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CMD : 24-M4

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Accept Regulatory Document

Accepter le document d'application de la réglementation

REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants, version 3

REGDOC-3.1.1, Rapports à soumettre par les exploitants de centrales nucléaires, version 3

Public Meeting

Réunion publique

Scheduled for:
February 21, 2024

Prévue pour le :
21 février 2024

Submitted by:
CNSC Staff

Soumis par :
Le personnel de la CCSN

Summary

This CMD pertains to a request for a decision regarding:

- draft regulatory document REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3

CNSC staff recommend that the Commission consider taking the following action:

- accept draft REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3

The following items are attached:

- draft REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3
- Comments dispositioning table
- Template forms related to REGDOC-3.1.1

Résumé

Ce document à l'intention des commissaires (CMD) concerne une demande de décision au sujet de :

- l'ébauche du document d'application de la réglementation REGDOC-3.1.1, *Rapports à soumettre par les exploitants de centrales nucléaires*, version 3

Le personnel de la CCSN recommande à la Commission pourrait considérer prendre la mesure suivante :

- accepter l'ébauche du REGDOC-3.1.1, *Rapports à soumettre par les exploitants de centrales nucléaires*, version 3

Les pièces suivantes sont jointes :

- l'ébauche du REGDOC- REGDOC-3.1.1, *Rapports à soumettre par les exploitants de centrales nucléaires*, version 3
- le rapport de consultation ou le tableau des réponses aux commentaires reçus

Signed/Signé le

5 February 2024 / 5 février 2024

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Dana**



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Executive Summary

REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, consolidates and clarifies requirements for reporting found in the *Nuclear Safety and Control Act* (NSCA) and the regulations made pursuant to the NSCA, including requirements for content and timing of reports. It sets out additional specific reporting provisions that relate to the purpose of the NSCA and regulations made under the NSCA. Additionally, it provides guidance on the interpretation and scope of application of these requirements.

REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3 was posted for public comment. CNSC staff received comments from four industry stakeholders and one Indigenous Nation. CNSC considered the comments received and modified the regulatory document, where appropriate, based on the comments.

If accepted, this third version of REGDOC-3.1.1 will supersede the second version. Referenced documents in this CMD are available to the public upon request, subject to confidentiality considerations.

1 Overview

1.1 Background

REGDOC-3.1.1, *Reporting requirements for nuclear power plants*, is part of CNSC's suite of regulatory documents on the topic of reporting requirements. REGDOC-3.1.1 sets out the information that power plant licensees must provide to the CNSC to support the conditions of applicable power reactor operating licences, including the types of reports and the applicable timeframe and frequency for reporting.

After version 2 was published in April 2016, CNSC staff and members of the CANDU Owners Group (COG) developed an interpretation document to serve as guidance to assist licensees in understanding the requirements of REGDOC-3.1.1. version 3 is intended to provide greater clarity and regulatory certainty of reporting requirements for licensees and other interested stakeholders by incorporating the interpretation information directly into the regulatory document.

1.2 Highlights

Draft REGDOC-3.1.1, version 3, provides requirements and guidance for:

- Scheduled reporting to the CNSC
- Event reporting to the CNSC
- Notification to the CNSC

This draft is the third version of REGDOC-3.1.1 and includes the following revisions as well as other minor changes:

- Clarifies certain terms and key concepts
- Repackages information reported through annual and quarterly reports
- Includes a retraction process for reported events
- Introduces requirements related to cyber security and other security reporting
- Introduces reporting requirements related to exposure to chemical or biological agents
- Introduces reporting requirements to address new regulations or regulatory documents published since version 2 was published¹
- Includes reporting requirements previously found in Licence Conditions Handbooks to consolidate all reporting requirements in one location

¹ Reporting requirements were added to reflect the updated *Radiation Protection Regulations*. Updated regulatory documents that impacted version 3 are the 2.11 REGDOC series on waste and decommissioning, REGDOC-2.2.3, *Fitness for Duty, Managing Worker Fatigue*, and REGDOC-2.2.4, *Fitness for Duty II, Managing Alcohol and Drug Use*.

- Creates a category for administrative notifications and reports
- Removes Other Scheduled Reports from this regulatory document. These reports were originally housed in REGDOC-3.1.1 because the technical regulatory documents were not yet developed. However, now that the topic-specific technical regulatory documents are developed, maintaining the requirement for these reports in REGDOC-3.1.1 was duplicative.

2 Indigenous and Public Consultation and Engagement

2.1 Indigenous Consultation and Engagement

The common-law duty to consult with Indigenous Nations and communities applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. The CNSC ensures that all of its licence decisions under the [NSCA](#) uphold the honour of the Crown and consider Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the [Constitution Act, 1982](#).

CNSC staff are committed to building long-term relationships with Indigenous Nations and communities who have interest in CNSC-regulated facilities within their traditional and/or treaty territories. The CNSC's Indigenous engagement practices include sharing information, discussing topics of interest, seeking feedback and input on CNSC processes, and providing opportunities to participate in environmental monitoring. The CNSC also provides funding support (through the CNSC's Participant Funding Program) for Indigenous peoples to meaningfully participate in Commission proceedings and ongoing regulatory activities.

2.1.1 Discussion

The notice of public consultation was sent directly to Indigenous Nations and communities located near nuclear power plants, in addition to the standard methods used for notifying the public of public consultation periods. The notice of public consultation was sent directly to 17 Indigenous Nations and communities.

Curve Lake First Nation provided one comment during the public consultation period. Curve Lake First Nation raised the concern that REGDOC-3.1.1 version 3 does not identify how and when facilities should communicate reportable events with Indigenous communities.

2.1.2 Conclusion

REGDOC-3.1.1 version 3 provides Nuclear Power Plant licensees the scope of events that they must report to the CNSC. Given the scope of the document, CNSC staff did not make changes to it.

As identified in Curve Lake First Nation's comment, REGDOC-3.2.1, *Public Information and Disclosure* lays out CNSC's expectations about what licensees

must share with Indigenous Nations and communities and other interested parties about reportable events. REGDOC-3.2.2, *Indigenous Engagement* is under analysis for revisions to improve how licensees engage with Indigenous Nations and communities. The concerns raised by Curve Lake First Nation are better addressed in these two regulatory documents. For this reason, CNSC staff have communicated the concerns raised to the teams working on REGDOC-3.2.2 and REGDOC-3.2.1.

CNSC staff also noted that they would be happy to discuss concerns at any of the regularly scheduled meetings between CNSC staff and Curve Lake First Nation.

2.2 CNSC Public Consultation and Engagement

The [NSCA](#) mandates the CNSC to disseminate objective scientific, technical and regulatory information to the public concerning its activities and the activities it regulates. CNSC staff fulfill this mandate in a variety of ways, including hosting in-person and virtual information sessions and through annual regulatory reports.

2.2.1 Discussion

On April 29, 2022, a draft version of REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants* was issued for a 108-day public consultation period ending on August 15, 2022, including a period for feedback on comments received.

During the consultation period, the CNSC received 102 distinct comments from 3 respondents, in addition to the comment received from Curve Lake First Nation (discussed in section 2.1). The following stakeholders provided comments:

- OPG
- Bruce Power
- New Brunswick Power

The comments raised by industry during public consultation fell into three broad categories:

- Perceived increase in reporting burden
- Missed opportunities to provide additional guidance
- Concerns over new and revised definitions

CNSC staff held a workshop with industry in February 2023 to further understand the concerns they raised about the draft REGDOC-3.1.1 version 3.

Comment 1: Perceived increase in reporting burden

Stakeholders expressed concerns that REGDOC-3.1.1 version 3 adds new reporting requirements compared to version 2. Industry expressed a concern that

these new reporting requirements may pull staff away from other tasks. As examples, industry pointed to the following:

- the new Annual report on radiation protection (section 3.5),
- the Quarterly report on nuclear power plant personnel (section 3.3),
- the inclusion of cyber security elements in the Quarterly report on operational security (section 3.4),
- overlap between the SPIs and the quarterly or annual reports, and other information sharing venues,
- the type and depth of information requested in a detailed event report (section 4)

CNSC staff response:

CNSC staff acknowledge that REGDOC-3.1. version 3 does introduce new reporting requirements compared to version 2. Some of these new reporting requirements are the result of new regulations or other forms of regulatory requirements, others were added to standardize how and where licensees report certain types of information.

CNSC staff considered stakeholders comments related to specific areas of perceived increase in administrative burden.

Where the comments pertained to reporting requirements currently housed in Licence Conditions Handbooks (LCHs) or other regulatory documents, CNSC staff noted that these requirements will be removed from the LCHs or other regulatory documents (see section 3 of this CMD), and that CNSC staff are not expecting licensees to provide the information twice.

In some cases, CNSC staff modified the reporting requirements, either reducing the scope of who/what needs to be reported or reducing the frequency of reporting, i.e. reporting annually instead of quarterly. For example, the scope of reporting for the Quarterly report on nuclear power plant personnel and the Annual report on radiation protection was reduced, compared to what was in the draft posted for public consultation. These changes do not have an impact on safety of the operating facilities.

With regards to the stakeholder comments on the type and depth of information requested in a detailed event report, CNSC staff made changes to the document to make sure the intent is clear that detailed event reports are only required for higher significance events. The type of information requested in a detailed event report is needed by CNSC staff to review and assess the event.

Comment 2: Missed opportunities to provide additional guidance

Stakeholders expressed concerns that CNSC staff missed an opportunity to improve the guidance provided in this document. Industry expressed concerns that

if the document is not clear enough and does not contain enough useful guidance, then there exists the risk for confusion or for another side document, like the interpretation document to be created. In several comments, industry provided suggestions for additional or alternative text to improve the clarity.

CNSC staff response:

One of the goals of REGDOC-3.1.1 version 3 was to improve the clarity of the document and provide move the guidance from the informal CNSC-COG interpretation document into the regulatory document itself. In most cases, when industry suggested clarifying text or additional guidance text in their comments, CNSC staff included those suggestions in the final version of the REGDOC-3.1.1 version 3.

Additionally, in response to stakeholder comment, the structure of Appendix A has been reworked to separate contextual regulatory text from the reporting provision proper. This was done in an attempt to make the Appendix easier for users to follow.

CNSC staff acknowledge that this revision may not fully address industry's concerns about the clarity of the document and ease of use. The revision for version 3 focused on moving the guidance from the CNSC-COG interpretation document into the regulatory document, and including new reporting requirements to cover new regulations or other regulatory tools (e.g. regulatory documents).

Comment 3: Concerns over new and revised definitions

Stakeholders highlighted the importance of common understanding of the definitions added or modified in the draft REGDOC-3.1.1, version 3. Specifically, industry stakeholders raised concerns about the definitions for 'significant fuel damage', 'serious process failure', and 'structures, systems and components (SSCs) important to safety'.

CNSC staff response:

CNSC staff clarified that the definitions that were created or amended as part of this revision to REGDOC-3.1.1 will be moved into the REGDOC-3.6, *Glossary of CNSC Terminology* and maintained therein, should the Commission accept the regulatory document for publication.

CNSC staff and industry stakeholders discussed the definitions for 'significant fuel damage' and 'serious process failure' at the workshop in February 2023 to better understand industry's concerns and to articulate CNSC staff's rationale for the definition. The two definitions are linked. After the workshop and subsequent discussions with CNSC staff, industry stakeholders accepted both definitions.

CNSC staff added specificity for the definition of SSCs important to safety, moving text that was in the body of the document to the definition itself. This change was made in response to stakeholder feedback and will ensure that the intent of the scope for SSCs important for safety for reporting is captured in REGDOC-3.6, *Glossary of CNSC Terminology*. The definition for SSCs important to safety is aligned with REGDOC-2.5.2, *Design of Reactor Facilities*. In addition, the change to the definition for SSCs important to safety will remove the link to systems important to safety, which apply in the context of REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants*. Taken together, CNSC staff believe this will maintain regulatory certainty around the intent of the reporting.

2.2.2 Conclusion

CNSC staff considered all the stakeholder comments received during the public comment period and in follow-up workshops, and incorporated many of them into the revised version of the document. These changes improve the clarity of the document.

CNSC staff were not able to address all concerns raised by industry stakeholders around the increase in administrative burden, or clarity of the document in this revision. From the perspective of the perceived increase in administrative burden, the role of the CNSC is oversight, and CNSC staff feel that the information requested is necessary for oversight of the facilities. CNSC staff believe the changes made in this revision are a significant step to improving the clarity of the document, specifically incorporating needed guidance from the interpretation document into the regulatory document, and adding additional guidance when suggested by the commenters. The concern staff were not fully able to address are around the document's ease of use. There is a balance between simplifying a document for ease of use and maintaining sufficient detail to be precise and provide regulatory certainty. Once REGDOC-3.1.1, *Reporting requirements for nuclear power plants*, version 3 is implemented and has been in use for a while, CNSC staff would invite licensees to bring forward specific suggestions on how to improve the ease of use of the document as a whole, and these specific suggestions can be considered in the next revision of the document.

3 Implementation

CNSC regulatory documents are primarily implemented by revising Licence Conditions Handbooks (LCHs) during licensing renewals and by requesting implementation plans from licensees on an ongoing basis. Implementation plans are then captured in the LCH.

REGDOC-3.1.1 is one of two regulatory documents currently referenced directly in a licence condition (LC) in all Power Reactor Operating Licences (PROLs). If implementation of this regulatory document requires a licence amendment, CNSC staff will return to the Commission.

CNSC staff have had preliminary discussions about implementation of REGDOC-3.1.1 version 3 with industry. Industry, in general, agreed that the approach used to implement version 2 of REGDOC-3.1.1 worked well. It tied changes to the scheduled reporting to the new calendar year, with staggered implementation of other requirements.

4 Overall Conclusions and Recommendations

4.1 Overall Conclusions

Draft REGDOC-3.1.1, version 3 was developed through consultation with stakeholders and any other interested parties. This is essential to communicating and formalizing the CNSC's requirements and guidance related to reporting requirements.

CNSC staff conclude that the REGDOC-3.1.1, version 3, is ready for acceptance by the Commission for publication and use.

4.2 Overall Recommendations

CNSC staff recommend that the Commission accept REGDOC-3.1.1, *Reporting requirements for nuclear power plants*, version 3.

Glossary

For definitions of terms used in this document, see [REGDOC-3.6, Glossary of CNSC Terminology](#), which includes terms and definitions used in the [Nuclear Safety and Control Act](#) and the [Regulations](#) made under it, and in [CNSC regulatory documents](#) and other publications.

Exposure hours (REVISED)

The total number of hours of employment for all workers for each member utility for each reporting period. This number includes regular hires, direct contractors / augmented / supplemental staff and contractors working through a separate company.

Restricted work (NEW)

An employee is deemed to be working in a restricted capacity due to a work-related injury or illness resulting in the employee being unable to perform their regular permanent job (i.e. is accommodated in another role), or is unable to work the normal time period of their pre-injury or illness work days (i.e. reduced hours of work).

Serious process failure (CHANGE)

A failure that leads or that could lead, in the absence of action by any special safety system, to significant fuel damage or a significant release from the NPP.

Significant fuel damage (NEW)

An event or situation that brought the fuel (>1%) outside of its fitness for service limits.

Special security equipment (NEW)

Includes prohibited and restricted firearms, items and devices that a licensee can only acquire under the authority of the CNSC acting as a public service agency under the *Public Agents Firearms Regulations* made under the *Firearms Act*.

Structures, systems and components (SSCs) important to safety (REPLACES SAFETY RELATED SYSTEMS)

Systems of a reactor facility that are associated with the initiation, prevention, detection or mitigation of any failure sequence and that have an impact on reducing the possibility of damage to fuel, associated release of radionuclides or both. For reporting, SSCs that are identified as important to safety include the following:

- safety systems
- complementary design features
- safety support systems
- other SSCs whose failure may lead to safety concerns (e.g., process and control systems)

APPENDIX A: REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3



Reporting Requirements

Reporting Requirements for Nuclear Power Plants

REGDOC-3.1.1, Version 3

February 2024



Reporting Requirements for Nuclear Power Plants

Regulatory document REGDOC-3.1.1, Version 3

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This document can be viewed on the [CNSC website](#). To request a copy of the document in English or French, please contact:

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May 2014	Version 1.0

Preface

This regulatory document is part of the CNSC’s reporting requirements series of regulatory documents, which also covers reporting requirements for uranium mines and mills, non-power reactors, waste nuclear substance licensees, Class II facilities, and users of prescribed equipment, nuclear substances and radiation devices. The full list of regulatory document series is included at the end of this document and can also be found on the [CNSC’s website](#).

Regulatory document REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, consolidates and clarifies requirements found in the *Nuclear Safety and Control Act* (NSCA) and the regulations made under it. This document sets out additional specific reporting provisions that relate to the purposes of the NSCA and its regulations. It also provides guidance for reports and notifications that licensees must submit to the Commission.

Applicants and licensees should refer to the guidance contained in this regulatory document for additional information on requirements and for direction on how to meet them.

This document is the third version (and supersedes REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, Version 2, published in April 2016). Version 3 of this document includes the following revisions as well as other minor changes:

- clarifies certain terms and key concepts
- repackages information reported through annual and quarterly reports to create efficiencies or respond to new regulatory requirements
- includes a retraction process for conservatively reported events
- introduces requirements related to cyber security and other security reporting
- removes references to all “Other Scheduled Specific Periodic Reports”

A document that shows the changes made to REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, Version 2, is available from the CNSC upon request.

This document is focused on the reporting requirements for CANDU nuclear power plants, but high-level concepts within it may apply to other technologies. Requirements found in this regulatory document may be applied in a graded manner to all lifecycle phases for nuclear power plants. For information on the implementation of regulatory documents and on the graded approach, see REGDOC-3.5.3, *Regulatory Fundamentals*.

The words “shall” and “must” are used to express requirements to be satisfied by the licensee or licence applicant. “Should” is used to express guidance or that which is advised. “May” is used to express an option or that which is permissible within the limits of this regulatory document. “Can” is used to express possibility or capability.

Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee’s responsibility to identify and comply with all applicable regulations and licence conditions.

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Reporting Requirements: Nuclear Power Plants

1. Introduction

1.1 Purpose

This regulatory document consolidates the requirements and guidance of the Canadian Nuclear Safety Commission (CNSC) for reports and, notifications to and the filing of specific records with the CNSC by licensees of nuclear power plants (NPPs), as well as the applicable time frames for reporting.

Licensees are required to report to or notify the CNSC of situations, events, or dangerous occurrences that may require short-term action by the CNSC. They are also required to submit or file other reports, notifications or specific records, including routine scheduled reports on various topics such as certain normal business activities that are required for action by the CNSC, or that are required for longer-term compliance monitoring.

1.2 Scope

This regulatory document consolidates and clarifies requirements found in, and regulations created pursuant to, the *Nuclear Safety and Control Act* (NSCA) for reporting; including requirements on the content and timing of reports. It sets out additional specific reporting provisions that relate to the purposes of the NSCA and its regulations. In addition, this document provides guidance on the interpretation and scope of application of these requirements, in the context of NPPs.

Note: The term “reporting” is used in this regulatory document as a general term to cover any of the actions below:

- reporting or notifying of situations or events
- submitting or filing other reports or notifications
- submitting specific records, including routine scheduled reports

Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee’s responsibility to identify and comply with all applicable regulations and licence conditions.

1.3 Relevant legislation

The following provisions of the [*Nuclear Safety and Control Act*](#) (NSCA) and the regulations made under it are relevant to this document:

- NSCA
 - subsection 24(5)
 - paragraph 27(b)
 - section 44
 - section 45
- [*General Nuclear Safety and Control Regulations*](#)
 - subsection 9(4)
 - section 15

- section 28
- section 29
- section 30
- section 31
- section 32
- [*Class I Nuclear Facilities Regulations*](#)
 - subparagraphs 6(k)(ii) and (iii)
- [*Class II Nuclear Facilities and Prescribed Equipment Regulations*](#)
 - subsection 17(1)
 - paragraph 19(2)(d)
- [*Radiation Protection Regulations*](#)
 - paragraph 6(2)(c)
 - paragraphs 16(a) and (e)
- [*Nuclear Security Regulations*](#)
 - subsection 7.5(4)
 - section 21
 - subsection 36(3)
 - subsection 44(2)
- [*Nuclear Substances and Radiation Devices Regulations*](#)
 - subsection 18(3)
 - subsection 30(2)
 - section 38
- [*Packaging and Transport of Nuclear Substances Regulations, 2015*](#)
 - paragraphs 32(a) and (d)
 - subsection 36(2)
 - section 37
 - section 38
 - section 40
 - section 41

2. Reporting Requirements

The following reporting requirements apply to NPPs:

1. The licensee shall manage requirements for reporting to the CNSC under this regulatory document, in conjunction with other reporting requirements specified in the NSCA, the regulations, and the licence.
2. All reports filed by the licensee according to this regulatory document shall contain the address of the sender of the report and the date of completion of the report.
3. The licensee shall mark all reports made or filed under this regulatory document with the appropriate protection and classification, and submit them in accordance with the appropriate security protocols.
4. After becoming aware of a reportable instance, the licensee shall file a report or notification according to the most restrictive requirements and time frames specified in appendix A, *Event Reporting, Notifications, and Filing of Specific Records*.
5. The licensee shall use a safety- significance classification process as documented in its management system to determine the safety significance for reports.
6. The licensee shall maintain a list of structures, systems and components (SSCs) important to safety.

7. A report or notification that must be made immediately shall be made orally to the CNSC Duty Officer.
8. Following an oral report or notification to the CNSC Duty Officer, a written report shall be submitted within 7 calendar days.
9. The licensee shall file scheduled reports with the CNSC at the following frequencies:
 - a. quarterly reports are due at the end of the quarter following the reporting period
 - b. annual reports are due on May 1, after the end of the calendar year, with the exception of the report on research and development, which is due on July 1, after the end of the calendar year
 - c. annual compliance reports for Class II facilities and nuclear substances and radiation devices are due on March 31, after the end of the calendar year.
10. For any requests for extensions to scheduled report due dates, the licensee shall inform the CNSC prior to the due date for the scheduled report and shall provide the rationale for the delay and the new submission date.

Guidance

The NSCA and the regulations state that reports are submitted to “the Commission.” In terms of submitting reports and notifications, “the Commission” is understood to be “CNSC staff.” The licensee should contact their CNSC point of contact to determine details for submitting any particular report.

For item 4, a situation or event that triggers multiple reporting provisions may be amalgamated into a single event report at the discretion of the licensee. The report should indicate all reporting provisions triggered by a) the initiating situation or event; and/or b) the related consequences. The licensee should adhere to the most restrictive reporting timelines.

Throughout this document, all days are calendar days in accordance with the [Interpretation Act](#).

The licensee should make all reasonable efforts to obtain and include timely and validated information when reporting to the CNSC. For event reports, in situations or events that have not attained stability and predictability, timeliness shall be prioritized over the availability of data and/or information.

The licensee may submit a request for retraction (see section 4.4) if, after further investigation, the licensee believes that a situation, event, or dangerous occurrence was not reportable, or that a specific reporting provision did not apply.

In item 2, the “sender of the report” should always be a designated representative of the licensee.

In item 4, “becoming aware” is synonymous with the date of discovery.

In item 5, for attempted or actual breaches of cyber essential assets, the licensee should also use the significance system described in CSA N290.7, *Cyber Security for Nuclear Power Plants and Small Reactor Facilities* [1], to determine the significance of the event.

In item 7, the term “immediately” means when the licensee becomes aware of the situation or event and initiates any required response actions. This term is also considered to include the next action undertaken after taking necessary actions to protect life or stabilize hazardous situations.

In item 7, the CNSC Duty Officer can be reached at 613-995-0479 or toll-free at 1-844-879-0805.

In item 9, the first quarter starts on January 1 for any given year. The reports are due as follows:

- Q1 reports due June 30
- Q2 report due September 30
- Q3 reports due December 31
- Q4 reports due March 31 of the following year

Licensees should use the situation or event reporting according to this regulatory document as an input to their public disclosure protocol as described by REGDOC-3.2.1, *Public Information and Disclosure* [2].

3. Scheduled Reporting

Licensees shall submit the following scheduled reports:

- [Quarterly report on safety performance indicators](#)
- [Quarterly report on nuclear power plant pressure boundaries](#)
- [Quarterly report on nuclear power plant personnel](#)
- [Quarterly report on operational security](#)
- [Annual report on radiation protection](#)
- [Annual report on environmental protection](#)
- [Annual report on research and development](#)
- [Annual report on risk and reliability](#)
- [Annual report on fuel monitoring and inspection](#)
- [Annual compliance report for Class II nuclear facilities and nuclear substances and radiation devices](#)

Details on each scheduled report are provided below.

3.1 Quarterly report on safety performance indicators

The safety performance indicator (SPI) reports shall be submitted on a quarterly basis. These reports shall be based on the specifications for each safety performance indicator and shall contain the information listed in the data sheet.

The SPI specifications are given in appendix B.

Guidance

If there is an apparent change in SPI results, the licensee should provide a brief explanation in the additional details section of the data sheet.

Sample data sheets are provided on the CNSC [website](#).

3.2 Quarterly report on nuclear power plant pressure boundaries

The NPP report on pressure boundaries shall be submitted on a quarterly basis. It shall include all Class 1 to 6 pressure boundary systems in accordance with CSA N285.0, *General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants* [3], for the purposes of reporting on pressure boundaries and pressure boundary degradations.

The report shall contain the following information:

1. a brief description of any occurrence of a pressure boundary deformation or crack, including:
 - the date of discovery
 - the magnitude of the deformation or crack
 - the associated circumstances, causes and consequences (or potential consequences)
 - all mitigating actions
2. a brief description of any occurrence of a leak in a pressure boundary, where the leak did not exceed any relevant limit specified in a licensing document, including:
 - the date of discovery
 - the magnitude of the leak
 - the associated circumstances, causes and consequences (or potential consequences)
 - all mitigating actions
3. a brief description of the occurrence of any degradation or fault of a pressure relief device that fails to open above the maximum set-point pressure while operating, including:
 - the date of discovery of the degradation or fault
 - the associated circumstances, causes and consequences (or potential consequences)
 - all mitigating actions
4. a brief description of the occurrence of any pressure relief device that fails to open above the maximum set-point pressure during testing, including:
 - the date of test failure
 - the associated circumstances, causes and consequences (or potential consequences)
 - all mitigating actions
5. any supporting information relevant to the descriptions in items 1, 2, 3 and 4 above.

Guidance

For consequences (or potential consequences) related to items 1 to 4, the licensee should provide details of the impact (or potential impacts) on the system, resulting, resulting from the events reported. For example, if the as-found lift pressure of a pressure relief device during testing is measured above the set pressure for the device, the licensee should describe how the system could have been impacted if the pressure device had lifted at the as-found lift pressure, instead of the correct set pressure.

If there are no consequences related to items 1 to -4, this should be indicated.

