical performed by a company physician along with a stress test. NFPA 1081 says, " ... Prior to training to meet the requirements of this standard, personnel shall meet the following requirements: ...	Remove this section.	MAJOR	This is above the requirements of N293 and N393 and would require some facilities to create a whole new program for Firefighter Wellness. This REGDOC should point to existing requirements.

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		(3) Medical requirements established by the Authority Having Jurisdiction (AHJ)  (4) Job-related physical performance requirements established by the AHJ”  The wording in this section could permit the AHJ to impose new requirements.			
56.	I.19	This section introduces <i>NFPA-1404</i> , which is a new standard not in current licenses. <i>N293</i> requires licensees to follow <i>CSA Z94.4</i> as the only requirement for air management.	Remove I.19 and any reference to <i>NFPA-1404</i> .	Clarification	
57.	J	Licensees are concerned the CNSC is seeking double event reporting for fire events (Both the proposed form in Appendix J and the current reporting form.)	Remove Appendix J and the inclusion of additional Fire Reporting forms.	<b>MAJOR</b>	Double reporting of fire events is not an appropriate use of licensee’s limited time and resources.
58.	References	Not all references in this section align with <i>N293/393</i> . Consistency and clarity on requirements is needed. Not all codes referenced in the text are included in the references.	Include a clarification saying “ <u>the following references are to standards used in the development of the REGDOC and are not meant to be the standards or versions to which licensees must adhere.</u> ”	<b>MAJOR</b>	Incorrect references and the context for them can lead to confusion and additional licence requirements.