3.3 Quarterly report on nuclear power plant personnel

The report on the performance of NPP personnel shall be submitted on a quarterly basis and shall contain the following information:

1. for all persons holding a CNSC certification with accountabilities under the licence:

- a. **whose employment is current:** name
 - b. **whose employment has ceased or has been suspended:** name and the date when employment with the licensee’s organization ceased or was suspended
 - c. **who was a certified shift worker assigned to a temporary position in excess of 6 months:** name and the title or description of the temporary position, the start date and duration of each temporary assignment, and whether the assignment is operationally or non-operationally focused
2. for certified shift workers:
 - a. the number of shifts worked in each position requiring CNSC certification
 - b. the reasons for not working the minimum shifts required and a description of any corrective actions being taken
 - c. the number of certified shift positions, operator trainers or examiner positions occupied by contractors
 - d. a list of occurrences where the limits to hours of work or recovery periods have not been met
 3. a rolling 5-year staffing plan to be provided annually, in any one of the quarterly reports, that includes the number of certified workers who are / have been:
 - a. available at the beginning of the year
 - b. newly certified
 - c. lost to attrition and promotion
 - d. assigned to shift and day support assignments
 - e. available at year-end
 - f. new trainees who have started the “General Training” course
 4. in addition, for the final report of the calendar year, licensees shall provide:
 - a. a summary of the organizational changes, reflecting the organizational structure for the calendar year being reported
 - b. a complete and accurate organizational arrangement identifying the names and descriptions of each functional unit with accountability under the licence, including:
 - i. staffing numbers and
 - ii. staff job titles;
 - iii. and if contractors are used, the reporting relationships and licence accountabilities under which contractors are managed
 - c. a summary of significant simulator fidelity and system- health issues and associated corrective actions.
 - d. the pass/fail rate on personnel certification examinations, including recertification examinations
 - e. a description of drug and alcohol testing conducted pursuant to REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, (2021) [4] including:
 - i. the number of tests administered
 - ii. the number of refusal and subversion attempts, by type
 - f. the results of alcohol and drug testing, conducted pursuant to REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, (2021) [4] including:
 - i. summary of testing methodologies used
 - ii. drugs for which testing is conducted and cut-off concentrations by specimen type (i.e., urine or oral fluid)

- iii. the results of tests administered
- iv. alcohol or drugs identified in verified positive tests by specimen type (i.e., breath, urine, oral fluid)

Guidance

Where “persons holding a CNSC certification” is used in the Quarterly report on nuclear power plant personnel, it applies to all persons holding a CNSC certification, including persons holding a certification to operate the NPP, authorized health physicists, and Class II radiation safety officers.

Where “certified shift worker” is used in the Quarterly report on nuclear power plant personnel, it applies to all persons certified to operate the NPP, working in an operator position.

Item 1b applies to any situation that could potentially cause cessation of an employee certification, including:

- certified workers who are retiring
- certified workers who are moving permanently to another position within the licensee’s organization
- certified workers who are ending a contract
- certified workers who are changing contracts

For item 2(d):

- information on limits to hours of work and recovery periods are found in REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* [5]
- the licensee may submit copies of the report(s) prepared for other governing and regulatory bodies
- each description of an occurrence of non-compliance should include the date and extent of the item of non-compliance, name or unique identifier position title(s) of the worker involved, the reason for the occurrence of non-compliance and, if applicable, measures implemented to reduce fatigue or the risk of fatigue-related errors

For item 4(b):

- the organizational arrangement requested is for groups within the organization that support programs of the nuclear management system, down to the lowest organizational unit
- the organizational arrangement can be in prose or pictorial form (e.g., traditional organizational chart); it should include:
 - the roles, responsibilities and reporting relationships of each functional unit and sub-unit
 - the staffing numbers are for regular staff, and contractors – temporary workers do not need to be included

For item 4(c), simulator fidelity and system- health issues include visible errors, outstanding work orders, and corrective and preventative maintenance backlog items.

For item 4(e)(iii)., subversion attempts include, but are not limited to, adulteration or substitution.

For item 4(f)(i), the summary of testing methodologies should include any special analyses of dilute samples.

For items 4(e)(i) and 4(f)(iii), the data should be sorted by testing circumstance, for example, pre-placement, transfer, reasonable grounds, return to work and or follow-up.

3.4 Quarterly report on operational security

The operational security report shall be submitted on a quarterly basis. It shall contain the following information:

1. a description of situations or events at the NPP that had or could have had security-related implications or consequences and that were not reported under an event report
2. a detailed description of security-related drills and exercises conducted in the quarter, including scenario objectives, expected outcomes, results and lessons learned.
3. a description of revisions to security-related emergency procedures
4. where completed, the significant results of the licensee's annual review of the security-related emergency procedures for the NPP, including arrangements with the emergency response force
5. a brief description of the circumstances and causes of failures or impairment of the security structures, systems, components or devices of the NPP.
6. a description of mitigating measures that were not reported under an event report but that were taken when security structures, systems, components or devices of the NPP failed to meet their defined specifications
7. a description of any changes to the security report
8. for the NPP cyber security program, include:
 - a. a summary of any audit or self-assessment, or its elements, that was conducted in the quarter
 - b. a summary of cyber security program performance
 - c. a summary of any cyber security posture changes identified or observed
 - d. a summary of the significant results observed from cyber security– related exercises and drills that were carried out
 - e. any update to the cyber security incident response process (e.g., incident response procedures)
 - f. a brief description of any situations or events, taking into account system significance as described in CSA N290.7 [1] that had or could have had cyber security– related implications or consequences and that were not reported under an event report.
9. updates related to special security equipment, including the make, model and serial numbers associated with any equipment, as well as individual assignment allocation or other pertinent details, such as spares, training or repairs, of all firearms purchased under the CNSC's Public Agency Identification Number

Guidance

For item 1:

- “security-related implications or consequences” are intended to include events that are minor in nature but that could be impacted by other events to create a pattern or vulnerability; minor malfunctions or reductions in the security program that impact one or more specific area(s) would fall under this type

- the description of situations or events should include:
 - location and timing of the situation or event
 - effect or consequences on security systems
 - whether prescribed information, nuclear substances or prescribed equipment were involved
- any compensatory measures
- any involvement of external agencies
- this description should include situations or events where a threat was deemed not credible and the steps taken to deem the threat not credible

For item 2, the report should include the conclusions or outcomes of the evaluation, identified deficiencies, improvements and corrective actions, including timelines for implementation.

For item 5, this includes faults, combinations of faults, situations or events that prevented the security structures, systems, components or devices from meeting their defined specifications and that were not reported under an event report.

Item 8(b) aligns with requirements from CSA N290.7:21 [1] that are designed to confirm the continued effectiveness of the cyber security program or applicable element of the program (4.3.3, Reviewing and maintaining).

For item 8(c), “security posture” is defined in CSA N290.7:21 [1]. Clause 4.3.3.3.3 of that standard describes changes in security posture.

3.5 Annual report on radiation protection

The radiation protection report shall be submitted annually and shall include the following sections and information:

1. a summary that includes but is not limited to the following:
 - a. information that could influence dose data and dose trends, such as: the number of units in operation, outage information, and scope of activities being performed
 - b. initiatives and activities conducted in the last calendar year to improve the control of worker doses and radiological hazards
 - c. planned initiatives and targets
 - d. any significant revisions to the radiation protection governance and/or procedures
 - e. trends of significant issues identified by the licensee’s problem identification and resolution process
 - f. major trends associated with unplanned internal exposures during the year, including information about the type of monitoring used and whether the investigations associated with exposures determined if any changes needed to be made to a worker’s routine monitoring, or if changes needed to be made to the licensee’s bioassay program and/or other radiological hazard control program
 - g. major trends associated with contamination events through the year, separated into personal contamination events and loose contamination events
2. the results of dose monitoring for the calendar year, including:
 - a. total number of persons monitored for radiation exposure
 - b. number of persons who received a non-zero dose

- c. collective dose, separated into:
 - routine operations
 - major projects and outages, including forced outages
 - internal dose
 - external dose
 - total collective effective dose (person-mSv)
 - summary of year-over-year dose trends
- d. effective whole- body dose
 - average and maximum doses
 - a description of the work performed by the worker that received the maximum individual whole-body dose, including their work group
 - summary of year-over-year dose trends
- e. lens of the eye dose
 - average and maximum doses
 - summary of year-over-year dose trends
- f. skin dose
 - average and maximum doses
 - summary of year-over-year dose trends
- g. extremity dose
 - average and maximum doses
 - summary of year-over-year dose trends
- h. maximum effective dose received by workers who are not nuclear energy workers (NEWs)
- i. the maximum individual whole-body dose for the current 5-year dosimetry period

Guidance:

Worker doses are doses received in the course of the licensed activities.

The licensee should identify whether there are any outstanding dose assessments at the time the report is submitted and when and how this information will be submitted.

For item 1(f), the reporting is not limited to doses from uptakes of transuranic elements, although it does not include tritium exposures.

For item 1(f), the licensee should include all uptakes that exceeded their recording level, using what ever monitoring was used for the individual, including but not limited to, urinalysis, fecal, and personal air sampler.

For item 2, appendix D includes templates that may be used for submitting dose data as part of this report.

For items 2 (d) to (g), the average should include only the non-zero doses.

For items 2(d) and (e), the dose data should be presented by the number of workers monitored who received a dose in the following ranges:

- < 0.01 mSv
- 0.01 to 1 mSv

- 1.01 to 5 mSv
- 5.01 to 10 mSv
- 10.01 to 15 mSv
- 15.01 to 20 mSv
- 20.01 to 50 mSv
- > 50 mSv

For items 2(f) and (g), the dose data should be presented by the number of workers monitored who received a dose in the following ranges:

- > 0.01 mSv
- > 50 mSv
- > 250 mSv

3.6 Annual report on environmental protection

The environmental protection report shall be submitted annually for those facilities owned or leased by the nuclear operator, that have:

- radiological releases to the environment that contribute to the annual total effective dose to the public from the sites and
- licenced release limits (e.g., derived release limits (DRLs) and/or environmental action levels)

The report shall contain the following information:

1. a summary of the results of the environmental protection measures identified in section 4 of REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures* [6], and an analysis of the significance of the results of the environmental protection program, with respect to the health and safety of persons and the protection of the environment
2. a summary of activities conducted in the last calendar year to meet the objectives of the environmental protection measures
3. a summary of any significant updates made to the environmental protection measures, the reason for these changes, and the current timelines for the next planned periodic reviews of the environmental protection measures
4. the results of the effluent/emissions monitoring program, including the hazardous substances (i.e., activity concentrations, flow rates and loadings), in SI units; the following shall be reported:
 - a. for releases to air, where applicable: tritium oxide (HTO), elemental tritium (HT), carbon-14, noble gases, radioiodine, gross alpha, and gross beta/gamma
 - b. for releases to water, where applicable: tritium oxide (HTO), carbon-14, gross alpha, and gross beta/gamma
 - c. hazardous substances to air and/or water as reported to other authorities having jurisdiction (AHJs)
5. a summary of other government-required monitoring and reporting associated with effluent/emissions or environmental performance as specified in the licensing basis – include a web link to the reporting or a specific means of obtaining the formal reporting

6. the results of the environmental monitoring program, including nuclear and hazardous substances, in SI units, as well as associated supportive variables required for interpreting the results as identified in the licensee's site-specific programs
7. the results and calculations of the annual radiation doses to the representative persons and/or critical group or groups, in comparison to the regulatory public dose limit. – include a description of all relevant environmental transfer models and exposure pathways associated with the operation of the NPP
8. for each parameter reported, as part of the effluent/emission monitoring and environmental monitoring program, a description of the characteristics of the monitoring results, including, but not limited to, the sample frequency, quantity, type and trend
9. a summary of reportable events and abnormal results that might require corrective action or additional monitoring and their impact on the environmental monitoring program

Guidance

The environmental monitoring program and environmental risk assessment (ERA) are strongly linked. For example, if an ERA identified areas of concern, licensees are expected to conduct confirmatory sampling, at a low frequency and/or at select locations, as part of the revision cycle of the site's ERA.

Some licensees submit annual reports to other government departments concerning their environmental protection programs, that show the results of the effluent/emission and environmental monitoring programs. These include hazardous substances. Licensees may submit a copy of such reports to the CNSC to demonstrate compliance with the CNSC's requirement for oversight of the licensee's environmental monitoring program. Some examples are:

- provincial environmental compliance approval (ECA) reports
- federal greenhouse gas (GHG) emission reports
- National Pollutant Release Inventory (NPRI) reports
- federal halocarbon release reports
- ozone depletion reports
- wastewater effluent discharge reports.

For item 3, some examples are:

- a summary of the ERA and progress on follow-up recommendations
- environmental management system
- effluent monitoring program
- environmental monitoring program
- groundwater protection program
- supplemental studies, such as sustainability, effects monitoring, species at risk and adaptive management

For item 4, the results submitted should be suitable for evaluation of compliance against environmental action levels, where applicable, and licence limits.,

For item 6, associated supportive variables are used to interpret the results of the environmental monitoring program and can include background data, environmental quality guidelines and screening levels.

For item 7, latest ERA predictions should be included, as well as any standards/guidelines, as applicable, to for all figures where monitoring data are presented.

For item 8, the characteristics of monitoring results should include, but are not limited to:

- sample frequency (e.g., daily, monthly, semi-annually),
- sample type (e.g., grab, composite, activity counts over time),
- statistical quantity reported (e.g., weekly/monthly mean, annual average, annual total), and
- spatial and temporal trend analysis (e.g., simple graphical analysis such as plotting all available sampled data – not just data for the reporting year – versus time, or averages (plus min/max) versus time,
- using statistical tools to identify trends and explain, the of cause(s) of those trends.

3.7 Annual report on research and development

The research and development (R&D) report shall be submitted annually and shall contain the following information:

1. descriptions of R&D activities to resolve safety issues, that were completed, underway or planned during the calendar year or are planned for future years
2. the nature of the safety issues to be resolved, progress made over the calendar year to resolve those issues, actual or anticipated results of R&D activities, and any unfinished R&D work (i.e., work that remained underway or planned) at the end of the calendar year
3. a description of the links between each of the R&D programs and the operational or safety issues being addressed
4. the schedule, with relevant milestones, for completing R&D activities that were not finished at the end of the calendar year

Guidance

The annual report on R&D should also include station-specific R&D activities.

3.8 Annual report on risk and reliability

The risk and reliability report shall be submitted annually and shall contain the information outlined in appendix C.

Guidance

For systems important to safety, the licensee may choose to use bounding evaluations for specific impact calculations, in which case, the cumulative effect of test deferrals must account for all test deferrals for the system over the year.

3.9 Annual report on fuel monitoring and inspection

The fuel monitoring and inspection report shall be submitted annually and shall include a description of the objectives, elements, procedures, limitations, results and conclusions of the program. for the calendar year.

The annual report on fuel monitoring and inspection shall contain the information as outlined in the “Format for the Annual Report on Fuel Monitoring and Inspection” in appendix E.

3.10 Annual compliance report for Class II nuclear facilities and nuclear substances and radiation devices

Note: This report applies only to licensees that have a Class II and/or nuclear substances and radiation devices licence that is amalgamated with their Class I nuclear power reactor operating licence (PROL).

The annual compliance report (ACR) for Class II nuclear facilities and nuclear substances and radiation devices shall contain the following information:

- information on the activities conducted during the previous year, including a summary of workload (for Class II nuclear facilities only)
- the current inventory of radiation devices, Class II prescribed equipment, sealed sources and unsealed sources
- information on any transfers or disposals

Guidance

ACR forms are available on the [CNSC's Annual Compliance Reporting](#) web page. The applicable report types are:

- Operate an Irradiator Facility
- Industrial Radiography
- Consolidated Uses of Nuclear Substances

Each annual compliance report should be a standalone document. If any information was previously provided to the CNSC (for example, in an event report or in a separate compliance report), this information does not need to be duplicated. In these cases, a reference to the previous report is adequate.

4. Event Reports and Notifications

The licensee shall submit event reports and notifications as required by their licensing basis. Appendix A summarizes the requirements from the NSCA, the regulations made under the NSCA, the licence conditions and other regulatory documents on timing and reporting of notifications, preliminary event reports, and event reports. The information to be reported for an event or notification is listed in sections 4.1, 4.2 and 4.3.

Any information considered classified, protected, proprietary or personal shall be submitted with the appropriate security protection and marked with the appropriate protection and classification. For notifications to the CNSC, the licensee may choose to notify using either an electronic form or other appropriate means.

4.1 Contents of the preliminary event reports or immediate notifications

Situations may arise that require a licensee to immediately notify or report details to the CNSC. An immediate notification, or preliminary event report, shall contain the following information, as applicable:

1. date, time and circumstances of the situation or event, or of the notification
2. date and time of the onset (removal, reinstatement) and the duration of the situation or event
3. unique identification reference for the report for record- tracking purposes
4. reporting provision(s) as listed in appendix A (including reference to any specific reporting provisions) that are applicable to the situation(s) or event(s)
5. identification of the affected NPP and associated reactor units
6. identification of the affected structures, systems and components, including:
 - a. the design flow diagram reference number(s)
 - b. material type and code classification
 - c. design and hydrostatic test pressure of the system
 - d. magnitude, size or quantification of the degradation or fault (e.g., approximate size, length, depth or leak rates, deviation from set point)
7. description of the occurrence and consequences of the situation or event, including:
 - a. the condition of the site where the situation or event has occurred and the operating conditions, immediately prior, during and after, of any power reactor unit involved in the situation or event
 - b. the safety and control functions affected
 - c. causes, method of investigations, circumstances, consequences and effects of the degradation
 - d. a description of any secondary events that occurred as a result of the primary reportable event that may be of regulatory interest
 - e. code, standard or methodology used to assess the significance of the degradation
 - f. a summary of any impairment of a special safety system or SSCs important to safety
 - g. reasons for removal of certified persons
8. identification of persons affected by the situation or event, including:
 - a. any exposure of a person to radiation
 - b. removal or reinstatement of a certified person from the duties of the position for which the person is certified by the CNSC
 - c. revocation of authorization by the licensee
9. a description of any actions and/or remedial actions the licensee has taken or proposes to take with respect to the situation or event
10. a description of the research or analysis that led to awareness of the problem or potential problem
11. the name of the nuclear or hazardous substance released, the estimated or measured quantity of the unauthorized release, the estimated or measured rate of release, the manner of release, and the offsite monitoring results
12. the municipal, provincial or federal authorities that were notified of the situation or event
13. for event reports of a contravention of a licence, licensees are to include a description of the nature of the non--compliance with the licence condition
14. an indication of whether this type of event has occurred before

Guidance

If the licensee determined that investigation beyond the preliminary report is unlikely to yield additional relevant details or identify additional corrective actions, then a detailed report may not be necessary. In this case, the licensee may only need to submit one report; however, the preliminary report should include the information required in a detailed event report.

In item 1, “date” refers to the date on which licensee management becomes aware of the occurrence of the event (typically when a Station Condition Record/Problem Identification and Corrective Action (SCR/PICA) is entered) but before it has been processed to determine whether the event requires reporting to the CNSC. Licensees can also include the date on which licensee management initially determined that the event needed to be reported based on section 2, item 4.

In item 2, the date of onset is the date on which the event physically occurred or started to occur.

For the purposes of identifying persons in item 8, the licensee may provide the individual’s full name and position title or a unique identifier, such as an employee number or dose information system number (DISN).

In item 8(a), the term “exposure” means the dose of radiation received by or committed to a person or an organ or tissue under reporting provision 20 in appendix A.

In item 8(b), the term “removal” refers to the individual’s leaving the position for any reason, including termination of the employment because of resignation or retirement under reporting provision 6 of appendix A.

In item 8(c), the term “revocation” means the cancellation or withdrawal of a security authorization under reporting provision 29 of appendix A.

4.2 Contents of the detailed event reports

Appendix A, *Event Reporting, Notifications and Filing of Specific Records*, indicates which reporting provisions require a detailed event report. A detailed event report shall contain the following information, as applicable:

1. reference to the original event report
2. updated new or additional information, on the content requirements of the preliminary event report
3. a detailed description of the occurrence or situation, including:
 - a. the resulting effects on the health, safety and security of persons and on the environment
 - b. any releases to the environment resulting stemming from the event
 - c. the effective dose and equivalent dose received by each person involved in the event or situation, including the maximum dose received by a person from internal exposures
 - d. the associated human, technical and organizational circumstances, causes and consequences, and any relevant conclusions or findings established by the investigation
 - e. the exceedances to the safety and operational limits and conditions
 - f. the role of contractor companies and their subcontractors
 - g. the extent of condition

4. a summary of any analyses completed, including:
 - a. probable cause
 - b. any review of comparable situations or events
 - c. any pertinent operational experience (OPEX)
 - d. any analyses that are deviations from the licensee's dosimetry program or not covered by a dosimetry licence
 - e. any relevant data related to the event that are needed to confirm the dose
5. the actions the licensee has taken or proposes to take, including:
 - a. actions identified and taken to restore the effectiveness and of the radiation or environmental protection programs
 - b. any additional measures taken to correct the situation or event and to prevent recurrences
6. the conclusions of any investigation or analysis of the situation or event, including:
 - a. an evaluation of the degree of impairments of SSCs iImportant to safety
 - b. an evaluation of any resulting design, operating and/or training deficiencies
 - c. a description of the human, technical and organizational factors that contributed to the event and the interactions between these factors.

Guidance

In item 2, additional information may include reporting subsequent or related reportable events linked to the original event that was the subject of the preliminary report.

For 3(c), the licensees should provide all relevant information used to calculate the committed effective dose, including:

- the time and date of the uptake,
- the time and date of any bioassay measurements and samples collected,
- the assessment scenario (inhalation, ingestion),
- the radionuclides involved,
- the assumed particle size and lung clearance type,
- the dose coefficients used and the analytical techniques used with the minimal detectable activity.

In item 3(f), the licensee should indicate the degree to which a contractor/sub-contractor was involved in the event or situation. The identity of the contractor/sub-contractor is not necessarily required.

In item 3(g), the extent of condition means the extent to which the actual condition exists and/ or impacts other units, plant processes, equipment, or human performance.

In item 4(a), the licensee should include the methods of cause analysis, such as but not limited to root cause, common cause, apparent cause, troubleshooting and event cause. The root cause analysis, if performed, should be submitted to the CNSC.

In items 5(a) and 5(b), the measures should include both preventative measures and corrective actions, as applicable.

If information is missing or unavailable at the time of submission, licensees should provide the target completion date and summarize the information that is intended to be provided to the CNSC.

4.3 Administrative report or notification

If appendix A indicates that a report or notification is administrative, then the licensee shall provide the necessary information to the CNSC in the time frame indicated in appendix A.

4.4 Request for retraction of an event report

A licensee may, for any situation or event, request a retraction for any preliminary or detailed event report it has made to, or filed with, the CNSC – pursuant to this regulatory document.

The licensee shall file the request for retraction, in writing, with the designated CNSC contact.

The request for retraction shall contain:

1. the title, the identifying number and the date of submission of the report to which the request pertains
2. the grounds for the request, including the reasons why the licensee believes that the report is not required by the licence or the regulations
3. the name and address of the sender of the request, the date of the request, and the signature of the designated representative of the licensee

Upon receipt of a request for retraction from a licensee, the CNSC will review the grounds for the request to determine whether the report is required by regulation or by the licensing basis. The CNSC will provide the results of that review to the licensee in writing. The schedule for reporting shall pause while the CNSC conducts its review. If the CNSC refuses the licensee's request for a retraction, then the licensee shall resume the schedule for reporting on the situation or event, in accordance with this regulatory document.

Guidance

When the CNSC has agreed to the request for retraction, the licensee is not required to include the event in disclosures required by REGDOC-3.2.1, *Public Information and Disclosure* [2], unless it is specifically required under the licensee's public information disclosure protocol.

If the CNSC grants the licensee's request for a retraction, then the information about the situation or event that the licensee has already submitted to the CNSC will not be treated as information required by this regulatory document, but it will remain part of the CNSC's records.

Appendix A: Event Reporting, Notifications and Filing of Specific Records

This appendix provides a list of the situations, events, dangerous occurrences and specific reporting provisions that prompt the need to submit event reports or notify the CNSC. The timing for each report or notification is included in the tables. The first priority for any reporting provision is to ensure that the reporting party has taken all reasonable measures to mitigate any potential consequences.

This appendix also sets out additional specific reporting provisions that relate to the purposes of the NSCA and the regulations made under the NSCA. These specific reporting provisions apply only when this regulatory document is included as a condition of the licence.

Licensees holding multiple classes of CNSC licence need only submit one report for the affected facility. Licensees should select the most appropriate licence and corresponding reporting requirements to fulfill the licence obligations. If the PROL and REGDOC-3.1.1 have been identified, event reports or notifications shall be filed under the reporting provisions that follow.

Information about reporting requirements and timing

Applicable section(s) of the NSCA or the regulations made under the NCSA are noted for each item.

A.1 Contravention of the NSCA in relation to an activity that is authorized

Note: See also item A.19

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
1a)	<p>NSCA:</p> <p>27. Every licensee and every prescribed person shall (b) make the prescribed reports and file them in the prescribed manner, including a report on (ii) any contravention of this Act in relation to an activity that is authorized by this Act and any measure that has been taken in respect of the contravention.</p> <p>Specific reporting provisions</p> <p>The licensee shall report on the following situations or events:</p> <ol style="list-style-type: none"> a programmatic failure of a program referenced in the licence any contravention of the licence <p>Guidance</p> <p>Regulations made pursuant to the NSCA, orders of the CNSC, a designated officer or an inspector, and licence conditions have their origins from the NSCA. Therefore, it is understood that a contravention of a regulation made pursuant to the NSCA, of an order or of a licence condition is a contravention of the NSCA.</p> <p>Reportable situations or events include items of non-compliance identified by the licensee. Items of non-compliance with safety and control measures, which include regulatory documents and standards, are reportable only if they rise to the programmatic level.</p> <p>Examples of items of non-compliance that are not programmatic include:</p>	N/A	Higher significance: Immediate or Lower significance: 14 days	Higher significance: 60 days or Lower significance: N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> one-off occurrences of untreated wood products in the plant are not reportable as fire code violations under CSA N293-12, <i>Fire Protection for Nuclear Power Plants</i> [7]; these events will be treated as contributing to a potential programmatic non-compliance. one-off pressure boundary inspection and test plan (ITP) execution errors, including lack of authorized inspection agency (AIA) concurrence, where there is no consequential adverse impact on operability, will not be reportable as an item of non-compliance with CSA N285.0, <i>General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants</i> [3]; these occurrences will be treated as administrative errors contributing to potential programmatic non-compliance. <p>Examples of items of non-compliance that are programmatic include:</p> <ul style="list-style-type: none"> an item of non-compliance with a control measure, such as a limit or requirement that would create an unreasonable risk to national security, the health and safety of persons, and the protection of the environment failures in a program that forms one part, or all, of a program in a licence the discovery of a degradation or vulnerability that may permit undetected drug or alcohol use by workers <p>Note: For examples of non-compliances that are reportable and non-reportable pursuant to the requirements of the <i>Packaging and Transport of Nuclear Substances Regulations, 2015</i>, see item 32.</p>			
1b)	<p>General Nuclear Safety and Control Regulations (GNSCR):</p> <p>9. (4) Every person who carries on an activity without a licence in accordance with subsection (1) or (2) shall immediately notify the Commission of that fact.</p> <p>Guidance</p> <p>Actions outside the licensing basis or licensed activity should be reported here.</p>	Immediate		

A.2 Transfer or disclosure of prescribed information

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Notification or filing of specific records	Preliminary event reports	Detailed event reports
<p>Regulatory context</p> <p>NSCA:</p> <p>48. Every person commits an offence who</p> <p style="padding-left: 40px;">(b) discloses prescribed information, except pursuant to the regulations;</p> <p>GNSCR:</p> <p>23. (1) No person shall transfer or disclose prescribed information unless the person</p> <p style="padding-left: 40px;">(a) is legally required to do so; or</p> <p style="padding-left: 40px;">(b) transfers or discloses it to</p> <p style="padding-left: 80px;">(i) a minister, employee or other person acting on behalf or under the direction of the Government of Canada, the government of a province or any of their agencies, for the purpose of assisting themselves in exercising a power or performing a duty or function lawfully conferred or imposed on them,</p> <p style="padding-left: 80px;">(ii) an official of a foreign government or an international agency, for the purpose of meeting obligations imposed by an arrangement made between the Government of Canada and the foreign government or international agency,</p> <p style="padding-left: 80px;">(iii) a worker, for the purpose of enabling the worker to perform duties assigned by the licensee, or</p> <p>(iv) a person who is legally required or legally authorized to obtain or receive the information.</p>				
2	<p>Specific reporting provisions</p> <p>The licensee shall report on:</p> <p>any situations or events relating to the transfer or disclosure of prescribed information.</p>	N/A	Immediate	60 days

A.3 Notification of authorized delegates and responsible persons

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
3	<p>GNSCR:</p> <p>15. Every applicant for a licence and every licensee shall notify the Commission of</p> <p>(a) the persons who have authority to act for them in their dealings with the Commission;</p> <p>(b) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and</p> <p>(c) any change in the information referred to in paragraphs (a) and (b), within 15 days after the change occurs.</p>	Within 15 days	N/A	N/A

A.4 Contingency plan

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
4a)	<p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p>	N/A	Higher significance: Immediate or	Higher significance: 60 days or

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>(d) a situation or event that requires the implementation of a contingency plan in accordance with the licence;</p> <p>Specific reporting provisions</p> <p>The licensee shall report on:</p> <ol style="list-style-type: none"> i. any situation or event that requires the implementation of the nuclear emergency plan, or the use of any abnormal operating procedures or emergency operating procedures, or the mobilization of resources in response to the situation or event ii. the occurrence of any unusual external events (floods, fires, earthquakes, etc.) at or near the site that require further inspection to verify their effect on NPP structures, systems and components iii. the occurrence of any unusual external events at the site that resulted in an operating transient at the NPP <p>Guidance</p> <p>This reporting is in response to an unexpected occurrence that creates a hazard to the safe operation of the NPP,, or to the health, safety and security of persons, or to and the environment.</p> <p>Reportable situations include:</p> <ul style="list-style-type: none"> • multiple false alarms that indicate a declining trend of an SSC important to safety’s fitness for service • activation of the site nuclear emergency plan, including false alarms that activate the site nuclear emergency plan • use of abnormal or emergency operating procedures, including evacuation of an area 		<p>Lower significance: 14 days</p>	<p>Lower significance: N/A</p>

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> sounding the emergency alarm or, mobilizing the site emergency response team (ERT) or offsite emergency responders, provided that no mitigating actions were required. activation of any abnormal or operating procedure in response to a security situation or event, including the presence of on-site security responders or law enforcement entities, activation of security incident command or a heightened security posture natural hazard events, including floods, fires, earthquakes, etc. <p>A fire is reportable if:</p> <ul style="list-style-type: none"> application of an extinguishing agent was required the fire causes entry into an abnormal incident manual (AIM) or the provincial nuclear emergency plan an unexplained flame is witnessed damage has occurred beyond the point of origin <p>An earthquake is reportable if:</p> <ul style="list-style-type: none"> it was felt or registered at the site it exceeded 50% of the design- basis earthquake for the NPP; to be able to calculate this, an NPP should have a working seismic monitoring system in accordance with the requirements of CSA N289.5, <i>Seismic Instrumentation Requirements for Nuclear Power Plants and Nuclear Facilities</i> [8] any damage associated with an earthquake is identified it has caused any disruption of life in the exclusion zone; disruption of life can be related to physical damage to housing or public infrastructure, but can also be related to traffic congestion, for example <p>An event is not reportable if:</p>			

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> a minor amount of extinguishing agent was applied in error or was unnecessary smoke was coming from a slipping belt, or overheated or malfunctioning equipment damage was very minor and limited to a single electrical component, such that no surrounding components or equipment were impacted there was a traffic incident involving police where no arrest was made 			
4b)	<p>(g) an actual, threatened or planned work disruption by workers;</p> <p>Specific reporting provisions</p> <p>The licensee shall report on the following situations or events:</p> <ul style="list-style-type: none"> any actual, impending, planned or threatened work disruption, including labour actions such as a slowdown, walkout or strike, or another action such as a civil demonstration, that could affect the safety or security of operations at the facility or the capability of the licensee to maintain the staffing levels required by the licensee situations involving the possibility of a strike are considered to be reportable when a union that operates at the facility is in a legal strike position, regardless of whether any actual strike activity has taken place 	N/A	Higher significance: Immediate or Lower significance: 14 days	Higher significance: 60 days or Lower significance: N/A

A.5 Serious illness, injury or death

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or and notifications	Preliminary event report or immediate notification	Detailed event reports
5	GNSCR:	N/A	Immediate	60 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or and notifications	Preliminary event report or immediate notification	Detailed event reports
	<p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(h) a serious illness or injury incurred or possibly incurred as a result of the licensed activity;</p> <p>(i) the death of any person at a nuclear facility;</p> <p>Guidance</p> <p>For an illness or injury to be considered serious, there should have been lost time associated with it. The event is reportable once a lost- time incident occurs.</p> <p>Any death within the exclusion zone or the outer facility site boundary (whichever is larger), regardless of cause, or any death resulting from an injury or illness, regardless of time intervening between injury or illness and death, is to be reported. This applies even if the death is unrelated to the operation of the NPP.</p>			

A.6 Notification of removal or reinstatement of certified personnel

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
6	<p>Specific reporting provisions</p> <p>The licensee shall submit notification of the following:</p>	21 days	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	a. removal of a certified person from the duties of the position for which the person is certified by the CNSC b. reinstatement of a certified person to the duties of the position for which the person is certified by the CNSC Guidance “Removal” refers to leaving the position for any reason, including termination of employment because of resignation or retirement. “Reinstatement” means a return to duties in accordance with REGDOC-2.2.3, <i>Personnel Certification, Volume III: Certification of Persons Working at Nuclear Power Plants</i> [9].			

A.7 Financial status

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
7	GNSCR: 29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it: (j) the occurrence of any of the following events: (i) the making of an assignment by or in respect of the licensee under the <i>Bankruptcy and Insolvency Act</i> ,	N/A	Immediate	60 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> (ii) the making of a proposal by or in respect of the licensee under the <i>Bankruptcy and Insolvency Act</i>, (iii) the filing of a notice of intention by the licensee under the <i>Bankruptcy and Insolvency Act</i>, (iv) the filing of a petition for a receiving order against the licensee under the <i>Bankruptcy and Insolvency Act</i>, (v) the enforcement by a secured creditor of a security on all or substantially all of the inventory, accounts receivable or other property of the licensee that was acquired for, or used in relation to, a business carried on by the licensee, (vi) the filing in court by the licensee of an application to propose a compromise or an arrangement with its unsecured creditors or any class of them under section 4 of the <i>Companies' Creditors Arrangement Act</i>, (vii) the filing in court by the licensee of an application to propose a compromise or an arrangement with its secured creditors or any class of them under section 5 of the <i>Companies' Creditors Arrangement Act</i>, (viii) the making of an application for a winding-up order by or in respect of the licensee under the <i>Winding-up and Restructuring Act</i>, (ix) the making of a liquidation, bankruptcy, insolvency, reorganization or like order in respect of the licensee under provincial or foreign legislation, or (x) the making of a liquidation, bankruptcy, insolvency, reorganization or like order in respect of a body corporate that controls the licensee under provincial or foreign legislation. 			

A.8 Inaccurate or incomplete records

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
8	<p>GNSCR:</p> <p>31. (1) Every licensee who becomes aware of an inaccuracy or incompleteness in a record that the licensee is required to keep by the Act, the regulations made under the Act or the licence shall file a report of the inaccuracy or incompleteness with the Commission within 21 days after becoming aware of it, and the report shall contain the following information:</p> <ul style="list-style-type: none"> (a) the details of the inaccuracy or incompleteness; and (b) any action that the licensee has taken or proposes to take with respect to the inaccuracy or incompleteness. <p>(2) Subsection (1) does not apply to a licensee if:</p> <ul style="list-style-type: none"> (a) the licence contains a term or condition that requires the licensee to report inaccuracies or incompleteness in a record to the Commission; or (b) the inaccuracy or incompleteness in the record could not reasonably be expected to lead to a situation in which the environment, the health and safety of persons or national security is adversely affected. 	N/A	<p>Within 21 days</p> <p>or</p> <p>Not required if GNSCR 31(2)(b) applies</p>	60 days

A.9 Notification and filing of record of disposal of records

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
9	<p>GNSCR:</p> <p>28. (2) No person shall dispose of a record referred to in the Act, the regulations made under the Act or a licence unless the person</p> <p>(a) is no longer required to keep the record by the Act, the regulations made under the Act or the licence; and</p> <p>(b) has notified the Commission of the date of disposal and of the nature of the record at least 90 days before the date of disposal.</p> <p>(3) A person who notifies the Commission in accordance with subsection (2) shall file the record, or a copy of the record, with the Commission at its request.</p> <p>Guidance</p> <p>The notification of intent to dispose of a record should include:</p> <ul style="list-style-type: none"> • unique correspondence tracking identifier • planned date of disposal of the record • representative sample of the record sufficient for the CNSC to ascertain the nature of the record. 	At least 90 days before the date of disposal	N/A	N/A

A.10 Failure, degradation or weakening of structures, systems and components (SSC)

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event report
10	<p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(f) information that reveals the incipient failure, abnormal degradation or weakening of any component or system at the site of the licensed activity, the failure of which could have a serious adverse effect on the environment or constitutes or is likely to constitute or contribute to a serious risk to the health and safety of persons or the maintenance of security;</p> <p>Specific reporting provisions</p> <p>For Class 1 to 6 systems in accordance with CSA N285.0, <i>General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants</i> [3], the licensee shall report on the discovery of the following situations or events:</p> <p>a. ruptures</p> <p>b. safety-significant deformation or cracks</p> <p>c. degradations that have the potential to significantly impair the operating ability of the system</p> <p>d. degradations that cause a leak that exceeds a limit specified in the licensing basis</p> <p>e. changes in the size, rating or material properties of any part of a pressure boundary that was not allowed for in the design of the boundary</p> <p>f. local or general reductions in wall thickness beyond that allowed by the applicable pressure vessel code, standard or Act under which the Class 1 to 6 system’s pressure boundary was registered (or could have been registered)</p>		Immediate	60 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event report
	<p>g. degradations of overpressure protection equipment that caused or would have caused the equipment to fail to operate in accordance with the overpressure protection report or another version-controlled document or a licensee document requiring notification of change, other than a relief device that activates above its maximum set point during testing but below the hydrostatic test pressure of the associated system</p> <p>h. a transient load condition that exceeds a relevant design condition of a pressure boundary or that exceeds Level B service limits for a nuclear component that has been designed in accordance with Section III, Division 1, Subsection NB of the ASME Boiler & Pressure Vessel Code [10]</p> <p>i. an analysis related to a Class 1 to 6 pressure boundary system that concludes that an applicable limit specified in the associated design analyses, the design and inspection codes, or the design and inspection standards has been exceeded</p> <p>j. a safety-significant pressure boundary failure or leak in a system that:</p> <ul style="list-style-type: none"> • contains radioactive or hazardous substances in high enough concentrations to pose a hazard to unprotected personnel • is of sufficient pressure or temperature to pose a hazard to unprotected personnel • results in a leak of any material that impinges upon any electrical component • results in a leak that causes damage or flooding that affects the safe operation of the plant <p>k. a situation where the configuration of a valve or other device associated with a pressure boundary contravenes relevant requirements in the overpressure protection report or another version-controlled document or a licensee document requiring notification of change</p>			

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event report
	<p>Guidance</p> <p>Class 6 systems that satisfy the exemption criteria of Clause 5.2.4.2 of CSA N285.0, <i>General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants</i> [3], may be excluded.</p> <p>Only higher significance events are reported immediately as events. Lower significance events are reported on the quarterly report on nuclear power plant pressure boundaries (see section 3.2).</p> <p>Failure of the following typically do not need to be reported, unless required by another reporting provision:</p> <ul style="list-style-type: none"> • vacuum relief valves, provided they are non-code valves and they do not perform or support a safety function • power- operated relief valves, provided they do not perform a safety function • pressure relief valves in systems that are not and are not required to be registered under CSA N285.0, <i>General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants</i> [3] <p>In item g, event reporting is intended for the discovery of the failure or potential failure of overpressure protection equipment.</p> <p>If a relief device activates above its maximum set point during the testing but below the hydrostatic test pressure of the associated system, it should be reported in the quarterly report on nuclear power plant pressure boundaries (see section 3.2).</p> <p>If a relief device activates above the hydrostatic test pressure of the associated system, it should be reported it as an event under this reporting provision.</p>			

A.11 Process systems

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event report
11	<p>Specific reporting provisions</p> <p>The licensee shall report on the following situations or events:</p> <p>a. a serious process failure</p> <p>Guidance:</p> <p>The licensee should file a report for the serious process failure once it is determined to be a serious process failure, even if the triggering event was reported under a different reporting provision.</p> <p>The definition of a serious process failure is a failure that leads or that could lead, in the absence of action by any special safety system, to significant fuel damage or a significant release from the NPP.</p>	N/A	Immediate	60 days
	<p>b. an unplanned change in reactor power or in core reactivity</p> <p>Guidance:</p> <p>The intent of this reporting provision is to report all unplanned shutdowns, stepbacks, setbacks and unexpected or unexplained phenomena.</p> <p>This reporting requirement applies to events during startup, normal operations, during shutdown / guaranteed shutdown state, and events related to radioisotope production systems.</p> <p>This reporting requirement applies to an unplanned change in core reactivity, such as:</p> <ul style="list-style-type: none"> • a failed approach to criticality • unexpected core response • gadolinium precipitation events 	N/A	Higher significance: Immediate or Lower significance: 14 days	Higher significance: 60 days or Lower significance: N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event report
	<ul style="list-style-type: none"> unexpected flux tilts greater than actionable limits in the governing operations documents discovery of fuel burnup or cobalt-60 rod activity being significantly different than expected an error in using or not using depleted bundles as planned unplanned reactivity device intervention or compensation <p>The common definition of “unplanned” is unexpected, not anticipated, not prepared for or otherwise not arranged in advance. Unexpected responses to planned power changes are reportable under this provision. However, planned changes in power related to normal operations such as testing, fuelling, reactor following (within a controlled power band), surplus baseload generation, planned outages and auto trips (during commissioning) are not reportable under this provision. Likewise, planned shutdowns associated with forced outages are not reportable.</p>			
	<p>c. an acute and unrecoverable loss of more than 100 kg of heavy water.</p> <p>Guidance</p> <p>Loss of heavy water includes losses from process failures and/or the storage of heavy water. Heavy water is considered to be a nuclear substance.</p> <p>Theft of a nuclear substance is covered under reporting provision 26 in appendix A.</p>		<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A.</p>

A.12 Safety systems

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event reports
12	<p>Specific reporting provisions</p> <p>The licensee shall report on situations or events that result in any of the following:</p> <ol style="list-style-type: none"> a. an actuation, at any power level, of a shutdown system, except where: <ul style="list-style-type: none"> • the actuation occurs while the reactor unit is in a guaranteed shutdown state and there is no indication that the shutdown guarantee has failed • the actuation was deliberate, as required for testing purposes or as part of a pre-approved shutdown procedure b. an actuation of an emergency core cooling system or subsystem as a consequence of an initiating parameter going beyond a set point c. an actuation of a containment system or subsystem as a consequence of an initiating parameter going beyond a set point d. a degradation of a special safety system or standby SSC important to safety that prevents the system from performing its safety function as intended or from meeting its defined specifications found in the NPP safe operating envelope (SOE) e. a spurious operation or a spurious failure of a device at the final point of control for the purpose of separating the circuits of the heat transport system from the emergency core cooling systems <p>Guidance</p> <p>The report should include a specific statement as to why a special safety system actuation was not a serious process failure.</p> <p>For item c, spurious actuation of containment by exceeding a set point from a fault or unauthentic signal should not be reported.</p>	N/A	Higher significance: Immediate or Lower significance: 14 days	Higher significance: 60 days or Lower significance: N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event reports
	Example: containment system box-ups on activity where the initiating parameter was exceeded as a result of fields external to the reactor building ventilation exhaust flow (i.e., shine from moderator slurry activities in the vicinity of the box-up monitors or because of radiography in the area).			

A.13 Reactor, turbine and generator control

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
13	<p>Specific reporting provisions</p> <p>The licensee shall report on situations or events that reduce the effectiveness of a system, outside of defined specifications, for:</p> <ul style="list-style-type: none"> a. controlling reactor power b. controlling the pressure or inventory of the primary heat transport system c. protecting the turbine/generator <p>Guidance</p> <p>For item a, only a reduction in the means of controlling reactor power is reported under this provision; an unplanned reduction in reactor power is reported under provision number 11.</p>	N/A	<p>Higher significance: Immediate</p> <p>or</p> <p>Lower significance: 14 days</p>	<p>Higher significance: 60 days</p> <p>or</p> <p>Lower significance: N/A</p>

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	For items a, b and c, the defined specifications may be contained in the licensee’s documentation on the safe operating envelope (SOE), systems important to safety action levels, design requirements or impairment manual. Note: Reductions in redundancies or safety margins are not reportable under this clause.			

A.14 Hazards

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
14	<p>Specific reporting provisions</p> <p>The licensee shall report on any of the following situations or events arising from operating experience, research, new or revised safety analysis, that reveals a hazard or a potential hazard to the environment, health and safety of persons and the maintenance of national security; and measures required to implement international obligations to which Canada has agreed - that may be (or is determined to be) different in nature, or greater in probability or magnitude than was previously represented to the CNSC:</p> <p>a. discovery of any of the following:</p> <ul style="list-style-type: none"> i. any special safety system that does not meet its defined specifications ii. a reactor that is operating in a state that was not considered in the safety analysis iii. occurrence of a situation or event of a type that was not considered in the safety analysis iv. unexplained or unexpected behaviour of a reactor core 	N/A	Higher significance: Immediate or Lower significance: 14 days	Higher significance: 60 days or Lower significance: N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> v. an event where 2 or more systems or components that were assumed in the safety analysis to be mutually independent are, in fact, interdependent vi. safety and control measures described in the licence application and the documents needed to support the licence application containing an error that, if accepted, relied or acted upon as being valid, could give rise to increased risks vii. new information, from an event analysis, indicating the possible release of a nuclear substance in a quantity or rate greater than predicted in the safety analysis viii. determination that actual field configuration is not consistent with assumptions made in the safety analysis ix. the discovery of any item that calls into question the critical characteristics of components and/or the defined specifications of a special safety system, an SSC important to safety or a security system x. discovery of any documentation or safety and control measures that renders inaccurate or suspect the information used to establish continued operation of a component, an SSC important to safety or a system important to safety <p>Guidance</p> <p>Situations and events reported under this provision are typically identified as a result of operational activities such as transients, event analysis, operator routines or surveillance.</p> <p>It is acceptable to report lower significance events for item i above in the annual report on risk and reliability (see section 3.8).</p>			
	<ul style="list-style-type: none"> b. discovery of any of the following: <ul style="list-style-type: none"> i. a final safety analysis report containing an assumption, input, analytical method or safety analysis result that is or may be invalid or uncertain ii. a limit defined in the licensing basis that is or may be inadequate to ensure safety 			21 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<ul style="list-style-type: none"> iii. an analysis, from which a limit was derived, that may be invalid or uncertain such that the margin of safety may be less than predicted iv. defined specifications of a special safety system or of an SSC important to safety of an NPP are or may be invalid v. <i>[provision retracted as part of version 3 updates]</i> vi. safety and control measures in place for the purpose of protecting the environment from the operating impacts of an NPP are or may be inadequate vii. the discovery of a degradation mechanism or component condition that changes or renders inaccurate the licensing basis, continued operation of a component, SSC important to safety or system important to safety <p>Guidance Situations and events reported under this provision are typically identified through activities such as research, program review or the updating of documents.</p>			

A.15 Counterfeit, fraudulent or suspect items

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notifications	Detailed event reports
15	<p>Specific reporting provisions</p> <p>The licensee shall report situations or events that result in the discovery of counterfeit, fraudulent or suspect items during the conduct of licensed activities.</p> <p>Guidance</p> <p>Counterfeit and fraudulent items are reported only as such once confirmed and validated. Suspect items are reported when substandard quality or, suspicious differences in packaging, labelling, physical appearance, shipping details and so on, etc., create doubts regarding the genuineness of the item without certain proof. Suspect items do not necessarily include substandard items from a change or defect in the manufacturing process.</p> <p>If the item is installed in the NPP, the significance of the impact determines the timing of the preliminary report. If the item is not installed in the NPP, it is considered a lower significance event.</p> <p>Licensees are encouraged to report items as suspect upon discovery and not wait until confirmation as counterfeit or fraudulent.</p> <p>Protection of information should not inhibit reporting to the CNSC. The make/model of the item could be protected information if its release would harm the company.</p>	N/A	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A</p>

A.16 Outages

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
16	<p>Specific reporting provisions</p> <p>The licensee shall submit:</p>			
	<p>a. a notification of regulatory undertakings (NoRU) that identifies all regulatory undertakings to be completed during the outage. The NoRU should also identify the planned work that, in the licensee’s judgement, is of regulatory interest.</p> <p>Guidance</p> <p>Email notification is acceptable.</p> <p>In this context, “regulatory undertakings” refers to outage work that is required by a code or a standard that is referenced in the power reactor operating licence (PROL) (mandatory work) or work that was committed by the licensee to the CNSC through formal correspondence (committed work), including:</p> <ul style="list-style-type: none"> • periodic inspection program (PIP) inspections in the last outage of a PIP cycle • PIP work that is required to allow the extension of an existing disposition that will expire before the next planned outage <p>Also in this context, “planned work” is major safety significant work that is scheduled in the outage, and that in the licensee’s judgement is of regulatory interest, but is not mandatory or committed, including:</p> <ul style="list-style-type: none"> • repair or maintenance tasks to correct known problems, (e.g., level 3 impairments) • inspection tasks (e.g., PIP inspections) that must be completed over a multi-year cycle and for which there is another planned maintenance outage before the end of the current cycle • requests from CNSC staff to do additional inspections beyond the PIP requirements 	60 days prior to the outage	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	b. a notification of any changes to the regulatory undertakings and commitments stated in the notification of regulatory undertakings (NoRU)	7 days prior to the outage	N/A	N/A
	<p>c. an outage of completion assurance statement (OCAS) confirming that all regulatory undertakings were successfully completed during the outage</p> <ul style="list-style-type: none"> • the OCAS shall include any conditions that the licensee imposed upon reactor restart and/or subsequent operation to ensure the continued safe operation of the nuclear facility • the OCAS should include the status of planned work that was identified in the NoRU <p>Guidance</p> <p>This notification should include additions to outage scope, such as component repairs or replacement.</p> <p>Regulatory undertakings that are not completed during the outage should be identified in the OCAS.</p>	30 days after the outage	N/A	N/A

A.17 Missed regulatory predefines (scheduled plant activities)

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
17	<p>Specific reporting provisions</p> <p>The licensee shall report on situations or events that result in any failure to perform a test that is required by a licence condition, including any routine test of an SSC important to safety that is required by a licensing document that has not been deferred in accordance with procedures that are permitted by the licence.</p> <p>Guidance</p> <p>This specific reporting provision includes missed preventative maintenance calibrations for instruments identified in licensee safe operating envelope (SOE) documentation.</p> <p>The following failures do not need to be reported unless required by another reporting provision:</p> <ul style="list-style-type: none"> • vacuum relief valves, provided they are non-code valves and they do not perform a safety function • power operated relief valves, provided they do not perform a safety function • pressure relief valves in systems that are not or would not be required to be registered under CSA N285.0, <i>General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants</i> [3] <p>Reports made under this provision should be consistent with the notes in safety performance indicator 17 (SPI-17), Safety System Test Performance (see appendix B).</p> <p>Any missed preventive maintenance (PM) on a non-SSC important to safety is not reportable.</p>	N/A.	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A</p>

A.18 Other reportable situations and events

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
18	<p>Specific reporting provisions</p> <p>The licensee shall report on all other situations or events that are not otherwise specified in this document but can be reasonably assumed to be of regulatory interest, including notifications and situations or event reports to other regulatory agencies within the scope covered by the objects of the Commission (see section 9 of the NSCA), or where CNSC requests the report.</p> <p>Guidance</p> <p>The licensee may submit copies of the report(s) or notification(s) prepared for other governing bodies to the CNSC as a preliminary event report.</p> <p>Licensees should look at all other reporting provisions before considering reporting under reporting provision 18.</p> <p>The term “of regulatory interest” is intended to include any situation or event that could be of concern, including but not limited to:</p> <ul style="list-style-type: none"> • any matter or item of regulatory interest that the CNSC has previously or currently expressed interest in and/or concern about • matters that are likely to have be of public or community concern • matters that are likely to have media attention • negative trends or non-conservative behaviours <p>This reporting provision could include site-specific scenarios that are not covered elsewhere.</p>	N/A.	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A</p>

A.19 Misuse of anything intended to protect the environment and the health and safety of persons or maintain security

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
<p>Regulatory context</p> <p>NSCA:</p> <p>48. Every person commits an offence who</p> <p>(a) alters, otherwise than pursuant to the regulations or a licence, or misuses anything the purpose of which is to</p> <p style="padding-left: 20px;">(i) protect the environment or the health or safety of persons from any risk associated with the development, production or use of nuclear energy or the possession or use of a nuclear substance, prescribed equipment or prescribed information, or</p> <p>(k) fails to comply with this Act or any regulation made pursuant to this Act.</p> <p>GNSCR:</p> <p>17. Every worker shall</p> <p>(b) comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment;</p>				
19	<p>Specific reporting provisions</p> <p>The licensee shall report on situations or events:</p> <ul style="list-style-type: none"> • where an offence is committed or there is a misuse of anything intended to protect the environment or the health or safety of persons from any risk associated with authorized activities • where workers failed to comply with licensees’ measures to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of nuclear and hazardous substances into the environment 	N/A	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A</p>

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>Guidance</p> <p>The term “misuse” refers to intentional tampering and using something in an unsuitable or unintended way.</p> <p>Violations to the alcohol or drug-related fitness for duty policy, including the use, sale, distribution, possession or presence of illegal drugs, or the consumption or presence of alcohol or cannabis at a high-security site, should be reported under this reporting provision.</p> <p>The discovery of a degradation or vulnerability that may permit undetected drug or alcohol use or abuse by workers, such as but not limited to quality assurance or testing errors, should be reported under this reporting provision.</p> <p>Any intentional act that could jeopardize the integrity of alcohol and drug testing results, or that may permit undetected drug or alcohol use or abuse by workers should be reported under this reporting provision.</p>			

A.20 Actual or potential exposure in excess of legal radiation dose limits (worker)

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
20a)	<p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(b) the occurrence of an event that is likely to result in the exposure of persons to radiation in excess of the applicable radiation dose limits prescribed by the <i>Radiation Protection Regulations</i>;</p>		Immediate	Within 21 days
20b)	<p><i>Radiation Protection Regulations (RPR):</i></p> <p>16 When a licensee becomes aware that a dose of radiation received by or committed to a person or an organ or tissue may have exceeded an applicable dose limit prescribed by section 13 or 14, the licensee must</p> <p>(a) immediately notify the person and the Commission of the dose;</p> <p>(e) within 21 days after becoming aware that the dose limit has been exceeded, report to the Commission the results of the investigation or the progress that has been made in conducting it.</p> <p>Guidance</p> <p>Participating in the control of an emergency is understood to mean a person who is engaged in emergency response [12]. Event reports submitted under this provision contain personal information and should be reported on the Personnel Situation Report, in accordance with section 2, item 3 of this document.</p>		Immediate	Within 21 days
20c)	<p>Specific reporting provisions</p>		Immediate	Within 21 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	The licensee shall report on any situations or events that could have caused a reportable dose of radiation under the <i>Radiation Protection Regulations</i> but did not, due to fortuitous circumstances rather than to approved procedures.			
20d)	<p>NSCA:</p> <p>45. Every person who, on reasonable grounds, believes that</p> <p>(b) an event has occurred that is likely to result in the exposure of persons or the environment to a dose of radiation in excess of the prescribed limits, shall immediately notify the Commission or an appropriate authority of the location and circumstances of the contamination or event.</p>		Immediate	Within 21 days

A.21 Reaching an action level for the purposes of environmental or radiation protection

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
21	<p>RPR</p> <p>6. (2) When a licensee becomes aware that an action level referred to in the licence for the purpose of this subsection has been reached, the licensee must</p> <p>(c) notify the Commission within the period specified in the licence.</p> <p>Specific reporting provisions</p> <p>After becoming aware of situations or events that result in an action level being reached, the licensee shall report to the CNSC the results of the investigation or on the progress that has been made in conducting the investigation.</p>	N/A	Within the period specified in the licence	60 days

A.22 Nuclear and hazardous substance release

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event reports
22	<p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(c) a release, not authorized by the licence, of a quantity of radioactive nuclear substance into the environment;.</p> <p>Specific reporting provisions</p> <p>The licensee shall report on the following situations or events:</p> <ul style="list-style-type: none"> a. any failure to monitor, control or record the release of a nuclear substance as required by the licence b. any failure to monitor or control the release of a hazardous substance as required by any federal or provincial regulation, or by a licence, permit or certificate issued by a municipal, provincial or other federal authority c. any event that either affected the environment or that has the potential to adversely affect it <p>Guidance</p> <p>For item b, a failure to collect an individual sample is not considered failure to monitor. For the purposes of event reporting, failure to monitor is more appropriately considered in the context of programmatic failure.</p> <p>An unmonitored or uncontrolled release of a nuclear or hazardous substance into the environment is reportable if the licensee cannot demonstrate that the release did not exceed regulatory limits or that the release has occurred at other than established points of release.</p>	N/A	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: N/A</p>

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event reports or immediate notification	Detailed event reports
	<p>Reported spills do not include releases onto artificial surfaces (e.g., concrete, asphalt) that are contained and that the licensee can recover.</p> <p>Note: Event spill and release estimates for events not exceeding regulatory limits should be reported in the quarterly safety performance indicators, SPI-5, Environmental Releases – Radiological, and SPI-6, Spills, following the categorization indicated in those SPIs (see appendix B).</p>			

A.23 Exposure devices and sealed source assemblies

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
23	<p><i>Nuclear Substances and Radiation Devices Regulations (NSRDR):</i></p> <p>30. (2) Every licensee who becomes aware of any of the following situations shall notify the Commission immediately of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <ul style="list-style-type: none"> (a) the exposure device or the sealed source assembly is lost, stolen or damaged to an extent that could impair its normal use; (b) the exposure device has a radiation dose rate of more than 2 mSv per hour on any part of its surface when the sealed source assembly is in the shielded position; (c) the sealed source assembly is separated from the exposure device when the latter is not being serviced; or 		Immediate	21 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>(d) the sealed source assembly fails to return to the shielded position inside the exposure device.</p> <p>NSRDR:</p> <p>38. (2) Every licensee referred to in subsection (1) or subsection 30(2) who becomes aware of a situation referred to in one of those subsections shall file a full report of the situation with the Commission within 21 days after the day on which the licensee becomes aware of it or within the period specified in the licence, and the report shall contain the following information:</p> <p>(a) a description of the situation, the circumstances and the problem, if any, with the radiation device;</p> <p>(b) the probable cause of the situation;</p> <p>(c) the nuclear substance, and if applicable, the brand name, model number and serial number of the radiation device involved;</p> <p>(d) the date, time and location where the situation occurred or, if unknown, the approximate date, time and location, and the date and time of becoming aware of the situation;</p> <p>(e) the actions that the licensee has taken to re-establish normal operations;</p> <p>(f) the actions that the licensee has taken or proposes to take to prevent a recurrence of the situation;</p> <p>(g) if the situation involved an exposure device, the qualifications of the workers, including any trainee, who were involved;</p> <p>(h) the effective dose and equivalent dose – as those terms are defined in subsection 1(1) of the <u>Radiation Protection Regulations</u> – received by any person as a result of the situation; and</p>			

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	(i) the effects on the environment, the health and safety of persons and the maintenance of security that have resulted or may result from the situation.			

A.24 Notification of sealed source leakage of 200 Bq or greater

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
24	<p>NSRDR:</p> <p>18. (3) Where a licensee, in the course of conducting a leak test on a sealed source or on shielding, detects the leakage of 200 Bq or more of a nuclear substance, the licensee shall (d) immediately after complying with paragraphs (a) to (c), notify the Commission that the leakage has been detected.</p>	N/A.	Immediate	N/A

A.25 Filing of a sealed source tracking report

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
25	<p>Specific reporting provisions</p> <p>The licensee shall provide notification of any import, export, transfer or receipt of sealed sources using the CNSC database (the sealed source tracking system) that tracks the location of each significantly hazardous nuclear source (IAEA Category 1 and 2 sources and sources used for industrial radiography regardless of category) in Canada.</p> <p>The notification shall include:</p> <ol style="list-style-type: none"> 1. on transfer or export of a sealed source(s): <ol style="list-style-type: none"> a. the date of transfer or export b. the export licence number (where applicable) c. the name of the recipient and licence number or the name of the importer d. the address of the recipient's or importer's authorized location e. the nuclear substance (radionuclide) f. activity (radioactivity) (Bq) per sealed source on the reference date g. the reference date h. the number of sealed source(s) i. the aggregate activity (Bq) j. the sealed source unique identifiers (if available) k. where the sealed source is incorporated into prescribed equipment: <ol style="list-style-type: none"> i. the name and model number of the equipment ii. the equipment serial number (if available) 	At least 7 days before transfer out or export, and within 48 hours of receipt or import	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	2. on receipt or import of a sealed source(s): <ul style="list-style-type: none"> a. the date of receipt of a transfer or import b. the name of the shipper and licence number or the name of the exporter c. the address of the shipper's or exporter's authorized location d. the nuclear substance (radionuclide) e. activity (radioactivity) (Bq) per sealed source on the reference date f. the reference date g. the number of sealed source(s) h. the aggregate activity (Bq) i. sealed source unique identifiers (if available) j. where the sealed source is incorporated into prescribed equipment: <ul style="list-style-type: none"> i. the name and model number of the equipment ii. the equipment serial number (if available) 			

A.26 Theft or loss of nuclear substance, prescribed equipment or prescribed information

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
26	NSCA:	N/A	Immediate	60 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>27. Every licensee and every prescribed person shall</p> <p>(b) make the prescribed reports and file them in the prescribed manner, including a report on</p> <p>(i) any theft or loss of a nuclear substance, prescribed equipment or prescribed information that is used in carrying on any activity that is authorized by this Act.</p> <p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(a) a situation referred to in paragraph 27(b) of the Act [NSCA]:</p>			

A.27 Actual or attempted breach of security or act of sabotage

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or notification	Detailed event reports
27	<p>GNSCR:</p> <p>29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <p>(e) an attempted or actual breach of security or an attempted or actual act of sabotage at the site of the licensed activity;</p> <p>Specific reporting provisions</p>	N/A	<p>Higher significance: Immediate or Lower significance: 14 days</p>	<p>Higher significance: 60 days or Lower significance: 14 days</p>

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or notification	Detailed event reports
	<p>The licensee shall report on:</p> <ul style="list-style-type: none"> a. any attempted or actual cyber-attack that adversely impacts or potentially impacts cyber essential assets (CEAs). Cyber-attack and CEA are defined in CSA N290.7 [1]. b. any security incident in the form of: <ul style="list-style-type: none"> i. an actual or attempted breach of the licensee’s physical protection system ii. an actual or attempted act of sabotage at the facility iii. a misuse of security-related equipment that may result in a security and/or safety vulnerability iv. the discharge of a firearm in a use-of-force application v. the application of any use of force vi. a credible threat made against the NPP <p>Guidance</p> <p>Immediate reporting is required only where a hazard to the health, safety and security of persons, and the environment or to the security of the nuclear facility exists.</p> <p>The application of use of force is reportable if an officer uses force greater than physical presence or communication on the Ontario Use of Force Model (2004), the RCMP’s Incident Management/Intervention Model (IMIM), or equivalent.</p>			

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or notification	Detailed event reports
	Licensees should assume threats are credible until law enforcement determines otherwise. A credible threat made against the NPP can include an actual or attempted breach of the licensee’s physical protection system or an actual or attempted act of sabotage at the facility.			

A.28 Filing of security record for threat and risk assessment

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
28	<p>Nuclear Security Regulations (NSR):</p> <p>7.5 (4) Every licensee shall provide a copy of the written [threat and risk assessment] record, together with a statement of actions taken as a result of the threat and risk assessment, to the Commission within 60 days after completion of the assessment.</p> <p>Guidance</p> <p>The following are the 10 key principles that should be covered in the licensee’s threat and risk assessment (TRA) methodology:</p> <ol style="list-style-type: none"> 1. summary of management processes and procedures for conducting a TRA (site specific) 2. data collection to be included in the submission (interviews, intelligence, local law enforcement, site staff interviews, news outlets, environmental data, etc.) 3. documented analysis of facility policies and procedures taken into consideration (security or other) 	Within 60 days	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	4. summary of how asset identification was completed, and rationale on where the “asset identification line” is located 5. asset identification (all systems related to nuclear material and substances, security systems associated with protection of those assets, all vital areas, employees, security staff, material and substances, etc.) 6. threat analysis to identified assets 7. vulnerability assessment 8. countermeasures and effectiveness 9. correlation and assessment of risk acceptability clearly defined 10. recommendations on residual risk and risk acceptance			

A.29 Notification of revocation of authorization

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
29	NSR: 21. (2) Subject to subsection (3), a licensee shall immediately notify the Commission in writing of any revocation made under subsection (1) and the reasons for it.	Immediate	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	(3) If a revocation is in respect of an authorization under section 17, a licensee need not inform the Commission of the revocation and the reasons for it unless the revocation was made because there were reasonable grounds to believe that the person to whom the authorization was issued posed or could have posed a risk to the security of the facility.			

A.30 Notification of intent to conduct security exercise

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
30	<p>NSR:</p> <p>36. (3) Every licensee shall notify the Commission in writing of its intention to conduct a security exercise at least 60 days before the exercise date.</p> <p>Guidance</p> <p>Security exercises include cyber security exercises.</p>	At least 60 days before the exercise date	N/A	N/A

A.31 Safeguards

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
31	<p>GNSCR:</p> <p>30. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the situation and of any action that the licensee has taken or proposes to take with respect to it:</p> <ul style="list-style-type: none"> (a) interference with or an interruption in the operation of safeguards equipment or the alteration, defacement or breakage of a safeguards seal, other than in accordance with the safeguards agreement, the Act, the regulations made under the Act or the licence; and (b) the theft, loss or sabotage of safeguards equipment or samples collected for the purpose of a safeguards inspection, damage to such equipment or samples, or the illegal use, possession, operation or removal of such equipment or samples. <p>(2) Every licensee who becomes aware of a situation referred to in subsection (1) shall file a full report of the situation with the Commission within 21 days after becoming aware of it, unless some other period is specified in the licence, and the report shall contain the following information:</p> <ul style="list-style-type: none"> (a) the date, time and location of becoming aware of the situation; (b) a description of the situation and the circumstances; (c) the probable cause of the situation; (d) the adverse effects on the environment, the health and safety of persons and the maintenance of national and international security that have resulted or may result from the situation; 	N/A	Immediate	21 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	(e) the effective dose and equivalent dose of radiation received by any person as a result of the situation; and (f) the actions that the licensee has taken or proposes to take with respect to the situation.			

A.32 Dangerous occurrences

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
32	<p>Regulatory context</p> <p>Packaging and Transport of Nuclear Substances Regulations, 2015 (PTNSR, 2015):</p> <p>35. For the purposes of sections 36 to 38, a dangerous occurrence is any of the following situations:</p> <ul style="list-style-type: none"> (a) a conveyance carrying radioactive material is involved in an accident; (b) a package shows evidence of damage, tampering or leakage of its contents, or its integrity is degraded in a manner that may reasonably be expected to impair its ability to comply with these Regulations or its certificate; (c) radioactive material is lost, stolen or no longer in the control of a person who is required to have control of it under the Act; (d) radioactive material has escaped from a containment system, a package or a conveyance during transport; (e) fissile material is outside the confinement system during transport; (f) the level of non-fixed contamination, as defined in the IAEA Regulations, during transport exceeds the following limits as applicable when averaged over any area of 300 cm² of any part of the surface of the package or the conveyance: <ul style="list-style-type: none"> (i) 4 Bq/cm² for beta and gamma emitters and low toxicity alpha emitters, or (ii) 0.4 Bq/cm² for all other alpha emitters; (g) there is a failure to comply with the provisions of the Act, the provisions of these Regulations or any licence or certificate that is applicable to a package that may reasonably be expected to lead to a situation in which the environment, the health and safety of persons or national security is adversely affected. <p>37. (2) No preliminary report is required for the dangerous occurrence referred to in paragraph 35(f) in respect of the internal surfaces of a tank or intermediate bulk container, as those terms are defined in the IAEA Regulations – or of a freight container or conveyance – that is dedicated to the transport of unpackaged radioactive material under exclusive use for as long as it remains under that specific exclusive use.</p> <p>Guidance</p>			

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>Relating to paragraph 35(a) of the PTNSR, 2015, regardless of the severity of the accident, the reporting requirements remain unchanged. All accidents involving a conveyance carrying radioactive material must be reported.</p> <p>Relating to paragraph 35(b) of the PTNSR, 2015, all damage sustained by a package during the loading or unloading process or during the course of transportation, regardless of the severity, must be reported. However, normal wear and tear sustained by a package is not reportable. Examples of normal wear and tear include, but are not limited to, a cringed corner on a fiberboard box, paint scratches, minor dents and, surface rust.</p> <p>As per paragraph 35(g) of the PTNSR, 2015, not all non-compliances are considered a dangerous occurrence, and therefore reportable. Only those non-compliances that can adversely affect the environment, the health and safety of persons or national security are reportable.</p> <p>Examples of non-compliances relating to the transport documents that do not require reporting include:</p> <ul style="list-style-type: none"> • typographical errors such as incorrect spelling of shipping names • activity not accurately matching what was in transport or what was stated on transport labels • incomplete or incorrect declaration <p>Note that if no transport document is present during transport, this would be reportable.</p> <p>Examples of non-compliances relating to the labelling or marking of packages that do not require reporting include:</p> <ul style="list-style-type: none"> • activity not accurately matching what was in transport or what is stated on the transport document • incorrect transport index noted on label • typographical errors such as incorrect spelling of shipping names • missing mark, as long as it does not adversely affect the environment, the health and safety of persons or national security, such as the international vehicle registration code (VRI code) <p>Any non-compliance with section 26 of the PTNSR, 2015, must be reported.</p>			
32a)	PTNSR, 2015:	As soon as feasible after a dangerous occurrence	N/A	N/A

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>36. (2) As soon as feasible after a dangerous occurrence has occurred the consignor, carrier or consignee of the package or radioactive material involved in the occurrence must have an expert in radiation protection assess the situation. The expert must report the results of the assessment to the Commission as soon as feasible.</p> <p>Guidance</p> <p>The expert in radiation protection may be an employee of the consignor, carrier or consignee, or may be an independent consultant retained for the purpose of assessing the situation and reporting to the Commission.</p>			
32b)	<p>PTNSR, 2015:</p> <p>37. (1) Immediately after becoming aware of a failure to comply with the requirements of section 26 or after the obligations set out in subsection 36(1) have been discharged, every consignor, carrier, consignee and holder of a licence to transport a package while in transit must make a preliminary report of the situation to the Commission.</p> <p>38. Within 21 days after the failure to comply with the requirements of section 26 or after the dangerous occurrence, the consignor, carrier and consignee and any holder of a licence to transport a package while in transit must file a full report with the Commission that includes the following information:</p> <ul style="list-style-type: none"> (a) the date, time and location of the failure to comply or of the dangerous occurrence; (b) the names of the persons involved; (c) the details of the packaging and packages; (d) the probable cause; (e) the effects on the environment, the health and safety of persons, and national or international security that have resulted or may result; (f) the doses of radiation that any person has received or is likely to have received; and 	N/A	Immediate	Within 21 days after a dangerous occurrence or a failure to comply with the requirements

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	<p>(g) the actions taken to remedy the failure to comply or the dangerous occurrence and to prevent its recurrence.</p> <p>Guidance</p> <p>Subsection 37 (1) and section 38 refer to section 26, which sets out the requirements for presenting a package containing radioactive material or a nuclear substance for transport.</p> <p>Subsection 37(1) refers to subsection 36(1), which sets out the [non-reporting] obligations of the consignor, carrier or consignee in the event of a dangerous occurrence.</p> <p>For any non-compliances with section 26 of the PTNSR, 2015, reports are required. Examples of non-compliances associated with section 26 include, but are not limited to, the use of improper package type, preparing a package for transport in a manner that was not in accordance with its manufacturing standard, loading a package with radioactive material that exceeds the capacity of the package.</p> <p>As stated in subsection 37(2), no preliminary report is required for the dangerous occurrence referred to in paragraph 35(f) in respect of the internal surfaces of a tank or intermediate bulk container, as those terms are defined in the IAEA Regulations, or of a freight container or conveyance – that is dedicated to the transport of unpackaged radioactive material under exclusive use for as long as it remains under that specific exclusive use.</p>			

A.33 Package is damaged, tampered with, or contents are outside the containment system

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
33	<p>PTNSR, 2015:</p> <p>40. (3) Every person who receives a package or who opens a package must, at that time, determine if any of the following conditions exist:</p> <ul style="list-style-type: none"> (a) the package is damaged; (b) the package has been tampered with; (c) if the package contains fissile material, whether any portion of the fissile material is outside the confinement system; and (d) any portion of the contents of the package is outside the containment system. <p>(4) If any of the conditions exist, the person must immediately make a preliminary report to the Commission and to the consignor.</p> <p>(5) The preliminary report must include information on how and where the condition was discovered and on any action that the person has taken or proposes to take with respect to it.</p> <p>(6) Within 21 days after the condition has been discovered the consignor and the person who made the preliminary report must file a full report with the Commission that includes the following information:</p> <ul style="list-style-type: none"> (a) the date, time and location of the discovery of the condition; (b) the names of the persons involved; (c) the details of the packaging and packages; (d) the probable cause; (e) the effects on the environment, the health and safety of persons, and national or international security that have resulted or may result; 	N/A	Immediate	Within 21 days after the discovery

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	(f) the doses of radiation that any person has received or is likely to have received; and (g) the actions taken to remedy the condition and to prevent its recurrence. Guidance The 21-day detailed event report only has to include what happened as per the PTNSR, 2015.			

A.34 Notification of undeliverable consignments

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
34	PTNSR, 2015: 41. If a consignment cannot be delivered to the consignee, the carrier must (a) notify the consignor, the consignee and the Commission;	As soon as feasible	N/A	N/A

A.35 Hours of work exceedances

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
35	<p>Specific reporting provisions</p> <p>The licensee shall report on any situations or events involving hours of work exceedances for safety-sensitive positions for the following limits:</p> <ul style="list-style-type: none"> a) 16 hours of work in a 24-hour period; and b) minimum recovery period of 8 consecutive hours free from work between shifts. 	N/A.	<p>Higher significance:</p> <p>Immediate or</p> <p>Lower significance:</p> <p>14 days</p>	<p>Higher significance :</p> <p>60 days</p> <p>or</p> <p>Lower significance :</p> <p>N/A</p>

A.36 Firearms or special security equipment

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
36	<p>Specific reporting provisions</p> <p>The licensee shall report on all situations or events involving firearms or special security equipment, including:</p> <ul style="list-style-type: none"> a) the negligent, accidental or unintentional discharge of a firearm or special security equipment 	N/A.	Immediate	60 days

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
	b) the removal of a firearm from the facility without prior CNSC authorization c) the theft or loss of a firearm or special security equipment d) any other reporting conditions outlined in the public agent authorization Guidance The discharge of a firearm or special security equipment is considered a higher significance event. The police agency of jurisdiction needs to be made immediately aware of any stolen or missing firearms. These reporting provisions apply if a firearm is negligently, accidentally or unintentionally discharged for any reason. These reporting provisions apply regardless of whether the firearm discharge occurred on site or off site.			

A.37 Exposure to chemical or biological agents

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
Regulatory context GNSCR: 12 (1) Every licensee shall (c) take all reasonable precautions to protect the environment and the health and safety of persons and to the maintain the security of nuclear facilities and of nuclear substances;				

No.	Event, notification or filing of specific records with the CNSC	Timing		
		Administrative report or notification	Preliminary event report or immediate notification	Detailed event reports
(f) take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of licensed activity and into the environment as a result of the licensed activity;				
37	<p>Specific reporting provisions</p> <p>The licensee shall report on the following situations or events that have or could have led to worker exposures:</p> <ul style="list-style-type: none"> c) aAny regulatory exceedance of hazardous chemicals or biological agents d) tThe discovery of previously unreported worker exposures to hazards known to cause acute or chronic negative health effects from short- or long-term exposure <p>Guidance</p> <p>Refer to the Canada Occupational Health and Safety Regulations as well as any relevant provincial regulations for information on hazardous substances, including any regulatory limits associated with specified biological or chemical agents.</p> <p>Licensees should report any incident following a chemical or biological agent exposure that resulted in a worker receiving a provincial workplace safety board Worker Exposure Incident Form.</p> <ul style="list-style-type: none"> e) Any worker exposure related to a serious illness or injury incurred or possibly incurred as a result of the licensed activity should be reported under A.5. 	N/A.	<p>Higher significance:</p> <p>Immediate or</p> <p>Lower significance:</p> <p>14 days</p>	<p>Higher significance:</p> <p>60 days or</p> <p>Lower significance:</p> <p>N/A.</p>

Appendix B: Safety Performance Indicators

This appendix provides the specifications for each safety performance indicator (SPI). The safety performance indicator reports shall be based on these specifications.

Sample data sheets are available on the [CNCS's website](#).

B.1 Collective Radiation Exposure

Purpose:

To indicate the total dose of ionizing radiation received by all individuals working at the nuclear power plant (NPP) and its related facilities.

To monitor the performance in keeping NPP whole-body dose as low as reasonably achievable.

Definitions:

Total dose is the sum of all effective doses (received and committed) assigned to all individuals, including contract staff and visitors, exposed to ionizing radiation at operating stations and associated sites.

Calculations:

Online (in operation) whole-body dose = collective external radiation exposure (mSv) + collective internal radiation exposure (mSv)

Outage whole-body dose = collective external radiation exposure (mSv) + collective internal radiation exposure (mSv)

Notes:

Collective dose is the total dose for all activities captured under the licence. The licensees are to provide a brief summary of the activities that contributed to the collective dose.

B.2 Personnel Contamination Events

Purpose:

To indicate the total personnel contamination events (PCEs) that occurred at the NPP and its related facilities.

Definitions:

Tier 1 PCE: > 50,000 cpm on skin, clothing, modesty garments

Tier 2 PCE: > 5,000 cpm on skin, clothing, modesty garments

Tier 3 PCE: \geq 100 cpm on skin, clothing, modesty garments (not radiation personal protective equipment (RPPE))

Calculations:

Data only.

Notes:

As the licensee's available data permits, it is acceptable to submit the number of PCEs at the entire NPP as stated in the purpose above or the number of PCEs at NPP units, as shown in the data sheet e-form.

Licenses are to provide the skin dose received from a skin contamination greater than the minimum recordable dose.

Licenses are to provide a tracking number, brief description and corrective actions (as applicable) for each Tier 1 and Tier 2 PCE.

B.3 Unplanned Dose / Unplanned Exposure

Purpose:

To indicate the estimated unplanned external whole-body exposure and unplanned internal exposure received by an individual at the NPP and its related facilities.

Definitions:

Unplanned external whole-body exposure:

- Tier 1 unplanned dose/exposure: ≥ 2 mSv (200 mrem) above plan
- Tier 2 unplanned dose/exposure: ≥ 1 mSv (100 mrem) above plan
- Tier 3 unplanned dose/exposure: ≥ 0.1 mSv (10 mrem) above plan

Unplanned internal tritium exposure:

- Tier 1 unplanned dose/exposure: ≥ 2 mSv (200 mrem) above plan
- Tier 2 unplanned dose/exposure: ≥ 1 mSv (100 mrem) above plan
- Tier 3 unplanned dose/exposure: ≥ 0.3 mSv (30 mrem) above plan

Unplanned internal exposure (other than tritium):

- \geq the licensee's recording level

Calculations:

Data only.

Notes:

The term "unplanned" refers to a radiation dose that exceeds the estimated planned dose to an individual for the radiological work to be performed.

Licensees are to provide a tracking number, brief description and corrective actions (as applicable) for each Tier 1 and Tier 2 unplanned dose/exposure.

For any unplanned internal exposure other than tritium, the licensees are to provide a brief description of the unplanned dose/exposure, including the radionuclides of concern, such as radioiodine, C-14, MFAP or TRU, the dose received from the exposure and any other relevant details.

B.4 Loose and/or Fixed Contamination Events

Purpose:

To indicate loose and/or fixed contamination that occurred at the NPP and its related facilities. Excluded from this are PCEs, which are covered under SPI 2 (see section B.2).

Definition:

Tier 1: Loose and/or fixed contamination ≥ 37 kBq/m² in zone 1 or public domain

Tier 2: Loose and/or fixed contamination in unzoned area, zone 1 or public domain, or widespread loose in zone 2

Tier 3: Widespread loose contamination in zone 3 or isolated loose in zone 2

Calculations:

Data only.

Notes:

The term “widespread” uses the following definition: contamination is found in multiple locations traceable to a common source.

The term “isolated” is intended to mean a specific area with defined borders such as an object or small surface.

Licensees are to provide a tracking number, brief description and corrective actions (as applicable) for each Tier 1 and Tier 2 loose and/or fixed contamination.

B.5 Environmental Releases – Radiological

Purpose:

To indicate the airborne carbon-14 releases, airborne tritium releases and waterborne tritium releases at the NPP and its related facilities.

Definitions:

Airborne tritium release is the weekly tritium air emissions released to the environment via monitored pathways from each station.

Airborne noble gas release is the weekly noble gas air emissions released to the environment via monitored pathways from each station.

Airborne iodine-131 release is the weekly iodine-131 air emissions released to the environment via monitored pathways from each station.

Airborne radioactive particulate release is the weekly radioactive particulate air emissions released to the environment via monitored pathways from each station.

Airborne carbon-14 release is the weekly carbon-14 air emissions released to the environment via monitored pathways from each station.

Waterborne tritium release is the monthly tritium liquid effluent released to the environment via monitored pathways from each station.

Waterborne gross beta/gamma release is the monthly beta/gamma liquid effluent released to the environment via monitored pathways from each station.

Waterborne carbon-14 release is the monthly carbon-14 liquid effluent released to the environment via monitored pathways from each station.

Calculations:

Data only.

Notes:

In addition to the SPI form, licensees shall also submit their effluent data in a machine -readable format as part of their quarterly SPI reports.

“Airborne” and “waterborne” releases are radiological releases from the NPP.

“Related facilities” are those facilities that have radiological releases to the environment that contribute to the annual total effective dose to the public from the site and have licensed release limits (e.g., derived release limits (DRLs)) and/or environmental action levels.

Releases, other than airborne and waterborne releases from those facilities owned or leased by the nuclear operator that have licensed release limits and/or environmental action levels established in the NPP licence, are not included in this SPI.

B.6 Spills

Purpose:

To indicate the total Category A, B and C spills that occurred at the NPP and its related facilities.

Definitions:

A Category A/1 spill causes or may cause one or more of the following adverse effects:

- widespread injury or damage to plant or animal life
- harm or material discomfort to any person
- adverse effect on the health of any person
- impairment of the safety of any person

A Category B/2 spill causes or may cause one or more of the following adverse effects:

- localized injury or damage to any animal life
- widespread or long-term interference with the normal conduct of business
- widespread or long-term loss of enjoyment of the normal use of property
- widespread damage to property other than plant or animal life
- damage to property, other than plant or animal life, such that the property cannot be restored, within a reasonable time, to the condition that existed immediately before the discharge occurred

A Category C/3 spill requires reporting to the Ministry of the Environment but is not classified as either a very serious (Category A/1) or serious (Category B/2) spill:

- little to no potential for environmental impact

Calculations:

Data only.

Notes:

In this context, “widespread” uses the following definitions: contamination is found in multiple locations traceable to a common source.

The term “localized” is intended to mean a specific area with defined borders such as an object or small surface.

The term “loss of enjoyment” is intended to mean a change in the normal usage of the property.

B.7 Mispositioning Index

Purpose:

The mispositioning index value (MIV) is an aggregate index based on the number of mispositioning events and consequential or non-consequential mispositionings.

Definitions:

NC = non-consequential mispositioning = structures, systems and components off baseline condition or when state changed as per instructions has an unexpected result that results in:

- no fluid / energy movement
- fluid / energy movement that has no operational consequence
- no challenge to personnel safety
- no introduction of energy into a work protection (WP) boundary

C = consequential mispositioning = structures, systems and components off baseline condition or when state changed as per instructions has an unexpected result that:

- resulted in fluid or energy movement (or lack of) that has operational consequences
- affected equipment operation (including poised systems)
- introduced energy into a WP boundary
- challenged personnel safety
- caused unplanned radiation exposure

E = Mispositioning event = structures, systems and components off baseline condition or when state changed as per instructions has an unexpected result that:

- caused a transient or would have prevented operation when called to in response to a transient
- caused a safety system actuation or would have prevented a poised or standby system from operating when called
- resulted in an unmonitored release or significant spill/contamination
- resulted in personal injury
- caused damage to SSCs important to safety or process system(s)

Index performance is averaged over a 3-month rolling period. Data is collected on a monthly basis.

Calculations:

$$\text{MIV} = 100 - (\text{E} * 10) - (\text{C} * 5) - (\text{NC} * 1)$$

Notes:

Performance flag: high is better

Unit of measure: percentage (3-month rolling average)

Include additional details for consequential events.

The term “mispositioning” means that something was found in a different state than expected or that a normal change in state had an unexpected result.

The licensee’s event identifier and the date for category E and C events can be listed in the Additional Details text box.

B.8 Number of Unplanned Transients

Purpose:

To indicate the number of reactor power transients due to equipment failures or operator errors while the reactor is not in a guaranteed shutdown state (GSS).

Definition:

The unplanned transients are the situations or events that result in a change of reactor operating states due to:

1. unplanned reactor setbacks and stepbacks, both automatic and manual, that occur while the reactor is not in a guaranteed shutdown state. These reactor setbacks and stepbacks are events resulting from internal plant equipment failure, spurious signal, human error or an external event.
- b. unplanned reactor trips, both automatic and manual, that occur while the reactor is not in a guaranteed shutdown state. These reactor trips are events resulting from internal plant equipment failure, spurious signal, human error, or an external event.

Calculations:

Total number of unplanned transients in a quarter for a unit.

Total number of hours during which the reactor is either being placed in GSS or is in GSS.

Notes:

The manual reactor trips, setbacks or stepbacks that are required by planned (as opposed to forced) outage maintenance or routine testing are not to be included. Include additional details for setbacks and trips.

If a situation or event results in a combination of a reactor setback, stepback and/or trip in sequence, then the total number of transients will be counted as one.

If a situation or event results in a reactor trip on both shutdown systems, the number of reactor trips shall only be counted as one.

After a reset of reactor setback, stepback and/or trip by operator and the reactor power is allowed to increase, if another transient occurs because the causes of the initial transient were not corrected, then the subsequent reactor setback, stepback and/or trip shall be included in the calculation of the number of unplanned transients.

Data inputs for this SPI are related to SPI 13, Total Reactor Trips.

B.9 Reactivity Management Index

Purpose:

The reactivity management index is based on the severity of reactivity management events.

Definition:

RMEC = reactivity management event category

RMEC1= significant reactivity management event:

An unplanned or uncontrolled change in reactivity that leads to a significant impact, including operation outside safe operating limits (e.g., as a result of a change in reactor configuration, status or poison concentration, operating policies and principles (OP&P) limits for reactor power exceeded).

RMEC2= reactivity management event:

An unplanned or uncontrolled change in reactivity that leads to an impact, including operation outside administrative (procedural) limits (e.g., as a result of a change in reactor configuration, status or poison concentration).

RMEC3= near-miss reactivity management event:

Failure of a barrier, process or procedure for which there was minor or no direct impact on reactivity; however, under different circumstances, the failure could have led to a category 1 or 2 event (e.g., loss of redundancy on a reactivity management- related system).

RMEC types:

- Type A: power and reactivity device control
- Type B: fuelling/fuel
- Type C: guaranteed shutdown state/criticality control
- Type D: safe operating envelope

Notes:

The basis for the RMEC types is COG GL 2007-01, *Screening and Trending of Reactivity Management Events (CANDU Plants)*.

Event summary:

- include summaries of the RMEC events
 - the summaries shall include a report number, RMEC category, RMEC type, unit, event title and date of occurrence –
 - e.g., X-2013-123456, RMEC2, Type A, Unit 1, Reactor stepback on approach to criticality, dd/mm/yyyy
- For RMEC1 and RMEC2 events, provide additional details to describe the circumstances of the event.

B.10 Unit Capability Factor

Purpose:

To monitor progress in attaining high unit and industry energy production reliability. This indicator reflects effectiveness of plant programs and practices in maximizing available electrical generation and provides an overall indication of how well plants are operated and maintained.

Definition:

Unit capability factor is defined as the ratio of the available energy generation over a given time period to the reference energy generation over the same time period, expressed as a percentage.

Calculations:

The unit capability factor is determined for each period as shown below:

$$UCF = \frac{(REG - PEL - UEL)}{(REG)} \times 100$$

where:

UCF = unit capability factor

REG = reference energy generation for the period

PEL = total planned energy losses for the period

UEL = total unplanned energy losses for the period

Notes:

SPIs 10, 11 and 12 are reported on the same data sheet.

B.11 Unplanned Capability Loss Factor

Purpose:

To monitor industry progress in minimizing outage time and power reductions that result from unplanned equipment failures or other conditions. This indicator reflects the effectiveness of plant programs and practices in maintaining systems available for safe electrical generation.

Definition:

Unplanned capability loss factor is defined as the ratio of the unplanned energy losses during a given period of time, to the reference energy generation, expressed as a percentage.

Unplanned energy loss is energy that was not produced during the period because of unplanned shutdowns, outage extensions, or unplanned load reductions as a result of causes under plant management control. Causes of energy losses are considered to be unplanned if they are not scheduled at least 4 weeks in advance. Causes considered to be under plant management control are further defined in the clarifying notes.

Reference energy generation (REG) is the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions throughout the period. Reference ambient conditions are environmental conditions representative of the annual mean (or typical) ambient conditions for the unit.

Calculations:

Reference energy generation (REG) = Unit capacity x referenced period (Mw hrs)

Total unplanned energy loss per quarter (UEL) = Total unplanned energy loss over referenced period (Mw hrs)

Unplanned capability loss factor (UCL) = $UEL \times 100\% / REG$

Notes:

SPIs 10, 11 and 12 are reported on the same data sheet.

B.12 Forced Loss Rate

Purpose:

To monitor industry progress in minimizing outage time and power reductions that result from unplanned equipment failures, human errors, or other conditions during the operating period (excluding planned outages and their possible unplanned extensions). This indicator reflects the effectiveness of plant programs and practices in maintaining systems available for safe electrical generation when the plant is expected to be at the grid dispatcher's disposal.

Definition:

The forced loss rate (FLR) is defined as the ratio of all unplanned forced energy losses during a given period of time to the reference energy generation minus energy generation losses corresponding to planned outages and any unplanned outage extensions of planned outages, during the same period, expressed as a percentage.

Calculations:

The forced loss rate is calculated for a period as shown below.

$$FLR \text{ for a unit } (\%) = \frac{(FEL)}{(REG - (PEL + OEL))} \times 100$$

where:

FLR = forced loss rate

FEL = unplanned forced energy losses

REG = reference energy generation

PEL = planned energy losses

OEL = unplanned outage extension energy losses

Notes:

SPIs 10, 11 and 12 are reported on the same data sheet.

B.13 Reactor Trip Rate

Purpose:

To monitor performance of unplanned reactor shutdowns.

To provide an indication of how well a plant is operated and maintained.

Definition:

Unplanned reactor trips per 7,000 hours critical.

Calculations:

The unit and industry values for this the reactor trip rate (RTR) indicator are determined for a period as shown below:

$$RTR = \frac{(total\ unplanned\ reactor\ trips\ over\ last\ 4\ quarters) \times 7000}{(total\ number\ of\ hours\ in\ critical\ during\ last\ 4\ quarters)}$$

Notes:

Unplanned reactor trips include both automatic and manual reactor trips that occur while the reactor is in critical state. These reactor trips are events resulting from internal plant equipment failure, spurious signal, human error, or an external event.

Use data from SPI 8, Number of Unplanned Transients, as an input for this SPI.

B.14 Corrective Maintenance Backlog

Purpose:

To monitor the effectiveness of the maintenance program at the NPP and its related facilities.

Definition:

Corrective maintenance work is required when a structure, system or component (SSC) has failed and can no longer perform its design function. The corrective maintenance backlog consists of all corrective work generated through work order requests and appears in the work management system as uncompleted work.

Corrective maintenance work should include only critical and non-critical corrective work. This excludes the corrective maintenance to be performed on run-to-failure components and critical and non-critical components of very low consequence if not corrected. The criteria used for determining critical components are in accordance with INPO AP-913, *Equipment Reliability Process Description* [11].

Calculations:

The indicator consists of the total number of online corrective maintenance work orders at the end of the quarter, which appears as uncompleted work. The corrective maintenance work orders should be reported on 2 different priorities (critical and non-critical components). The indicator is in the form of work orders per unit.

Notes:

Common service should be treated as a separate unit, such as unit 0.

Outage corrective maintenance work is not included in this indicator.

B.15 Deficient Maintenance Backlog

Purpose:

To monitor the effectiveness of the maintenance program at the NPP and its related facilities.

Definition:

Deficient maintenance is planned when structures, systems, or components have been identified as degrading but still capable of performing their design function. The deficient maintenance backlog consists of all deficient work generated through work requests and appears in the work management system as uncompleted work.

The criteria used for determining critical components are in accordance with INPO AP-913, *Equipment Reliability Process Description* [11].

Calculations:

The indicator consists of the total number of deficient maintenance work orders at the end of the quarter, which appears as uncompleted work. The deficient maintenance work orders should be reported on two 2 different priorities (critical and non-critical components). The indicator is in the form of work orders per unit.

Notes:

Common service should be treated as a separate unit, such as unit 0.

Outage deficient maintenance work is not included in this indicator.

B.16 Deferral of Preventive Maintenance

Purpose:

To monitor the effectiveness of the maintenance program at the NPP and its related facilities.

Definition:

Deferred preventive maintenance is preventive maintenance that has received an approved technical justification for extension prior to its late date.

Calculations:

The value includes 2 parts:

- number of deferrals of critical preventive maintenance work orders per unit per quarter
- number of total deferred preventive maintenance work orders per unit per quarter

Notes:

Identification and count is for the primary preventive maintenance tasks only; e.g., do not include secondary tasks such as maintaining scaffolding.

Common service should be treated as a separate unit, such as unit 0.

The work orders include both online and outage work orders.

The number of total deferred preventive maintenance work orders includes the number of deferrals of critical preventive maintenance work orders and the number of deferrals of non-critical preventive maintenance work orders. Therefore, the number of total deferred preventive maintenance work orders is greater than or at least equal to the number of deferrals of critical preventive maintenance work orders.

This SPI should not count the number of deferred surveillance tests, such as tests on SSCs important to safety.

The criteria used for determining critical components are in accordance with INPO AP-913, *Equipment Reliability Process Description* [11].

B.17 Safety System Test Performance

Purpose:

To indicate successful completion of tests required by a licence condition, including those referenced in documents submitted in support of a licence application.

To monitor performance in meeting regulatory and licensee availability requirements.

Definition:

The safety system test (SST) performance is the sum of those tests that are not completed for each of the 3 three groups of SSCs important to safety (i.e., the special safety systems, the standby safety systems, and other process systems) in a quarter.

Calculations:

Number of missed tests = a + b + c

where:

- a = number of missed tests for the special safety systems
- b = number of missed tests for the standby safety systems
- c = number of missed tests for the process systems

Notes:

This safety performance indicator was renamed from “number of missed mandatory safety system tests” for improved clarity and application.

For the purpose of this safety performance indicator, the following shall apply:

- special safety systems: shutdown system 1 (SDS1), SDS2 (SDSE for PNGS-A), emergency core cooling (ECC), and containment
- standby safety systems: boiler emergency cooling, emergency power supply, standby generators, emergency filtered air discharge, emergency water, inter-unit feedwater tie
 - process systems: reactor regulating; heat transport; moderator; Class I, II and III power; auxiliary boiler feed; service water

This list may be expanded in the future.

Missed tests refer to those not completed, as opposed to those that fail. Missed tests do not include tests deferred in accordance with procedures that are permitted by the licence.

Tests conducted beyond the maximum allowable time interval permitted by the reliability calculation or by an applicable engineering code will count as a missed test, unless approval has been obtained from the CNSC to extend the test interval.

For multi-unit stations, station-wide tests shall be reported under unit 0.

For benchmarking, report the total number of tests performed for each category (a, b, and c).

These figures do not include panel check SSTs.

B.18 Preventive Maintenance Completion Ratio

Purpose:

To indicate the fraction of preventive maintenance jobs to total maintenance jobs completed.

To monitor performance in meeting expectations in the area of preventive maintenance.

Definition:

The ratio of preventive maintenance (PM) jobs completed divided by the preventive maintenance PM plus corrective maintenance (CM) jobs completed for all SSCs important to safety.

Calculations:

$$PM \text{ Completion } (\%) = \frac{(PM \text{ jobs per quarter})}{(PM \text{ jobs per quarter} + CM \text{ jobs per quarter})} \times 100$$

Notes:

PM jobs are those jobs performed on the SSC important to safety in the field that is in working order when the job commences. The PM jobs shall include those that are frequency- or condition -based.

Corrective maintenance jobs are those jobs performed as a result of a reported failure of SSCs important to safety. It shall not include design modifications.

Work orders on SSCs important to safety are those work orders that are written during the quarter. They and must have undergone a preliminary review by the NPP work management group and be designated as valid to be included in the count for a quarter. Work orders include online work orders.

The data is to be reported by unit, including the common unit for multi-unit NPPs. Jobs are counted by work order issued to each discipline, not on a task basis. A work order that covers repetitive jobs for multiple equipment shall be counted as one work order for each separate piece of equipment.

Common service should be treated as a separate unit, such as unit 0.

Only include the critical corrective (CC) and non-critical corrective (CN) work in the completed corrective maintenance work.

Corrective maintenance on run-to-failure components or critical and non-critical components (CL) is not included.

B.19 Chemistry Index

Purpose:

To indicate long-term unit control of important chemical parameters.

To monitor performance in meeting licensee's requirements in chemistry.

To compare performance between Canadian CANDU units.

Definition:

The average percentage of time that the selected chemical parameters are in specification during the quarter.

Calculations:

$$\text{Chemistry index (\%)} = \frac{\sum_{i=1}^m IS_i}{\sum_{i=1}^m O_i} \times 100$$

where:

- IS_i = the number of hours that parameter "i" is in specification during the quarter
- O_i = the number of hours the plant is in an operational state during the quarter, as defined by licensee-specific documentation
- m = the number of parameters monitored during the period, usually the 15 parameters on the list below

All data is dimensionless. The chemistry index (CI) results will range between 0% and 100%.

Parameters monitored:

Annulus gas:	[O ₂]	Condensate extraction pump:	dissolved O ₂ pH
Feedwater:	dissolved O ₂ total iron total copper hydrazine	Primary heat transport system:	pH _a (calc) dissolved D ₂ chloride fluoride conductivity
Steam generators:	[Cl ⁻] [SO ₄ ²⁻] [Na ⁺]		

Note 1:

The chemistry index shall be reported as the percentage of time in specification. For each parameter, the index is calculated as follows:

$$\text{time in specification (\%)} = \frac{(\text{hours in specification})}{(\text{total operating hours in period})} \times 100$$

The initiation of an out-of-specification event occurs with the first result measured outside the range of the specification, as indicated in licensee-specific chemistry program documentation.

Termination of the event is achieved only by reducing the control parameter within the specification range. The duration of the out-of-specification condition will be calculated as the time between the first out-of-specification sample and the next measured in-specification sample. The time in specification (%) is then calculated as $100\% - S$ (time of measurement period out-of-specification (%)).

The total operating hours in the period refers to the total operating hours during which the chemical parameter needed to be controlled.

Note 2:

Parameters that are included in the indicator but that were not measured (because the monitoring capability did not exist or the measurements were not obtained during the period; e.g., an instrument was not available) will be reported as being out-of-specification. In cases where the parameter is out-of-specification due to the unavailability of a facility, the parameter shall be reported as being out-of-specification.

When the safety of chemical technicians or employees could be adversely affected by new hazards during normal execution of their tasks, or when the status of the plant is such that the chemical measure is useless or unrepresentative, the representative period will be adjusted without penalty. Such measures will be qualified as “void”. The data shall be auditable.

It is recognized that in some cases a temporary exemption is granted for measurement of a parameter, or for deviation of a specification from the range specified in program documentation. This exemption is to be granted by the chemistry program authority. It is acceptable to indicate “not applicable (N/A)” for the parameter for the specific time period. If the temporary exemption applies for less than one quarter, the time-in-specification for the parameter shall be calculated as the time that the temporary exemption does not apply. Temporary exemptions are intended to be used when instruments or facilities are not available for a significant period of time, where there are temporary modifications to licensee procedures due to new concerns regarding unsafe conditions, or when short- duration trials are being carried out. Records pertaining to the temporary exemption shall be auditable.

Whenever the parameter is deemed to be “not applicable (N/A)”, a short explanatory note and a reference to the licensee’s documentation for any temporary exemption should accompany the submission on these performance indicators.

In cases where the parameter is deemed to be “not applicable (N/A)” for a particular period of time, the number of parameters in the chemistry index % equation should be adjusted to reflect the number of parameters actually tracked during the specific quarter.

If a parameter is out of specification and then misses the sampling frequency, the time is not counted as double. The time out of specification is what is counted.

Note 3:

For systems whose performance is reported only for unit operating conditions – if a parameter is in (or out of) specification before a shutdown, it is considered to remain in (or out of) specification once the system is back in service until it is re-analyzed and found to be otherwise.

Note 4:

Performance must be reported for all chemistry index and chemistry compliance index parameters using the specifications documented in the most current revision of the licensee’s chemical specifications manual. Performance must be reported for all time periods when the system is considered to be in an operational state, as defined by licensee-specific documents.

Note 5:

The reference chemical specifications and sampling frequency for each parameter shall be as documented in the most current revision of the licensee's chemistry specifications manuals. Any deviations from these reference values for reporting on these performance indicators shall be noted in report submissions. Any changes to the specifications and sampling frequency shall be documented in the chemistry specifications manuals and supporting documentation.

The minimum sampling/monitoring frequency is determined by the licensee's current requirements.

Note 6:

Each station will determine whether results from grab samples or on-line instrument readings will be used to calculate the performance. Online instrument readings are the preferred method if an adequate quality assurance / quality control (QA/QC) program is in place to ensure accuracy.

Where online monitoring equipment is available, the success ratio will be calculated as the ratio of time where the monitoring is online and valid data is available and within range over total time. When monitoring equipment fails, it is permissible to replace the monitoring with manual sampling techniques at a reasonable frequency.

Note 7:

On an operating unit basis:

$$\text{time in specification (\%)} = \frac{\sum(\text{time in specification for index parameters (\%)})}{(\text{number of parameters in the index})}$$

Note 8:

For multi-unit sites, the unit performance is the average of the performance of the individual control parameters. The station result is the time-weighted average of the operating units' chemistry index or chemistry compliance index values; this ensures that units that were operating for only part of the period are not given the same weight as those that operated for the whole period.

$$\text{station index} = \frac{\sum(\text{index for each unit } X \text{ operating hours for unit})}{\sum(\text{operating hours for all units})}$$

Note 9:

Performance does not need to be reported for parameters during short- duration trials or tests being conducted to optimize chemistry and which that affect those parameters.

Note 10:

Parameters making up the list of the index, and the definitions of time-in-specification and voiding, are reviewed by the CNSC.

B.20 Chemistry Compliance Index (non-GSS and GSS)

Purpose:

To indicate unit control of safety-related chemical and radiochemical parameters, in both non-guaranteed shutdown state (non-GSS) and in guaranteed shutdown state (GSS).

To monitor performance in meeting regulatory and licensee requirements in chemistry control.

To compare performance between Canadian CANDU units.

Definition:

The average percentage of time that the selected chemical parameters are in specification during the quarter.

Calculations:

Sampling frequencies and specifications shall be defined in the licensee's operating documentation. The method for calculation of the chemistry index also applies to the chemistry compliance index (non-GSS and GSS). The parameters are selected as compliance parameters in accordance with the safe operating envelope (SOE), and on the basis of safety.

Parameters monitored:

Non-GSS operating conditions:

Gadolinium ([Gd]) in liquid injection safety system poison injection tanks

[Gd] in moderator (unit in poison outage after SDS2 actuated)

moderator D₂O isotopic

moderator H³

moderator cover gas D₂

moderator conductivity

primary heat transport system D₂O isotopic

primary heat transport system H³

primary heat transport system I¹³¹

primary heat transport system D₂O storage tank cover gas D₂

moderator to primary heat transport system D₂O isotopic purity difference check

annulus gas system dew point

end shield cooling water pH

end shield cooling cover gas H₂ (for Point Lepreau and Pickering 5-8)

emergency coolant injection (ECI) or emergency core cooling (ECC) system high-pressure water tank(s) pH

ECI or ECC high-pressure water tank(s) hydrazine concentration

liquid zone control system cover gas [H₂]

liquid zone control system conductivity

GSS conditions:

liquid injection safety system poison injection tanks pH_a (when SDS2 is available)
[Gd] in moderator
moderator D₂O conductivity
moderator D₂O pH_a
supplementary parameter(s) sampled

Notes:

The chemistry compliance indices (non-GSS and GSS) shall be reported as the percentage of time in specification. For each parameter, the index is calculated as follows:

$$\text{time in specification (\%)} = \frac{(\text{hours in specification})}{(\text{total operating hours in period})} \times 100$$

For further information, refer to notes 1 through 10 of the chemistry index (SPI 19).

B.21 Conventional Health and Safety

Purpose:

To indicate the accident severity rate, accident frequency, and industrial safety accident rate at NPPs.

To monitor performance in the area of worker safety.

To compare Canadian NPP performance internationally.

Definition:

The accident severity rate is the total number of days lost for lost-time injuries per 200,000 person-hours worked at an NPP.

Accident frequency is the number of fatalities, lost-time injuries and medically treated injuries per 200,000 person-hours worked at a NPP.

Industrial safety accident rate is a frequency rate based on the number of lost-time injuries for NPP personnel per 200,000 person-hours worked.

A lost-time injury is an injury or illness resulting in lost days beyond the date of injury as a direct result of an occupational injury or illness incident. A fatality is not considered a lost-time injury.

A medically treated injury (also referred to as “medical treatment”) is an injury or illness beyond a first aid injury, where there have been no lost days that are the direct result of an occupational injury or illness incident.

Lost days are the number of calendar days, recommended by a physician or other healthcare professional, that a worker is unable to work beyond the day of injury or illness. Lost time ends as of the date that the worker is deemed fit to work either full or restricted work, or up to a maximum of 180 calendar days for any individual case.

Exposure hours are the total number of hours of employment of all workers for each member utility for each reporting period. This includes regular hires, direct contractors, augmented / supplemented staff, and contractors working through a separate company.

Restricted work is when a worker, due to a work-related injury or illness, is unable to perform their regular permanent job or is unable to work the normal time period of their pre-injury/illness work days.

Calculations:

$$\text{accident severity rate} = \frac{\# \text{ of lost days } \times 200,000 \text{ person hours}}{\# \text{ of exposure hours}} \times \frac{\# \text{ of lost days } \times 200,000 \text{ person hours}}{\# \text{ of exposure hours}}$$

$$\text{accident frequency} = \frac{(\# \text{ fatalities } + \# \text{ lost time injuries } + \# \text{ medically treated injuries}) \times 200,000 \text{ person hours}}{\# \text{ of exposure hours}}$$

$$\begin{aligned} & \textit{industrial safety accident rate} \\ & = \frac{\textit{number of lost time injuries} \times 200,000 \textit{ person hours}}{\textit{\#of exposure hours}} \end{aligned}$$

$$\begin{aligned} & \textit{recordable injury frequency rate} \\ & = \frac{(\textit{\#fatalities} + \textit{\#lost time injuries} + \textit{\#medically treated injuries} + \textit{\#restricted work injuries}) \times 200,000 \textit{ pe}}{\textit{\# exposure hours}} \end{aligned}$$

Notes:

Injuries should only be counted once and counted as the most severe type, based on the hierarchy that lost- time injuries are more severe than medically treated injuries, which are more severe than restricted work injuries.

Licensees should report on data for all regular hires, direct contractors, augmented / supplemented staff, and contractors working through a separate company.

The Canadian federal reporting requirement for severity includes shifts not worked. For example, suppose a person is hurt on the last regularly scheduled shift and then is away for 2 days that were regularly scheduled off. If the person would not have been able to work those 2 days, but was able to return to work on the first regularly scheduled day, those 2 days would be counted as lost days.

Recurrent injuries are attributed back to the originating accident. For example, if an injury from an accident that resulted in a lost-time injury occurred in 1994 and recurred in 1996 (with no new accident), the lost days would not appear in the 1996 totals. These days are attributed back to 1994.

Lost-time and medically treated injuries or illnesses are those that have been treated by a physician or other healthcare professional.

Permanent (partial) disability resulting from a disabling injury can be assigned equivalent lost days by the licensee. Appropriate information showing conversion data for each disabling injury must be submitted.

Whenever possible, the actual employee hours of exposure shall be taken from payroll or other records and shall include only actual straight time and actual overtime hours worked. Employee hours paid for but not worked (e.g., vacation, sickness, holidays) should not be included in the total hours worked. Estimated exposure hours should only be used when actual employee hours of exposure are not available. If estimating is required, it should be noted in the submission.

B.22 Radiological Emergencies Performance Index

Purpose:

To provide a measurement of the performance of a nuclear power plant's emergency preparedness plan during radiological emergencies or simulated radiological emergencies.

Definition:

The radiological emergencies performance (REP) index is the percentage of all the successful performance opportunities over the total number of performance opportunities identified during the quarter. Performance opportunities includes emergencies and simulated emergencies (drills, exercises or practical evaluations, excluding training).

Calculations:

$$\text{REP index} = \frac{(\text{number of successful performance opportunities during the quarter})}{(\text{total \# of performance opportunities during the quarter})} \times 100$$

Notes:

Performance opportunities are:

- categorizing a radiological emergency
- notifying offsite authorities
- providing decision-making information to stakeholders (i.e., municipal, provincial and federal)
- developing protective action recommendations

A performance opportunity is successful when both the timeliness and the accuracy criteria are fulfilled. The timeliness criteria and the accuracy criteria are specified in the licensee's emergency preparedness plan. These performance criteria shall be included in the explanation-of-data section of the data sheet.

Details of any failed performance opportunity shall be included in the explanation-of-data section of the data sheet.

Include emergencies or drills evaluated by the emergency response organization (ERO), and exercises and other simulated emergencies that are assessed and that interact with one or more of the emergency response facilities or functions as specified in the licensee's emergency preparedness plan.

The ERO consists of, but is not limited to, the following facilities and functions:

- administration facilities
- technical support centres
- control facilities
- off-site centres
- personnel and public assembly areas
- emergency operations coordination centre
- centre to integrate onsite activities with offsite programs
- first aid and/or medical facilities
- laboratory services (fixed or mobile)
- decontamination facility
- field monitoring teams

- damage control teams
- joint information or local media centre
- offsite governmental authorities

Training practices shall not be included in this indicator.

B.23 Emergency Response Organization (ERO) Drill Participation Index

Purpose:

To track the participation of emergency response organization (ERO) personnel in simulated emergencies (drills, exercises or practical evaluations, except training) within a nuclear power plant.

Definition:

The percentage of the total available ERO personnel who have participated in simulated emergencies during the quarter.

Calculations:

$$\text{ERO drill participation index} = \frac{A}{B} \times 100$$

where:

- A = number of ERO personnel fulfilling designated ERO positions that have participated in a simulated emergency during the quarter
- B = total number of qualified ERO personnel fulfilling designated ERO positions during the quarter

Notes:

Designated ERO positions are those performing the following functions:

- categorization of a simulated emergency
- offsite notification
- plant operations
- corporate resources
- radiological monitoring
- dose projection

Changes in the number of designated ERO personnel shall be reflected in both the numerator and denominator of this index.

Multiple assignees to a given designated ERO position may each be counted for their individual participation in performing the designated ERO position at different times in the same proficiency-enhancing drill, exercise, practical evaluation opportunity or event during the quarter.

ERT drills shall not be included in this calculation.

B.24 Emergency Response Resources Completion Index

Purpose:

To indicate the level of verification of emergency response equipment and facilities dedicated to emergency preparedness at the NPPs.

Definition:

The percentage of preventive maintenance items, tests and checks completed for the emergency response equipment and facilities over the total number of preventive maintenance items, tests and inventory checks scheduled during the quarter.

Calculations:

$$\text{Emergency response resources completion index} = \frac{A}{B} \times 100$$

where:

- A = the number of preventive maintenance items, tests and inventory checks completed during the quarter
- B = the number of preventive maintenance items, tests and inventory checks scheduled during the quarter

Notes:

Licensees shall provide the CNSC with a complete listing of preventive maintenance items, tests and inventory checks pertaining to dedicated equipment and facilities that are used for emergency preparedness, including:

- fixed systems
- portable instruments
- communications equipment
- other equipment identified in the licensee's emergency preparedness plan required to be in a state of readiness
- other dedicated emergency equipment and facilities identified in REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, (2016) [12]

The licensee shall provide an explanation of any preventive maintenance items, tests and inventory checks that were done in the quarter being reported that were deferred from the previous quarter.

Pre-determined dates for the preventive maintenance items, tests and inventory checks shall be used to measure schedule compliance. This index measures the number of preventive maintenance items, tests and inventory checks performed and compares them with the pre-determined fixed schedule. It is not concerned with whether a test has failed or if equipment was missing.

B.25 Low- and Intermediate-Level Radioactive Solid Waste Generated

Purpose:

To indicate the amount of low- and intermediate-level radioactive solid waste generated.

Definitions:

Low-level radioactive solid waste contains material with radionuclide content above established clearance levels and exemption quantities, but generally has limited amounts of long-lived activity. The volume of waste generated is reported in m³ for the quarter.

Intermediate-level radioactive solid waste typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage. The volume of waste generated is reported in m³ for the quarter.

Calculations:

Data only.

Notes:

Detailed definitions for waste classifications are as per licensee procedures.

For further information on low- and intermediate-level radioactive waste, refer to CSA N292.3, *Management of Low- and Intermediate-Level Radioactive Waste* [13].

Appendix C: Content Requirements for the Annual Risk and Reliability Report

This appendix provides the requirements for the content of the annual risk and reliability report.

C.1 Summary

Provide a summary of major findings or major changes during the calendar year including:

1. changes in the list of systems important to safety (SIS) or their reliability targets
2. overall performance of SIS, including statistical summary of performance
3. changes having major impact on reliability models
4. major update of reliability or unavailability models for SIS
5. generic discussion on completion of required surveillance activities, including tests, predefines and operator routines
6. the number of initiating events
7. major changes in failure modes and/or failure rates

C.2 Lists of Systems Important to Safety

Provide a list of all identified SIS and include the assigned reliability target of each system. Discuss and explain changes from previous years in the list of SIS or in the assigned reliability targets.

Guidance

This section may list structures and components important to safety and their reliability targets (if these structures and components have been identified).

Table C.1: List of systems important to safety and reliability targets

System important to safety	Reliability target

C.3 System Performance

Include a section for each SIS, according to the format below.

C.3.1 Systems important to safety

Include a comparative assessment of the reliability and reliability target for each SIS of the NPP. Provide reliability information on relevant components important for mission reliability, including:

1. the predicted reliability of the system, where the predicted reliability is calculated using an up-to-date model and recent data
2. the observed reliability of the system during the previous year
3. a comparison between the predicted reliability, observed reliability and reliability target of the system
4. an explanation of changes in the predicted reliability, observed reliability and reliability target of the system
5. an explanation of notable changes in the predicted reliability of the system from the predicted reliability reported in previous years
6. specific reliability indices for major components such as class III power systems, and emergency or qualified power systems that include the failures to start (in failures per demand) and failures to run (in failures per hour) for each generator.

C.3.1.1 Predicted reliability

In this section, the licensee reports the future reliability predicted using current data and compares it to the value obtained for the present and previous years, as well as to the target (see table C.2). The reliability assessment must be re-evaluated annually using the latest relevant failure data.

Guidance

This section should include information regarding the assessment, such as computer code, model freeze date, cut-off value, electronic file name, revision information and the report number, where available. If this information is presented in the appendices, this section may refer to it. If the reliability assessment uses supporting data different from the data presented in this section, the rationale should be described in this section.

Table C.2: Predicted reliability

Failure criteria	Predicted reliability			Target
	Previous years		Present year	
	Year X-2	Year X-1	Current (Year X)	

Failure criteria	Predicted reliability			Target
	Previous years		Present year	
	Year X-2	Year X-1	Current (Year X)	

C.3.1.2 Observed reliability

This section is intended to capture the trends in the reliability of SIS.

Table C.3: Observed reliability of system

Failure criteria	Unit no. ____	Unit no. ____	Unit no. ____	Unit no. ____	Previous year predicted reliability	Target

Table C.4: Standby generator (SG) reliability indices

A. Test results (should provide the indices for both current year and previous year)

SG#	Start		Running	
	Attempts	Failures	Hours	Failures
1				
2				
3				
4				
Total:				

This data is included to provide plant -specific reliability indices for major components of class III power systems, and emergency or qualified power systems, section C.3.1.5 of this regulatory document.

B. Outage statistics

SG#	Maintenance		Forced	
	Occurrences	Hours	Occurrences	Hours
1				
2				
3				
4				
Total:				

Table C.5: Emergency power generator (EPG) reliability indices

A. Test results

EPG#	Start		Running	
	Attempts	Failures	Hours	Failures
1				
2				
Total:				

B. Outage statistics

EPG#	Maintenance		Forced	
	Occurrences	Hours	Occurrences	Hours
1				
2				
Total:				

C.3.1.3 Incidents

For each SIS, identify and briefly describe occurrences during the calendar year where the system was unavailable to perform its function, and the dispositions of these incidents. If the occurrence was reported under an event report, then provide the event report number and a statement of the nature of the impairment.

This information is requested because the type of impairment may not correspond to the incident title.

This section describes incidents (also known as major impairments) of the systems and the effect on the system reliability. In relation to SIS, “incident” refers to any system fault reducing the effectiveness of the system such that it would fail to perform its safety function, even if the system would still operate.

Table C.6: Reliability of systems important to safety

Licensee event number	System affected	Component(s) affected	Level of impairment	Length of time system unavailable

C.3.1.4 Minor impairments

For each SIS, identify and briefly describe occurrences, during the calendar year, of minor impairments of the system. Describe the nature and duration of the impairment. A “minor impairment” is defined as a fault which that reduces the redundancy of a SIS, which is equivalent to Impairment Level 3. In other words, it is a fault that causes degradation of a system but in which the system would still have met its design and performance specifications.

This section describes any minor impairment of the SIS and the assessment of the impairment on system reliability.

Guidance

Level 3 impairment, as defined by some licensees, includes Type 3 or Type C faults.

Assessment of the impact of “minor impairments” on the SIS reliability may include:

- minor impairments experienced should be used to determine predicted reliability of the SIS
- a review and identification of concurrent or overlapping minor impairments will result in a Type 1 or Type 2 fault; a Type 1 or Type 2 fault discovered as a result of an overlapping minor impairment should be reported as described in C.3.1.3. Fault information for the nature of the impairment should be reported under section 4 of this annual risk and reliability report.

Scheduled removal of service of equipment that is reflected in the reliability model does not need to be described.

If the event also causes impairments of other SIS, these should be described in this section as a shared dependent event.

Table C.7: Minor impairment and effect on system reliability

Fault	Component / primary event	Failure mode	Failure duration

C.3.1.5 Changes

Describe changes for each SIS, identified as part of REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants* [14], that occurred during the calendar year that affected reliability due to: (i) design, (ii) operating or maintenance practice and (iii) models used to assess reliability.

Report changes to design or operating and maintenance practice affecting the reliability of the systems; e.g., the duty cycle of equipment may affect the test frequency of the equipment.

Discuss changes to the model and the effect on the system's reliability.

C.3.1.6 Performance of surveillance activities

Provide the following information for systems important to safety:

1. a list of scheduled activities to inspect, monitor, test or verify the reliability of a system important to safety of the NPP, that were not completed on schedule during the calendar year
2. indication of the specific and cumulative impact on system reliability of the probabilistic safety assessment (PSA)-credited scheduled activities not being completed on schedule.

Report any missed and postponed scheduled activities credited in the reliability assessment. The reasons for missing or postponing the scheduled activities and the impact on the system reliability should be discussed. These activities include required tests, predefines (call-ups) and operator routines.

Additional information on the essential elements of a reliability program, including reliability assessment, modelling, evaluation and monitoring, can be found in REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants* [14].

Guidance

For systems important to safety, the licensee may choose to use bounding evaluations for specific impact calculations. The cumulative impact of test deferrals needs to account for all test deferrals for the system over the year.

C.3.1.7 Correction of previous reports

Describe any corrections in previous reports. The correction may be a mistake or new findings over the reporting calendar year. The reason for the correction should be clearly provided.

Guidance

For example, when a design defect of a component is found over the calendar year and it has been dormant since the installation or modification of the component, the previous reliability indices should be modified. If a test reveals an impairment and the test period is long enough to affect the previous reliability indices, the previous reliability indices should also be reported.

C.4 Initiating Events

Describe initiating events that occurred during the calendar year at the NPP, and provide the current frequency assigned to each initiating event. If the occurrence was reported under an event report, provide the event number.

Guidance

The frequency of the initiating event should be reassessed, and a comparison with the initiating event frequency used in the risk analysis should be provided if a plant PSA model is available. The description of the event should indicate whether it affected the plant mitigating system's capability.

The analysis should include any equipment malfunction that occurred during the response to the initiating event. Any of these mitigating system failures should be clearly identified.

C.5 Supporting Data

Provide data that supports the licensee's assessments during the calendar year of the reliability of the systems important to the safety of the NPP. Relevant data includes:

1. rates of failure of system components
2. significant trends in component failure rate data
3. input data regarding human error probabilities
4. changes to the list of PSA-credited scheduled activities to inspect, monitor, test or verify the system's reliability
5. data regarding the impairment (failure, incipient failure or degraded ability) of one or more system components as a direct result of a shared or common cause

Guidance

Data can be provided electronically.

C.5.1 Component failure data

Include a section for each component failure, according to the format below.

C.5.1.1 Failure rates

This section describes major updates of the component failure rate data and the specific changes in failure rates from the failure rate database experienced over the calendar year.

Guidance

The failure database used for the reliability model should be presented in the report appendices. This section should describe any significant failure rate change or significant trend. The definition of significant failure rate change or significant trend should be clearly described.

C.5.1.2 Failure modes

This section describes any failure mode that occurred during the calendar year and that is not modelled in the system fault trees, as well as its effect on system reliability.

C.5.2 Human error probability data

This section describes human actions that could affect the reliability of SIS.

Guidance

Some human actions that directly affect the reliability of the SIS may be included in other sections, but a comparison to the human errors considered in the reliability model should be performed.

C.5.3 Dependent failures

Include a section for each dependent failure, according to the format below.

C.5.3.1 Shared cause

This section describes events that result in inter-system shared dependent impairments, which cause multiple components that belong to different systems to be unavailable and which can be explicitly included in the reliability models.

Guidance

For example, a failure of an instrument air manifold that supplies air to multiple components in more than one independent system would result in an inter-system shared-cause dependent failure and should be reported in this section.

Intra-system dependent impairments that affect one system only are described in the section of an individual system. For example, if the manifold supplies air to multiple components, but in only one system, the failure would be identified as an intra-system shared-cause dependent failure and might be described in the section of the individual system.

C.5.3.2 Common cause

This section describes events that may result in inter/intra-system dependent failure or degradation, but for which the reliability model cannot explicitly include the cause of failure.

Guidance

Even though the report contains human-induced common-cause failures, this section should identify these events as common-cause failures.

C.5.4 List of scheduled maintenance and surveillance activities

Guidance

The changes to the list of PSA-credited scheduled activities to inspect, monitor, test or verify the system's reliability should be included here or in an appendix. Changes should be reported in a manner that can be related to a list of activities that can be referenced.

C.5.5 Other plant-specific data

Guidance

This section includes other plant-specific data important to the reliability program not included above. The reliability statistics of special equipment should be included here.

C.6 Report Appendices

Include an appendix for each reference section, according to the format below.

C.6.1 Appendix A – List of acronyms and abbreviations

In this appendix, provide acronyms and abbreviations used in the report.

C.6.2 Appendix B – Definitions

In this appendix, provide definitions for technical or licensee terms used in this report.

C.6.3 Appendix C – Component failure data

See section C.5.1 for details regarding the information to be placed in this appendix. Component failure data can be provided electronically.

C.6.4 Appendix D – Fault records

Provide details regarding fault records.

C.6.5 Appendix E – Test program summary

This appendix lists the scheduled activities included in the reliability models and describes the changes that are not included in the individual system sections, including routine tests, predefines (scheduled plant activities), operator routines and main control room panel checks.

C.6.6 Appendix F – Models of the systems important to safety

The information presented in this appendix may vary according to the reliability program being implemented by individual NPPs (e.g., one plant may apply a single cut-off to all systems, while another plant may apply different cut-off values to the systems). The following example therefore defines content, not format.

Table C.8: Reliability model information

System	Reliability model				Report	
	File name	Cut-off	Revision	Date	Report #	Date
Computer code*	CAFTA Version XX (month year)			CAFTA Cutset Generator Version YY (month year)		

* Common to all system models

Appendix D: Format for the Annual Report on Radiation Protection

This appendix provides a sample format for data requested in section 2 of the annual report on radiation protection (section 3.5 of this regulatory document).

Table D.1: Total collective effective dose

Collective Dose for Station:			
	Internal Dose (p-mSv)	External Dose (p-mSv)	Total Collective Effective Dose (p-mSv)
Routine operations (p-mSv)			
Major Projects (p-mSv)			
Totals			

Table D.2: Effective doses

NPP:								
	Dose (mSv)							
	<0.01*	0.01-1	1.01-5	5.01-10	10.01-15	15.01-20	20.01-50	>50
Number of workers monitored								

*Below the minimum reporting limit of 0.01 mSv

Table D.3: Doses to the lens of the eye

NPP:								
	Dose (mSv)							
	<0.01*	0.01-1	1.01-5	5.01-10	10.01-15	15.01-20	20.01-50	>50
Number of workers monitored								

*Below the minimum reporting limit of 0.01 mSv

Table D.4 Number of workers monitored Skin doses

NPP:				
	Dose (mSv)			
	<0.01*	0.01-50	50.01-250	>250

Number of workers monitored				
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*Below the minimum reporting limit of 0.01 mSv

Table D.5: Extremity doses

NPP:				
	Dose (mSv)			
	<0.01*	0.01-50	50.01-250	>250
Number of workers monitored				

*Below the minimum reporting limit of 0.01 mSv

Table D.6: Miscellaneous

Total number of workers monitored	
Maximum effective dose (non-NEWs)	
Maximum individual whole-body dose for the current five5-year dosimetry period	

Appendix E: Format for the Annual Report on Fuel Monitoring and Inspection

Table E.1: Summary

Station:	Reporting year:
Section 1. Summary	State the overall conclusions from the annual evaluation of fuel performance
1.1 Summary of compliance program	Briefly describe the programmatic activities in place to verify the fuel performance
1.2 Summary of surveillance results	Briefly summarize any events of note related to fuel performance. Discuss any changes in fuel performance compared to previous years (20xx-20xx)
1.3 Summary of description of surveillance capabilities	Briefly describe the status of expertise and tools required to monitor and evaluate fuel performance, including any changes in inspection practices
1.4 Summary of description of fuel defect locating and removal capabilities	Briefly describe the status of expertise and tools in place to detect, locate and remove suspected fuel defects from the reactors; note the systems in use, their availability throughout the year, as well as the success rate in locating defective fuel bundles

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Table E.2: Fuel operating conditions

Section 2. Fuel operating conditions	State the conclusions regarding conformance of fuel performance to applicable limits		
2.1 Power and burnup envelope	Characterize compliance with power and burnup limits and the power-burnup overpower envelope. For any cases of non-compliance, provide the following details:		
Date of non-compliance	Unit channel, bundle(s)	Cause	Results of in-bay inspections and PIE (if available)
Bundle power (kW)		Burnup (MWh/kgU)	
2.2 Coolant flows	Characterize compliance with flow limits (including cross-flow). For any cases of non-compliance, provide the following details:		
Date of non-compliance	Unit channel, bundle(s)	Cause	Results of in-bay inspections and PIE (if applicable)

Duration (h)		Flow rate (kg/s)	
2.3 Mechanical loads	Characterize compliance to with mechanical load limits (including impacts and loads during fuelling operations). For any cases of non-compliance, provide the following details:		
Date of non-compliance	Unit channel, bundle(s)	Cause	Results of in-bay inspections and PIE (if available)
Maximum load (kN)			
2.4 Degraded cooling conditions	Characterize compliance with limits ensuring adequate fuel cooling (including during fuelling operations). For any cases of non-compliance, provide the following details:		
Date of non-compliance	Unit channel, bundle(s)	Cause	Results of in-bay inspections and PIE (if available)
Duration (s)			
2.5 Coolant chemistry	Characterize compliance with coolant chemistry limits. For any cases of non-compliance, provide the following details:		
Date of non-compliance		Cause	Assessment of impact on fuel

2.6 Operational events	Describe any events that may have imposed conditions affecting safe fuel performance.	
Date of event	Event characterization	Assessment of impact on fuel

Table E.3: Design and manufacturing

Station:		Reporting year:
Design and manufacturing	Describe any changes in fuel design, manufacturing processes, and manufacturing requirements	
3.1 Design changes	Describe design modifications or concession applications and impact on fuel performance	
Date		
3.2 Manufacturing changes	Describe changes in manufacturing process or QA requirements and impact on fuel performance	
Date		
3.3 Manufacturing occurrences	Describe any unintended deviations in manufacturing process that may have an impact on fuel performance	
Date		

Table E.4: Inspection results

Total planned for inspection	Total inspected during reporting year	Discharged and inspected during reporting year (20XX)		Number of bundles discharged and inspected during 4 preceding years (20XX – 20XX)	
		Number	Percentage	Number	Percentage
4.1.1 Broken assembly welds		Number	Percentage	Number	Percentage
4.1.2 Endplate cracks		Number	Percentage	Number	Percentage
4.1.3 a) Bundles with significant endplate damage or deformation		Number	Percentage	Number	Percentage
4.1.3 b) Bundles with increased endplate wear ¹		Number	Percentage	Number	Percentage
4.1.4 Trapped debris or debris fretting marks					
4.1.4 a) All observations		Number	Percentage	Number	Percentage
4.1.4 b) Significant observations ²		Number	Percentage	Number	Percentage
4.1.5 Observable element bow		Number	Percentage	Number	Percentage
4.1.6 Observable sheath strain ³		Number	Percentage	Number	Percentage
4.1.7 Significant or abnormal bearing pad wear					
4.1.7 a) Full surface wear		Number	Percentage	Number	Percentage

¹ This category includes observations of Type 4 or greater wear, where Type 4 is defined as “medium impression wear”, being shallow but with discernible depth, where some part of the wear pattern shows depth (usually in the form of a step).

² Observations of debris and/or fretting judged to have the potential to cause fuel defects.

³ Observations of visible swelling or strain of the sheath. Note that white or black circumferential oxide band at pallet interface locations, historically included in this category, are now included in category 4.1.9 a).

4.1.7 b) Near full surface wear	Number	Percentage	Number	Percentage
4.1.7 c) Abnormal wear	Number	Percentage	Number	Percentage
4.1.7 d) Sculpted wear	Number	Percentage	Number	Percentage
4.1.7 e) Burnish mark interactions	Number	Percentage	Number	Percentage
4.1.7 f) Spacer sleeve interactions	Number	Percentage	Number	Percentage
4.1.8 Bundles with bearing pad crevice corrosion	Number	Percentage	Number	Percentage
4.1.9 Bundles with oxide, stain or crud indications				
4.1.9 a) Bundles with observable sheath oxide	Number	Percentage	Number	Percentage
4.1.9 b) Bundles with observable deposits, stains or crud indications	Number	Percentage	Number	Percentage
4.1.9 c) Bundles with significant deposits, stains or crud indications ⁴	Number	Percentage	Number	Percentage
4.1.10 Other miscellaneous observations				
4.1.10 a) Sheath scrapes	Number	Percentage	Number	Percentage
	Number	Percentage	Number	Percentage

⁴ Deposits, stains or crud indications on the sheath judged to have the potential to cause a local thermal impact greater than that of a bearing pad, or which could potentially pose a risk to sheath integrity, or have significant neutronic impact.

4.1.10 b) Significant sheath scrapes ⁵					
4.1.10 c) Bearing pad mechanical damage		Number	Percentage	Number	Percentage
4.1.10 d) Significant bearing pad mechanical damage ⁶		Number	Percentage	Number	Percentage
4.1.10 e) Endcap mechanical damage		Number	Percentage	Number	Percentage
4.1.10 f) Significant endcap mechanical damage ⁷		Number	Percentage	Number	Percentage
4.1.10 g) Endcap latch marks		Number	Percentage	Number	Percentage
4.1.10 h) Weld flash		Number	Percentage	Number	Percentage
4.1.10 i) Sheath depressions		Number	Percentage	Number	Percentage
4.1.10 j) Interlocked spacer pads		Number	Percentage	Number	Percentage
4.1.11 Bundles with rarely observed or unique unusual indications⁸		Number	Percentage	Number	Percentage
Date of discharge			Unit, bundle serial #		
Description					

⁵ Scrapes resulting in the galling of sheath material

⁶ Damage resulting in the galling of bearing pad material

⁷ Damage resulting in the galling of endcap material

⁸ This category identifies unusual fuel indications with an impact on fuel performance that are significant or not fully characterized, and would not otherwise be sufficiently covered in other fuel performance categories of section 4.1

4.1.12 Summarize results of fuel in-bay inspections, noting emerging trends and possible fuel performance implications					
4.2.1 Irradiated fuel post-irradiation examination					
The following elements were shipped for post-irradiation examinations in MMM YYYY. Results will be reported upon completion of the PIE work and documentation.					
Serial - Element		Objectives of post-irradiation examination			
4.2.2 Irradiated fuel post-irradiation examination					
The following elements were shipped for post-irradiation examinations in MMM YYYY. The condition of each element has been assessed for compliance with the fuel bundle design- basis limits for wear and deformation.					
Serial - Element	Discharge data	Objectives of post-irradiation examination and significant results (e.g., visual inspection results, destructive examination conclusions, defect root cause, etc.)			

4.2.3 Irradiated fuel post-irradiation examination									
Shipment date: MMM-YYYY									
Serial-Element	Discharge unit-channel	Discharge date	Inspection date	Sheath strain (%) Limit: 0.5%	Element bow (mm) Limit: 0.47 mm	Endplate deformation (mm) Limit: 0.5 mm	Fission gas release (mL) Limit: 40 mL	Oxide layer thickness (µm) Limit: 10 µm	Other observations (as required)

Table E.5.: Fuel defects

Station:		Reporting year:	
5.1 Fuel defects	Summarize trends in occurrence of fuel defects		
Number of defects (20XX)		# in previous 4 years (20XX- 20 XX)	

The table below is repeated for each defect.

Unit-Bundle-Element	Date detected	Date discharged	Date inspected
Channel		Bundle positions in channel	
Range of bundle when defective in-core (i.e., burn-up range from detection to discharge) ⁹		Range of bundle power when defective in-core (i.e., power range from detection to discharge) ⁹	
Time from detection discharge ⁹	Days	Full power days (FPD)	
Method of detection			
Characterize extent of sheath damage			
Characterize cause of defect			
	Summarize trends in occurrence of suspected fuel defects		

⁹ The time of the initial detection is a best estimate, based on available data. The uncertainty in this timing is dependent on a number of factors specific to each individual case (e.g. bundle power and burnup when defected, background radionuclide levels, presence of other defects, and sampling rate).

5.2 Suspected fuel defects			
Number of suspected defects (20XX)		# in previous 4 years (20XX – 20XX)	
Unit-Channel (Repeat remaining rows in table as necessary)	Dates of observation		
Method of detection			
Actions to identify defect location			

Table E.6.: Additional information relevant to fuel performance

Station:		Reporting yYear:
6.1 Special irradiations	Describe any irradiation of fuel of design other than used for routine fuelling	
Unit	Date	
Description		
6.2 Plant transients	Describe any plant transient that may affect fuel performance	
Unit	Date	
Description		
6.3 Operational experience (OPEX)	Describe experiences from other stations that may be relevant to fuel performance	
Station	Date	
Description		

Glossary

For definitions of terms used in this document, see [REGDOC-3.6, *Glossary of CNSC Terminology*](#), which includes terms and definitions used in the [Nuclear Safety and Control Act](#) and the regulations made under it, and in CNSC regulatory documents and other publications. REGDOC-3.6 is provided for reference and information.

The following terms are either new terms being defined, or include revisions to the current definition for that term. Following public consultation, the final terms and definitions will be submitted for inclusion in the next version of REGDOC-3.6, *Glossary of CNSC Terminology*.

Exposure hours (MODIFIED)

The total number of hours of employment for all workers for each member utility for each reporting period. This number includes regular hires, direct contractors / augmented / supplemental staff and contractors working through a separate company.

Restricted work (NEW)

An employee is deemed to be working in a restricted capacity due to a work-related injury or illness resulting in the employee being unable to perform their regular permanent job (i.e. is accommodated in another role), or is unable to work the normal time period of their pre-injury or illness work days (i.e. reduced hours of work).

Serious process failure (MODIFIED)

With respect to CANDU reactor facilities, a failure that leads or that could lead, in the absence of action by any special safety system, to significant fuel damage or a significant release from the CANDU reactor facility.

Significant fuel damage (NEW)

An event or situation that brought the fuel (>1%) outside of its fitness for service limits.

Special security equipment (NEW)

Includes prohibited and restricted firearms, items and devices that a licensee can only acquire under the authority of the CNSC acting as a public service agency under the *Public Agents Firearms Regulations* made under the *Firearms Act*.

Structures, systems and components (SSCs) important to safety (MODIFIED)

Systems of a reactor facility that are associated with the initiation, prevention, detection or mitigation of any failure sequence and that have an impact on reducing the possibility of damage to fuel, associated release of radionuclides or both. For reporting, SSCs that are identified as important to safety include the following:

- safety systems
- complementary design features
- safety support systems
- other SSCs whose failure may lead to safety concerns (e.g., process and control systems)

References

The CNSC may include references to information on best practices and standards such as those published by CSA Group. With permission of the publisher, CSA Group, all nuclear-related CSA standards may be viewed at no cost through the CNSC web page “[How to gain free access to all nuclear-related CSA standards](#)”.

1. CSA Group, [CSA N290.7, *Cyber security for nuclear power plants and small reactor facilities*](#), Toronto, Canada, 2014.
2. Canadian Safety Nuclear Commission (CNSC), [REGDOC-3.2.1, *Public Information and Disclosure*](#), Ottawa, Canada, 2018.
3. CSA Group, [CSA N285.0-17, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants/Material Standards for reactor components for CANDU nuclear power plants*](#), Toronto, Canada, 2017.
4. CNSC, [REGDOC-2.2.4, *Volume II: Managing Alcohol and Drug Use*](#), Ottawa, Canada, 2021
5. CNSC, [REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue*](#), Ottawa, Canada, 2017.
6. CNSC, [REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*](#), Ottawa, Canada, 2020.
7. CSA Group, [CSA N293-12, *Fire Protection for Nuclear Power Plants*](#), Toronto, Canada, 2012.
8. CSA Group, [CSA N289.5, *Seismic instrumentation requirements for nuclear power plants and nuclear facilities*](#), Toronto, Canada, 2012.
9. CNSC, [REGDOC-2.2.3, *Personnel Certification, Volume III : Certification of Persons Working at Nuclear Power Plants*](#), Ottawa, Canada, 2019.
10. American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code*, New York, United States of America, 2013.
11. Institute of Nuclear Power Operations, INPO AP-913, *Equipment Reliability Process Description*, Revision 1, Toronto, Canada, 2001.
12. CNSC, [REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response, Version 2*](#), Ottawa, Canada, 2016.
13. CSA Group, [CSA N292.3, *Management of low- and intermediate-level radioactive waste*](#), Ottawa, Canada, Toronto, Canada, 2008.
14. CNSC, [REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants*](#), Ottawa, Canada, 2017.

CNSC Regulatory Document Series

Facilities and activities within the nuclear sector in Canada are regulated by the CNSC. In addition to the *Nuclear Safety and Control Act* and associated regulations, these facilities and activities may also be required to comply with other regulatory instruments such as regulatory documents or standards.

CNSC regulatory documents are classified under the following categories and series:

1.0 Regulated facilities and activities

- | | | |
|--------|-----|--|
| Series | 1.1 | Reactor facilities |
| | 1.2 | Class IB facilities |
| | 1.3 | Uranium mines and mills |
| | 1.4 | Class II facilities |
| | 1.5 | Certification of prescribed equipment |
| | 1.6 | Nuclear substances and radiation devices |

2.0 Safety and control areas

- | | | |
|--------|------|--|
| Series | 2.1 | Management system |
| | 2.2 | Human performance management |
| | 2.3 | Operating performance |
| | 2.4 | Safety analysis |
| | 2.5 | Physical design |
| | 2.6 | Fitness for service |
| | 2.7 | Radiation protection |
| | 2.8 | Conventional health and safety |
| | 2.9 | Environmental protection |
| | 2.10 | Emergency management and fire protection |
| | 2.11 | Waste management |
| | 2.12 | Security |
| | 2.13 | Safeguards and non-proliferation |
| | 2.14 | Packaging and transport |

3.0 Other regulatory areas

- | | | |
|--------|-----|----------------------------------|
| Series | 3.1 | Reporting requirements |
| | 3.2 | Public and Indigenous engagement |
| | 3.3 | Financial guarantees |
| | 3.4 | Commission proceedings |
| | 3.5 | CNSC processes and practices |
| | 3.6 | Glossary of CNSC terminology |

Note: The regulatory document series may be adjusted periodically by the CNSC. Each regulatory document series listed above may contain multiple regulatory documents. Visit the CNSC's website for the latest [list of regulatory documents](#).

**APPENDIX B: Detailed comments table for draft REGDOC-3.1.1,
*Reporting Requirements for Nuclear Power Plants, version 3***

The public comment period was held from April 29 – August 15, 2022. CNSC received 103 distinct comments from 4 commenters.

On February 21, 2023 a workshop was held for CNSC staff to get clarity from industry stakeholders on the comments and their concerns related to the topics listed below:

- General concerns over clarity of the document and perceived increased reporting burden
- Clarification of ‘awareness date’ when it comes to timing of reporting
- CNSC’s request for submission of licensees’ internal reports such as root cause analysis reports (section 4 of REGDOC-3.1.1, version 3)
- SPI 21: Conventional safety
- CNSC’s request to report on improving trends
- How to define which pressure boundary systems need to be reported on
- Definition for serious process failure
- The new Annual Report on Radiation Protection (section 3.5 of REGDOC-3.1.1, version 3)
- Items related to cyber security in the Quarterly report on operational (section 3.4 of REGDOC-3.1.1, version 3)
- Hours of work reporting (reporting provision A.35 and section 3.3 of REGDOC-3.1.1, version 3)
- Reporting for simulator health and fidelity (section 3.3 of REGDOC-3.1.1, version 3)
- Reporting provision A.4 Contingency plan
- Reporting provision A.37 Conventional Hazards (New reporting provision for version 3)
- Initial discussion on implementation

CNSC’s response indicated in the detailed comments table is the final response from CNSC staff and includes considerations from the discussions at the workshop.

	Reviewer	Section or para	Reviewer’s comment	CNSC response
1	Curve Lake First Nation	n.a.	<p>This regulatory document helps CLFN understand what elements are reported from licensees to CNSC staff, when, and how. However, CLFN has trouble identifying how and when reportable events are to be communicated with Indigenous communities. Section 2, Reporting Requirements, mentions that "Licensees should use the situation or event reporting according to this regulatory document as an input to their public disclosure protocol as described by REGDOC-3.2.1, Public Information and Disclosure". However, REGDOC-3.2.1 in itself does not mention how reportable events are communicated with Indigenous communities. There is no clear process in place for proponents to report infringement on rights back to Indigenous community members. Currently, reportable events happening on licensees' sites may or may not be reported back to CLFN. It depends on companies' goodwill, whether the reportable event has an impact on Indigenous and/or treaty rights or not. When a reportable event is not shared and explained to CLFN directly, there is always higher concern over this event, because CLFN feels that the proponent is trying to hide something.</p> <p>Recommendation: CNSC should ensure that proponents have a process in place to communicate reportable events to CLFN in an effective manner, not only through regulatory oversight reports. CNSC projects teams also need to have a way to verify whether the reporting has been done or not, and to account for this communication process in the regulatory oversight.</p>	<p>REGDOC-3.1.1 provides information to licensees about the scope of reportable events, which licensees must report to CNSC. As pointed out in the comment, REGDOC-3.2.1, <i>Public Information and Disclosure</i>, lays out the CNSC’s expectations about what information licensees must share with Indigenous communities and other interested parties about those reportable events. As such, any changes to communications practices would be made through requirements and guidance in REGDOC-3.2.1, not REGDOC-3.1.1. For this reason, the CNSC will ensure that these comments are considered at REGDOC-3.2.1’s next revision cycle. Additionally, REGDOC-3.2.2 Indigenous Engagement is currently under analysis for revisions to improve how licensees engage with Indigenous Nations and Communities, include Indigenous Engagement Plans throughout licensing terms, and align the document with UNDRIP. The CNSC will be conducting consultation on the revisions to REGDOC-3.2.2 with Curve Lake First Nation and other interested Indigenous Nations and communities, along with industry and others over the next year or more. CNSC also notes that should Curve Lake First Nation (CLFN) wish to discuss this comment and topic further, CNSC staff would be happy to do so at one of the regular meetings held between CNSC and CFLN. The CNSC encourages CNSC licensees with facilities and activities in CLFN’s territory to engage and share information and updates directly with CLFN on an ongoing basis.</p>
2	Bruce Power, OPG, NB Power	General	<p>Industry appreciates the opportunity to provide feedback on this important document, which may impact more workers’ everyday activities than virtually any other Regulatory Document. Given this, ensuring the REGDOC’s structure, requirements and guidance are as clear as possible will avoid confusion, internal churn and the potential for error.</p>	<p>CNSC staff have provided answers to concerns raised in this comment in other places in the disposition table.</p> <p>For comments and responses relating to topic #1, Increased and duplicate reporting, please see items: 15, 18, 19, 25, 30, 31, 32, 40, 52, 60, 61, 63, 65, 67, 78 and 92.</p>

Detailed Comments Table, Draft REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants, Version 3

	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>Following a collective review by personnel with extensive experience applying versions 1 and 2 of <i>REGDOC-3.1.1</i> in the workplace, licensees have identified several areas where misunderstanding may be possible and detailed them in this table of comments. The intent of this feedback is to share the practical challenges of applying the proposed text as currently written.</p> <p>While improvements have clearly been made, some proposed changes may have unintended and negative impacts on nuclear safety and CNSC oversight.</p> <p>To ensure the intent and impacts of these proposals are fully understood, industry requests the CNSC host a workshop with all impacted stakeholders before this draft is revised and submitted to the Commission for approval. Licensees suggest the following topics for discussion:</p> <p>1. Increased and duplicate reporting</p> <ul style="list-style-type: none"> ○ Industry has significant concerns with the additional and repeat reporting in several of the quarterly and annual reports. As written, this draft requires all the same information as the current version of <i>REGDOC-3.1.1</i> plus a significant amount of additional detail with no obvious or corresponding improvement to nuclear safety. ○ In particular, licensees seek targeted discussions on the following areas it believes will be most profoundly impacted: <ul style="list-style-type: none"> ● Section 3.1 and Appendix B related to the quarterly report on safety performance indicators, which seeks information already being presented in forums like the Quarterly Radiation Protection Meeting. ● Section 3.1 and the quarterly report on pressure boundaries, with particular focus on the additional requirement to report relief device failures on Class 1-6 systems that are not exempt per <i>CSA N285.0-17</i>. ● Section 3.4 and the inclusion of cyber security elements in the quarterly report on operational security. As currently written, the frequency of reporting may require some licensees to divert cyber security experts from core work to collect and submit information industry feels is more appropriately submitted annually. ● Section 3.5 and the annual report on radiation protection. Once again, much of the information requested is already provided in writing for the CNSC's quarterly meeting, ALARA Five-Year plans and Safety Performance Indicator (SPI) sheets. ● Section 4.2 on the proposed contents of detailed event reports that may cause confusion, concerns over privacy rights and unnecessary administrative churn. Additional discussion would also be helpful on section 4.4 to ensure the implications of event report retractions are fully understood. <p>2. Alpha radiation reporting</p> <ul style="list-style-type: none"> ○ This update fails to amend reporting requirements for alpha radiation uptakes. This is a significant, missed opportunity to add much-needed clarity and address an ongoing, major issue. Simply stated, the existing alpha reporting threshold is too low to justify and not commensurate with the safety significance. Currently, reporting is required even when an alpha uptake: <ul style="list-style-type: none"> ● Is within the statutory dose limits defined by the CNSC. ● Does not reflect any safety issues or failure to apply the radiation protection program. ● Is so low that no dose assignment can be performed. ● Is so low it could not be detected by some licensees' monitoring equipment, which gives an inaccurate perception of risks at facilities with more sensitive monitors. <p>3. New definitions for 'Significant fuel damage', 'Serious process failure' and 'Structures, systems and components (SSC's) important to safety'</p> <ul style="list-style-type: none"> ○ Licensees and CNSC staff both rely on a common understanding of these important terms and further discussion is needed to ensure the changes are fully understood. 	<p>For comments and responses relating to topic #2, Alpha radiation reporting, please see items: 13, 14, 33, 37, 46, 61, and 62.</p> <p>For comments and responses relating to topic #3, New definitions, please see items: 10, 45, 103.</p>
3	Bruce Power, OPG, NB Power	General	<p>When this draft refers to expectations around Q1, Q2, etc., is it referring to the CNSC's fiscal year (April 1-March 31) or that used by licensees (calendar year)? This is an important distinction and consideration. Please clarify if the timing refers to the CNSC's fiscal year or licensees' calendar year.</p>	<p>In the document, quarters follow the calendar year, in keeping with the existing annual reporting cycle. CNSC staff clarified this further in the document – also see response to comment 12.</p>
4	Bruce Power, OPG, NB Power	Preface	<p>Industry recognizes no change has been made to the Preface, but the statement in the highlight box is unclear when it says: "Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements." Elements of <i>REGDOC-3.1.1</i> are indeed intended to relieve licensees from other pertinent requirements (ex: reporting timelines specified in the NSCA). Amend the 2nd paragraph in the highlight box to read, "Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee's responsibility to identify and comply with all applicable regulations and licence conditions."</p> <p>Also, add the interpretation document as a superseded document in the 4th paragraph.</p>	<p>Any licensee with a licence that references REGDOC 3.1.1, <i>Reporting Requirements for Nuclear Power Plants</i> as a licence condition must comply with the reporting timelines specified in the REGDOC. This is in line with the Regulations, more specifically subsection 29(3) of the <i>General Nuclear Safety and Control Regulations</i>, which states that if a licence addresses the prescribed reports and timelines, the situations for reporting under paragraphs 29(1)(a) to (j) will not apply. From a legal perspective, this is not a relief from regulatory requirements as the reporting requirements in the licence are permitted by the regulations themselves.</p>

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				The interpretation document was not published under the CNSC process for producing regulatory documents, and as such is not a previous version of this document. No change was made to the Preface in response to this comment.
5	Bruce Power, OPG, NB Power	1.2	The scope says, "This regulatory document applies to licensees of operating nuclear power plants." Accordingly, the references to <i>REGDOC-3.1.2</i> and <i>REGDOC-3.1.3</i> aren't necessary. REGDOCs are already cited in Licence Condition Handbooks. The scope should define what the document is, not what it is not. For clarity, remove the references to <i>REGDOC-3.1.2</i> and <i>REGDOC-3.1.3</i> .	CNSC staff agree with the suggestion and removed the references to <i>REGDOC-3.1.2</i> and <i>REGDOC-3.1.1</i> from the Preface of this document.
6	Bruce Power, OPG, NB Power	1.3	<i>REGDOC 3.1.1</i> is for Class 1 facilities, but this draft references " <i>Class II Nuclear Facilities and Prescribed Equipment Regulations</i> " as relevant legislation. Remove the reference since <i>REGDOC-3.1.1</i> is for Class 1 facilities.	These regulatory references address Class II prescribed equipment, and sealed sources, which are relevant to this REGDOC (e.g. A.25 Filing of a sealed source tracking report). As a result, no change was made to the text.
7	Bruce Power, OPG, NB Power	2	Industry seeks clarity on the 2 nd last paragraph under Guidance on page 4 which currently reads, "Subsequent similar or additional reportable events associated with, or as a consequence of, a previously reported event do not require separate event reports. For example, reporting provision 11(b), in Appendix A, requires licensees to report all unplanned power reductions. A licensee reports a power reduction resulting from a problem with liquid zone (LZ) control. Until LZ control is fixed, all subsequent power reductions associated with the LZ problem originally reported do not require individual reporting." Clarify: <ul style="list-style-type: none"> • What kinds of events could be reported together? • Who decides? • Would unposted hazards in the same area be reported as the same event? 	Licensees should report events in accordance with the criteria outlined in Appendix A. If multiple reportable events are clearly associated, licensees are encouraged to continue reporting to the CNSC under a revision to the original report. CNSC staff agree that the example provided may not be helpful, so it has been removed. CNSC staff adjusted the text of item 4 in section to and the associated guidance, to improve the clarity. The new text for item 4 reads: <p style="padding-left: 40px;">"4. after becoming aware of a reportable instance, the licensee shall file a report or notification according to the most restrictive requirements and timeframes specified in Appendix A, <i>Event Reporting, Notifications, and Filing of Specific Records</i> "</p> <p>The new revised guidance text reads: "For item 4, a situation or event that triggers multiple reporting provisions may be amalgamated into a single event report at the discretion of the licensee. The report should indicate all reporting provisions triggered by a) the initiating situation or event; and/or b) the related consequences. The licensee should adhere to the most restrictive reporting timelines."</p>
8	Bruce Power, OPG, NB Power	2	Clarity is sought for Clause 4, which says: <ul style="list-style-type: none"> • "after becoming aware of a situation, event, dangerous occurrence or a specific reporting provision..." What is the timing expectation for "becoming aware?" Would it be discovery date? The date when a Station Condition Record/PICA is entered? • Licensees "should also" use <i>CSA N290.7</i> to determine significance. This conflicts with clause 5, which may raise confusion and increase the likelihood of error when applying <i>REGDOC-3.1.1</i>. Should the reader use <i>CSA N290.7</i> or the internal significance process? For clarity, CNSC staff is urged to delete clause 4 and maintain the current <i>REGDOC-3.1.1</i> wording where reporting is initiated upon a determination of meeting reporting requirements. As written, this draft clause implies the rest of the reporting requirements should also reference relevant statements for significance determination. Industry SCR/PICA screening processes base their criteria for significance on these types of inputs and do not need to be specifically cited.	<p>Bullet 1: Section 29(1) of the <i>General Nuclear Safety and Control Regulations</i> provides a list of situations that require an immediate preliminary report to the Commission, as soon as licensees become aware of them. Becoming aware is meant to signal the moment when information becomes known to a person and they can share it with others without compromising safety or security. This aligns best with the concept of "date of discovery" in the <i>REGDOC-3.1.1</i> reporting forms (Event and Notification Report and Personnel Situation Report). To clarify this in the REGDOC, the following guidance has been added: "For item 4, becoming aware is synonymous with the date of discovery." In addition, the text for item 4 has been simplified. The new text reads: "after becoming aware of a reportable instance, the licensee shall file a report or notification according to the most restrictive requirements and timeframes specified in Appendix A, <i>Event Reporting, Notifications, and Filing of Specific Records</i>."</p> <p>Bullet 2: The note regarding the use of the significance system described in <i>N290.7</i> was misplaced and should have been associated with item 5. Given that the note simply recommends that licensees use the <i>N290.7</i>'s CEA significance classification system when determining the significance of an event that effects a Cyber Essential Asset (CEA), CNSC staff have moved to the guidance for this section.</p>
9	Bruce Power, OPG, NB Power	2	Clause 5 says, "the licensee shall use a safety significance classification process as documented in its management system to determine the safety significance for reports." Only a situation or event could have safety significance; a report by itself would have no safety significance. Industry believes this was likely intended to mean, "to determine the safety significance of situations or events for the purpose of reporting" but the previous text in <i>REGDOC-3.1.1</i> was adequately clear. Maintain the wording in the current version of <i>REGDOC-3.1.1</i> . As written, the draft clause could lead to significant over-reporting and retraction.	The text in the REGDOC speaks to determining the safety significance for the purposes of reporting, not of the reports themselves. No change was made to the text as are result of this comment.

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10	Bruce Power, OPG, NB Power	2 Glossary	<p>Regarding new clause 6:</p> <ul style="list-style-type: none"> It is inappropriate to define requirements for SSCs in <i>REGDOC-3.1.1</i>. This should be contained in other appropriate REGDOCs. At best, it is unclear. At worst, it can lead to confusion or inconsistency in elements of the licensing basis. The word “may” in the final bullet is too broad when it says, “other SSCs whose failure may lead to safety concerns (e.g., process and control systems).” The intent was only to report if programmatic in nature. This vagueness creates confusion and other clauses cover proactive safety concerns of this nature (i.e. hazards). What does “complementary design features” mean in the 2nd bullet? <p>CNSC staff is urged to:</p> <ul style="list-style-type: none"> Delete draft clause #6 Maintain the current wording for SSC in the Glossary Clarify what is meant by “complementary design features.” <p>As written, this draft clause increases the scope of reporting and heightens the risks of inconsistent or over-reporting. It provides no additional clarity to the current reporting scheme.</p>	<p>The industry term “safety-related systems” is no longer used in CSA standards, so the CNSC is using the term “SSC important to safety” from REGDOC-2.5.2, <i>Design of Reactor Facilities</i> to replace it. To further clarify the definition for SSCs important to safety, the CNSC will move the bulleted items from clause 6 to the definition, as follows:</p> <p>“Structures, systems and components of a reactor facility associated with the initiation, prevention, detection or mitigation of any failure sequence and that have an impact in reducing the possibility of damage to fuel, associated release of radionuclides or both. For reporting, SSCs that are identified as important to safety include the following:</p> <ul style="list-style-type: none"> safety systems complementary design features safety support systems other SSCs whose failure may lead to safety concerns (e.g., process and control systems)” <p>In the bullet above “other SSCs whose failure may lead to safety concerns (e.g., process and control systems)”, the word ‘may’ is used to refer to any circumstance that may lead to a safety concern, not only those that are programmatic in nature. Since this language is not included in the main body of the REGDOC, but has been moved to the definition, the CNSC believes this concern has been resolved.</p> <p>To avoid reporting on any issue related to an SSC, and ensure alignment with the definition, item 6 now reads:</p> <p>“6. the licensee shall maintain a list of structures, systems and components (SSCs) important to safety.”</p> <p>Complementary design features are defined in REGDOC-3.6, <i>Glossary of CNSC Terminology</i>.</p>
11	Bruce Power, OPG, NB Power	2	<p>Regarding clause 7:</p> <ul style="list-style-type: none"> It’s unclear why the reporting requirements are not consistent for the <i>PTNSR 2015</i>. Additionally, there is no associated clause in Appendix A for <i>PTNSR 2015</i>, Section 32. The guidance for clause 7 on page 4 says oral reports may be made to the duty officer, though Appendix A cites it as a requirement. The guidance for “Immediate reporting” is still unclear. <p>CNSC staff is urged to remove the exception for <i>PTNSR 2015</i> or clarify this requirement directly in Appendix A.</p> <p>For additional clarity, staff is urged to:</p> <ul style="list-style-type: none"> Amend Appendix A to align with section 2 guidance that oral reports “may be made” to the duty officer. Clarify what threshold a licensee needs to meet for “immediate reporting.” <p>Inclusion of this exception in Section 2 is likely to cause confusion and errors in applying <i>REGDOC-3.1.1</i>. Users are likely to locate the appropriate portion of the document and fail to observe the exception. For example, the reader may determine the event to be a contravention of the <i>NCSA</i> (Appendix A.1) and follow the reference to “item 32,” which contains no discussion of the <i>PTNSR 2015</i>, Section 32, or the specified exemption. The user would not likely review Section 2.</p>	<p>For the first bullet, <i>PTNSR 2015</i> have specific reporting requirements. The requirements for reports are indicated in Appendix A, A.32. The note pointing to the <i>PTNSR 2015</i> was removed from item 7.</p> <p>In regard to the notification requirement in section 32 of the <i>PTNSR 2015</i>, it is true that there are no associated reporting requirements in Appendix A. Section 32 of the <i>PTNSR 2015</i> is a direct copy of section 16 of the <i>Radiation Protection Regulations</i>. Section 32 was added to the <i>PTNSR 2015</i> to ensure that non-licensees (e.g. carriers) report dose exceedances to the CNSC. Since REGDOC-3.1.1 is addressed to Class 1 licensees, there was no need to have both section 16 of the <i>Radiation Protection Regulations</i> and section 32 of the <i>PTNSR</i> in the table. Any instances of doses over the regulatory limit should be reported under section 16 of the <i>Radiation Protection Regulations</i>, reporting requirement A.20 in Appendix A of this regulatory document.</p> <p>For the second bullet:</p> <p>To remove the ambiguity noted in the comment, CNSC staff amended item 7 and added item 8, to read:</p> <p>“ 7. a report or notification that must be made immediately shall be made orally to the CNSC Duty Officer</p> <p>8. following an oral report or notification to the CNSC Duty Officer a written report shall be submitted within 7 calendar days”</p> <p>The text in Appendix A referring to the Duty Officer has been removed from the document. This removes the inconsistency between section 2 and Appendix A on this matter.</p> <p>For the third bullet:</p> <p>The intent of immediate reporting is to report the event or situation to the CNSC as soon as reasonable measures to mitigate the situation have been taken. Appendix A lists the events, situations, dangerous occurrences or specific reporting provisions that require immediate reporting. In some cases, the level of significance of the event or situation determines the timeline for reporting. It is the licensees’ responsibility to establish a system to classify the significance of events.</p> <p>CNSC staff simplified the guidance for item 7. The revised text reads: “In item 7, the term “immediately” means when the licensee becomes aware of the situation or event and initiates any required response actions. This term is also considered to mean the next action undertaken after taking necessary actions to protect life or stabilize hazardous situations.”</p>

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12	Bruce Power, OPG, NB Power	2	<p>The clarification for due dates in clause 8 is a welcome change and eliminates unnecessary complications with reporting due dates. However, the dates specified in the text are not 90 days after the end of each quarter (they may be up to 92 days after the end of the quarter). A minor editorial change will solidify this improvement.</p> <p>Also, bullet "c" is specific to Licence Conditions Handbooks or Power Reactor Operating Licences, not this REGDOC. Amend bullet "a" to read, "quarterly reports are due at the end of the following quarter: March 31, June 30, September 30, and December 31."</p> <p>Delete bullet "c" annual compliance reports for Class II facilities and nuclear substances and radiation devices from the previous calendar year are due on March 31"</p>	<p>Note that there was a res-structuring of section 2, and the comments from industry apply to the new bullet number 9. CNSC staff agree with the suggestion to change the text of bullet a). The new text for 9a) reads: "quarterly reports are due at the end of the quarter following the reporting period".</p> <p>CNSC staff also added the following guidance: "In item 9, the first quarter starts on January 1 for any given year. The reports for Q1 are due June 30, the reports for Q2 are due September 30, the reports for Q3 are due December 31, and the reports for Q4 are due March 31 of the following year."</p> <p>For bullet c, the inclusion of this text in licence conditions handbooks (LCHs) was intended to be a temporary solution until this information could be moved to the REGDOC. The LCHs will be updated to reflect this amendment, once the revised REGDOC-3.1.1 is implemented.</p>
13	Bruce Power, OPG, NB Power	3	<p>Under scheduled reporting, it's inappropriate to cite "3.10 Annual compliance reports for Class II nuclear facilities and for nuclear substances and radiation devices" in this REGDOC. CNSC staff is encouraged to align radiation protection and dosimetry reports into a singular form and reporting scheme for NPPs. Currently, there are reporting overlaps between two CNSC divisions. As written, there is a significant burden of reporting between two CNSC divisions which does not enhance nuclear safety.</p>	<p>Currently, some licensees have the requirement stemming from applicable licensed activities to submit the "Annual compliance reports for Class II nuclear facilities and for nuclear substances and radiation devices" in their LCH. Inclusion of the "Annual compliance reports for Class II nuclear facilities and for nuclear substances and radiation devices" as a scheduled report in version 3 of this regulatory document was done to streamline where reporting requirements are found for licensees. No change to the text was made in response to this comment.</p>
14	Bruce Power, OPG, NB Power	3.1	<p>The phrase, "The specifications and data sheets are provided on the CNSC website" should be moved to guidance. As stated, if the SPI data sheets change on the website, that change may have force-of-law. Move the phrase, "The specifications and data sheets are provided on the CNSC website" to guidance. As stated, if the SPI data sheets change on the website, that change may have force-of-law. Additionally, since the SPI data sheets are also proposed to be included in the Appendix, changes to the CNSC website would be out of alignment with a REGDOC. (Note: industry has also submitted a comment requesting the SPI datasheets be removed from the Appendix. That change would avoid misalignment, but it is still important to specify that use of the data sheets, as formatted, is guidance.)</p>	<p>CNSC staff accept the comment and amended section 3.1 to read: "The SPI specifications are in Appendix B."</p> <p>CNSC staff added the text "Sample data sheets are provided on the CNSC website" to the guidance in section 3.1.</p>
15	Bruce Power, OPG, NB Power	3.1 App. B	<p>Industry has major concerns with the increased – and often duplicate – level of reporting in sections of this draft document and requests this be discussed during a pre-publication workshop.</p> <p>For example, it's unclear how nuclear safety is enhanced by the level of additional detail proposed for the quarterly report on safety performance indicators.</p> <p>Specifically:</p> <ul style="list-style-type: none"> This draft requires the same dose information the current REDOC as well as number of units operating, number of units being "rehabilitated," days in operation, average WB dose, and median WB dose, maximum WB dose (along with workgroup and job description), outage duration, number of workers receiving non zero dose broken down between outage and online. A category for dose reporting has also been added for forced outages. The current version requires personal contamination events (PCEs) by tier. This draft requires the same plus: skin dose from contamination events; SCR/CR numbers for Tier 1 and 2; a description of events; references to the governance numbers for PCE classification. It's also broken down by unit, though some licensees do not classify PCEs this way and don't generally calculate skin dose from PCEs. It is usually done when it exceeds a PCIR limit. If the dose estimate is <250 mrem (minimum recordable dose), 0 mrem is assigned. Maybe this should be changed to skin dose greater than the minimum recordable dose? The current version requires unplanned external and tritium exposures by tier. The CNSC definition of "unplanned" refers to "a radiation dose that exceeds the estimated dose in the radiological plan for associated work authorization or ALARA assessment." This REGDOC should clearly say this is for individual dose, not collective dose, and doesn't refer to dose exceeding the ALARA plan for a job. This draft requires this information, plus a separate category for non-tritium internal exposure and the recording level. This draft also seeks the following new information: "For any unplanned internal exposure other than tritium, the licensees are to provide a brief description of the event, including the radionuclides of concern, such as radioiodine, C-14, MFAP or TRU, the dose received from the event and any other relevant details." While licensees can identify doses assigned for any non-tritium internal dose, dosimetry cannot say if it is unplanned/planned. The minimum recordable dose is different for each methodology. It would be reasonable to capture anything above recording level and this draft should clarify what level these unplanned non-tritium exposures need to be reported. In addition, this is very difficult to complete for fecal sampling which has an approximate turnaround time of 9 months following the end of the quarter (worker has 6 months to submit the sample, then Kinectrics needs a few 	<p>The changes to reporting requirements related to radiation protection, referenced in this comment, are being made to ensure consistency in the information licensees submit to the CNSC. Quarterly meetings cannot replace reports, and not all quarterly meetings provide the same information to CNSC staff.</p> <p>Related to the bullets:</p> <ul style="list-style-type: none"> First bullet: The CNSC always requests dose information annually. The quarterly reporting changes are to better understand where workers are receiving doses. Second bullet: In response to this comment, CNSC staff changed the text for PCE reporting in the notes of B.2. The new text reads: "The licensees are to provide the skin dose received from a skin contamination event greater than the minimum recordable dose." CNSC staff removed the reference to SCR/PICA numbers. The new text reads: "The licensees are to provide a tracking number for each Tier 1 and Tier 2 event and a brief discussion of each event." Third bullet: CNSC revised the text the text under purpose in B.3 to improve clarity. The revised text reads: "To indicate the estimated unplanned external whole-body exposure and unplanned internal exposure received by an individual at the NPP and its related facilities." In addition, the definition of unplanned now refers to "a radiation dose that exceeds the estimated planned dose to an individual for radiological work to be performed". Fourth bullet: As part of this revision, CNSC staff are changing where alpha exposures are reported. Rather than reporting these occurrences as event reports, CNSC staff are requesting this information annually and as part of the SPI B.3. The information to be provided is the same that was previously requested in event reports. Fifth bullet: CNSC staff have removed the section on governing documents (licensing basis) from the SPIs B.2, B.3 and B.4.

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			<p>months to analyze the sample). This means licensees can only provide information on results received for that quarter and not on samples submitted/assigned that quarter. This would also be a very manual process.</p> <ul style="list-style-type: none"> This draft also requires a list of governing documents defining unplanned dose tiers and CR numbers, which may be in appropriate to include in external reports. <p>Industry urges CNSC staff to remove the additional reporting and retain the effective, well-understood requirements in the current version of <i>REGDOC-3.1.1</i>.</p> <p>As currently written, the additional and duplicative reporting in this section could require some licensees to reassign staff from other priority work to compile data with no obvious or corresponding improvement to nuclear safety.</p> <p>Most of the information is already presented in the Quarterly Radiation Protection Meeting. This duplication increases the risk of misaligned data and misinterpretation since the dates of the quarterly meeting do not align with the QRSPI dates.</p>	
16	Bruce Power, OPG, NB Power	3.1	<p>Industry seeks added clarity for the phrase, "If there is an apparent change in SPI results, the licensee should provide a brief explanation in the additional details section of the data sheet." This revision implies NPPs are to provide statements on all changes. Licensees believe the CNSC's intent is only to provide insights on declining performance.</p> <p>Amend to read, "If there is an apparent change <u>decline</u> in SPI results, the licensee should provide a brief explanation in the additional details section of the data sheet."</p> <p>Also, clarify what a "brief explanation" might actually entail.</p>	<p>CNSC staff do not agree with the proposed change and no change to the text was made. CNSC staff want to be informed of improvements as well as potential issues. Licensees can determine the level of explanation that they want to provide and CNSC staff will inquire if they feel the explanation was insufficient.</p>
17	Bruce Power, OPG, NB Power	3.2	<p>The guidance refers to <i>CSA N285.0-17</i>. However, at least one licensee does not have this standard as part of its licensing basis. For those that do, <i>REGDOC-3.1.1</i> may become misaligned with future evolutions of the licensing basis, which has the potential to cause confusion and increase the likelihood of error.</p> <p>Clarify which systems need to be included and which do not. Rather than cite a reference to a specific version of a standard, the intent should be summarized.</p>	<p>CNSC staff removed the reference to CSA N285.0-17 from the guidance in section 3.2. If a licensee needs to seek an exemption for specific Class 6 systems, they will need to discuss it with their CNSC point of contact as part of the implementation of REGDOC-3.1.1.</p>
18	Bruce Power, OPG, NB Power	3.2	<p>Industry has a number of major concerns with the expanded requirements in the quarterly report on nuclear power plant pressure boundaries. Licensees request this be added as a workshop agenda item given their significant impact on licensees' Pressure Relief Device (PRD) programs.</p> <p>As currently written:</p> <ul style="list-style-type: none"> All Class 1-6 PRDs are considered in this updated version of <i>REGDOC 3.1.1</i> rather than Safety Related System components only. Any occurrence of any pressure relief device that fails its test will be considered reportable, which is not included in the current version. <p>This will significantly increase the number of reportable events and the nuclear safety rationale for these proposed changes is not clear to industry. Please see comments 18-22 for related concerns.</p> <p>Industry urges CNSC staff to maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i> and explain what gap these proposed changes are seeking to close.</p> <p>The proposed change to report all pressure relief device failures on Class 1-6 systems that are not exempt per <i>N285.0-17</i> Section 5.2.4.2 significantly increases the scope of reportability without an obvious or corresponding improvement to nuclear safety.</p> <p>This could lead to a mismatch in expectations on established and accepted industry thresholds for these non-nuclear devices. Currently, all pressure relief device testing failures are being evaluated and actions are taken when there is a trend of failures or significant failures occur.</p> <p>Reportability of non-nuclear devices would not add any value and significantly divert attention and resources from the nuclear devices.</p>	<p>Class 1-6 pressure boundary systems are identified in this section because they are more closely parallel to systems that fall under the category of "safety-related systems", an industry term that has become obsolete. The failure of class 6 components could impact the ability of a safety system or a safety support system to perform its design safety function, and/or they may contain low levels of radionuclides as a result of operation of the plant. No change was made to the text.</p>
19	Bruce Power, OPG, NB Power	3.2	<p>Industry is concerned with the proposed addition of bullet 3 to report any degradation of a pressure relief device other than during testing. These PB degradations of relief valves (other than during testing) will be similar to degradation to other components (break or leak of PB parts) and currently captured under bullets 1 and 2. Industry does not believe a new category is required for such degradations.</p>	<p>See comment 20 for the revised text to items 3 and 4 in section 3.2.</p> <p>Item 3 in section 3.2 is intended to capture situations where a system was pressurized above the set point of a relief valve (RV) and it failed to open. This is a scenario which would require further investigation as it may indicate degradation of a RV and potentially problems with similar RVs.</p>

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			<p>As written, the clause will cause more confusion than clarity. For example, if a relief valve (RV) lifts while in service due to system upset/pressure as per design, will this be reportable? Currently, there would be an investigation when the RV was removed from the system and as-found tested (as sometimes RVs lift, as required due to system pressure as per RV design). This draft would require extensive investigation to determine the reportability and conditions that were present when the RV lifted.</p> <p>Remove bullet 3 and maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i></p> <p>This information is already captured in the quarterly report.</p>	<p>If a relief valve were to lift in service, as per design, this would not be reportable because it would not be a fault.</p>
20	Bruce Power, OPG, NB Power	3.2	<p>Industry has similar concerns with bullet 4. Currently, only as-found tests that failed are reported (where the pressure lies between its maximum set-point pressure and the hydrostatic test pressure of the associated system). With the proposed changes, tests that fail above the maximum set-point pressure and below the minimum set-point pressure would be required to be reported to the CNSC. It's unclear whether failures above and below will be reportable.</p> <p>Remove bullet 4 and maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i></p> <p>As written, this draft will unnecessarily increase the number of reportable events with no obvious or corresponding safety increase.</p>	<p>Item 4 in section 3.2 is intended to summarize all relief valve failures in the quarterly report, with failures above hydrostatic test pressures also requiring an event report.</p> <p>CNSC staff made changes to items 3 and 4 to clarify the above-noted intent.</p> <p>Item 3 now reads: "3. a brief description of the occurrence of any degradation or fault of a pressure relief device that fails to open above the maximum set-point pressure while operating, including..."</p> <p>Item 4 now reads: "4. a brief description of the occurrence of any pressure relief device that fails to open above the maximum set-point pressure during testing, including:"</p>
21	Bruce Power, OPG, NB Power	3.2	<p>Under the current version of <i>REGDOC-3.1.1</i>, degradation-fault of a relief valve during testing is described as one that "resulted in the pressure-relief device opening during testing at a pressure which lies between its maximum set-point pressure and the hydrostatic test pressure of the associated system."</p> <p>In the proposed version, no such criteria are provided. In the absence of any criteria, an event may be interpreted in different ways by different utilities.</p> <p>Industry urges CNSC staff to maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i></p> <p>As currently written, the proposed document is not as clear as the current version and increases the likelihood of varying interpretations by licensees.</p>	<p>See comment 20 as the changes made to the text address the concerns raised in this comment.</p>
22	Bruce Power, OPG, NB Power	3.2	<p>The Guidance in this draft suggests pressure boundary degradations minor in nature (not safety significant, leaks do not exceed limits in licensing basis, causing no impairment of the system) are included in quarterly reports. Industry suggests the information provided under the current format is sufficient for quarterly reportable events (which are minor in nature). Providing detail impacts will add no value. Safety significant PB degradations are also reported under a separate clause (D.10) along with preliminary reports and detail event reports with impacts and potential impacts on the system. Therefore, this requirement is redundant.</p> <p>Remove and maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i></p> <p>The information provided under the current format is already sufficient for quarterly reportable events.</p>	<p>The brief details requested in the quarterly report will improve CNSC staff's ability to assess performance trends and licensee response to system aging. The CNSC's ability to do so has been limited up to now without asking for additional information. CNSC staff also note that the former D.10 (now A.10) in Appendix A is only aimed at higher significance degradations.</p> <p>Given that many licensees' systems are being operated for longer than the originally intended operating life, CNSC staff will be focusing more on licensees' aging management activities and therefore made no changes to the guidance.</p>
23	Bruce Power, OPG, NB Power	3.2	<p>The language in the exemption paragraph under Guidance is unclear. Many Class 6 systems meet exemption criteria, but only a few have been formally exempted. The RSW system, for example, meets the criteria in Clause 5.2.4.2, but has never been formally exempted under the design process. Clarity is required on whether a given system has to be formally exempted, or can the principles be applied to a system that has not been formally exempt but meets the criteria? Depending on the clarity provided, pressure relief valve reporting may no longer be limited to safety-related systems, which would increase the number of quarterly reportable testing failures.</p> <p>Maintain the established and highly-effective requirements in the current version of <i>REGDOC-3.1.1</i>.</p>	<p>See response to comment 17 as it addresses concerns raised in comment 23.</p>
24	Bruce Power, OPG, NB Power	3.3	<p>The quarterly report on nuclear power plant personnel is intended to capture information related to certified workers. This includes individuals certified to operate the nuclear power plant, but could also include Authorized Health Physicists (AHPs) or class II Radiation Safety Officers (RSOs). Industry seeks to clarify that Clause #1 (and preferably, all of Section 3.3) is intended for reporting related to individuals certified to operate the nuclear power plant. There is the potential for confusion since AHPs are not shift workers and Class II RSOs may or may not be certified with respect to a facility inside or outside the nuclear power plant, which may or may not be authorized by a licence separate from the PROL.</p> <p>For future drafts, industry urges staff to include Guidance that says, "The quarterly report on nuclear power plant personnel applies to all persons holding a CNSC certification to operate the NPP during the quarter and does not apply to authorized health physicists or class II radiation safety officers."</p> <p>Or, if the CNSC intends the quarterly report to capture information related to authorized health physicists or class II radiation safety officers, the guidance should include: "The quarterly report on nuclear power plant personnel applies to all persons holding a CNSC certification to operate the NPP during the quarter, as well as other certified personnel such as authorized health physicists and/or class II radiation safety officers."</p>	<p>Where "certified persons" is used in the Quarterly report on nuclear power plant personnel, this applies to all persons holding a CNSC certification, including persons holding a certification to operate the nuclear power plant, authorized health physicists and Class II radiation safety officers.</p> <p>Where "certified shift worker" is used in the Quarterly report on nuclear power plant personnel, this applies to all persons certified to operate the nuclear power plant working in an operator position.</p> <p>Guidance text to this effect has been added to Section 3.3. of the document.</p>

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25	Bruce Power, OPG, NB Power	3.3	<p>Clause 5 proposes a change in reporting requirements with respect to hours of work exceedances from certified personnel to all safety-sensitive personnel, though it does not refer to <i>REGDOC-2.2.4, Managing Worker Fatigue</i>. CNSC oversight should be limited to the highest priority issues (exceedances of the 16 -hour daily work limit or the 8-hour daily recovery limit), for which event reporting is required as per Appendix A, Clause A.35. Remove clause 5. Future drafts should not require licensees to list hours of work exceedances in the QRN3P, but retain the requirement to provide event reports for exceedances. CNSC staff is also urged to explicitly note that applicable hours of work limits are listed in <i>REGDOC-2.2.4</i>. This would exclude other hours of work limits such as internal procedural limits or provincial legislative limits. A lack of clarity increases the potential for error and lack of timely, accurate reporting.</p> <p>Clause 5 would require a substantial increase in administrative resources with no corresponding improvement to nuclear safety. For some licensees, this information is not captured by an automated time reporting system and would require manual review of timesheet data for all affected staff.</p>	<p>Under <i>REGDOC-2.2.4, Fitness for Duty: Managing Worker Fatigue</i>, licensees must monitor and keep records of hours of work violations for safety-sensitive positions. As a result, licensees already manually review timesheets in order to monitor and keep records of violations. To limit the burden of reporting on this requirement, CNSC staff made the following changes under section 3.3 to capture just staff in certified shift positions. The new text is: “2. Certified shift workers...d. a list of occurrences where the limits to hours of work or recovery periods have not been met”</p> <p>The reporting requirements in A.35 remain unchanged.</p>
26	Bruce Power, OPG, NB Power	3.3.	<p>Industry has concerns with draft clause 6, which requires, “a summary of simulator fidelity and system health issues including visible errors, outstanding work orders and corrective and preventative maintenance backlog, identified by priority, along with recovery plans and target dates of completion.” A recurring report is not the appropriate vehicle to provide this type of information.</p> <p>Remove clause 6. This information is more suitable for provision upon a formal request or during an inspection, not a recurring report.</p>	<p><i>REGDOC-2.2.3, Personnel Certification, Volume III: Certification of Reactor Facility Workers</i> contains requirements related to simulators for the training and examination of certified personnel. Simulators need to be capable of simulating, realistically and in real time, all significant plan manoeuvres and transients for certification examinations including other acceptable simulation capabilities. In response to the comment and to reduce the reporting burden for licensees, CNSC staff change the requirement for reporting simulator to an annual frequency, instead of the quarterly frequency originally proposed. In addition, CNSC staff changed the text of the item (now item 6c) to focus on major issues. The revised text reads:</p> <p>“4. Additionally, for the final report of the calendar year, licensees shall provide....</p> <p>c. a summary of significant simulator fidelity and system health issues and associated corrective actions. “</p> <p>CNSC staff added guidance text to support item 4c. The guidance text reads, “For item 4c, simulator fidelity and system health issues include visible errors, outstanding work orders and corrective and preventative maintenance backlog items.”</p>
27	Bruce Power, OPG, NB Power	3.3	<p>Industry seeks additional clarity for clause 7a.</p> <p>Please clarify:</p> <ol style="list-style-type: none"> 1 • Which organization charts, including support groups, are being requested? 2 • For the staffing numbers – does the CNSC want total regular staff or all employment types? (i.e. temporary, contract, ETE, TERMS, etc.) 3 • What level within an organization is appropriate for the summary of organization changes? Changes occur very frequently at the Business Unit/Division/Department level. Industry recommends the Division level is the most appropriate. 4 • What is expected regarding responsibilities and reporting? For which positions? 	<p>The numbers have changed. The items referred to in this comment are now item 4b, in section 3.3.</p> <ol style="list-style-type: none"> 1. The organization arrangements requested are for the groups within in the organization that support the programs of the nuclear management system, down to the lowest organization unit. CNSC staff added guidance text to this effect. 2. The staffing numbers include the total number of regular staff. 3. The summary of organization changes should include changes that impact any position that coordinate, direct and control the licensed activity, and any changes at the level of certified workers. 4. The CNSC is primarily interested in two types of reporting relationships. The first is for contractors and the second is for certified staff. For contractors, CNSC staff are interested in the reporting link between the contractor and the licensee staff or business unit for contractors performing work related to activities under the licence. This is captured in item 4 b iii “if contractors are used, the reporting relationships and licence accountabilities under which contractors are managed”. <p>For certified workers, the CNSC is primarily interested in reporting and responsibilities assigned to certified staff who are assigned to work outside of their certified positions. CNSC staff added item 2c to capture contractors that are occupying certified shift positions, operator trainers or examiner positions. CNSC added this item to reduce the scope of contract workers that need to be reported to include the positions that are most likely to impact operation of the facility. CNSC staff also moved an item previously reported quarterly to the final quarter (ie. Annual reporting). The item moved is “ the names and dates of any certified shift worker assigned to a temporary position in excess of six months, the title or description of the temporary position, the start date and duration of each temporary assignment and whether the assignment is operationally or non-operationally focussed.”</p>
28	Bruce Power, OPG, NB Power	3.3	<p>All of the information described in clause 7b is already being provided in quarterly reports, but not as a 5-year rolling profile. Industry sees no value in duplicating efforts to provide a rolling profile when the CNSC has existing means/agreements to produce such information specific to individual NPPs.</p> <p>Remove clause 7b</p> <p>As per previous comments, the additional and report reporting in this section could require some licensees to reassign staff from other priority work to compile data with no obvious or corresponding improvement to nuclear safety.</p>	<ol style="list-style-type: none"> 1. Item 3 is intended to be a rolling staffing plan, whereas the information provided in the quarterly reports through the year are actual numbers. CNSC staff modified the text to read: “a rolling five-year staffing plan to be provided in one quarterly report annually, that includes the number of certified workers: <ol style="list-style-type: none"> a. available at the beginning of the year b. newly certified c. lost to attrition and promotion d. assigned to shift and day support assignments

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				<p>e. available at year end f. new trainees who have started the "General Training" course"</p>
29	Bruce Power, OPG, NB Power	3.3	<p>Clarity is sought for some of the items related to alcohol and drug testing under clause 7d. Specifically: (a) There is no reference to <i>REGDOC-2.2.4, Vol II, Version 3</i>. (b) Reporting expectations for item "i. the random testing rate achieved" are unclear. This may also be inappropriate to include until the federal court rules on challenges to random testing. (c) Inclusion of item ii, which says, "all drugs for which testing is conducted and cut-off concentrations by specimen type (i.e., urine or oral fluid), including results of tests using lower cut-off concentrations and any special analyses of dilute specimens." (d) Privacy concerns related to item iii, which reads, "number of tests administered and results of those tests sorted by workgroup tested and testing circumstances (i.e., pre-placement applicant, pre-placement transfer, reasonable grounds, post-incident, return to work, follow-up and random)" (e) For item iv, its unclear why the CNSC would need to know "alcohol or drugs identified in verified positive tests by specimen type (i.e., breath, urine, oral fluid)." (f) The use of "dilution" in item v, which reads, "number of subversion attempts by type (e.g., refusal to test, adulteration, dilution, substitution)" For added clarity, CNSC staff is urged to: (a) Amend the 1st sentence of Clause 7d to read, "the results of alcohol and drug testing <u>conducted pursuant to REGDOC-2.2.4 Vol II Version 3</u>, including ..." (b) Remove until the issue of random testing is tested in court. Otherwise, clarify that item i is asking "yes/no" if the minimum 25% random testing rate was achieved per the requirements in <i>REGDOC-2.2.4, Vol II, Version 3</i> and not the actual percentage of completed tests from the subjected population. (c) Remove item ii for the following reasons: o "all drugs for which testing is conducted and cut-off concentrations by specimen type" -- This data is established by the CNSC in <i>REGDOC-2.2.4</i>. Licensees test for the drugs in the CNSC panel and use the cut-off concentrations they have established. There is nothing to report. o "including results of tests using lower cut-off concentrations" -- Licensees would not use lower cut-off concentrations for any testing required by <i>REGDOC-2.2.4</i>. Therefore, this is not an area licensees would report to the CNSC. o "and any special analyses of dilute specimens" -- The dilute protocol in <i>REGDOC-2.2.4</i> is guidance only. Licensees are following the dilute protocol of their collection agency. There is nothing to report on since following CNSC's dilute protocol is optional. (d) It's only appropriate for licensees to report the number of tests administered by testing circumstance. The pre-placement category should not be separated as applicant vs. transfer. This could compromise individual privacy due to low numbers of testing and other data gathered by the CNSC which can be used to connect results to individuals. (e) Clarify why the CNSC needs this specific information. What benefit does it provide a regulator to know what substance an individual tested positive for? Also, there would be privacy concerns if item iii is not adjusted. (f) Amend to read, "... (e.g., refusal to test, adulteration, dilution, substitution). A diluted sample does not necessarily mean it was a subversion attempt. For example, adding water to a sample (subversion) vs. drinking a lot of water prior to a test (lifestyle, nervousness, etc.)</p>	<p>Section 3.3 was reorganized. The items related to alcohol and drug testing are covered in item 4e and 4f. a) CNSC staff agree with the suggestion. CNSC staff have added reference to <i>REGDOC-2.2.4, Fitness for Duty, Volume II: Managing Alcohol and Drug Use, Version 3</i> in the item 4e and 4f. b) CNSC staff agree with the suggestion. Reference to random alcohol and drug testing was removed from the regulatory document. c) CNSC staff agree in part with the comment. CNSC staff removed the requirement to report using lower cut-off concentrations. CNSC staff require information to verify that the cut-offs used for urine & oral fluid laboratory and point of collection testing were achieved for the drugs listed in <i>REGDOC-2.2.4, Fitness for Duty, Volume II: Managing Alcohol and Drug Use, Version 3</i>. There may be some variability based on the methodology used and devices selected. This data is included in reporting requirements for other nuclear regulators and is needed for CNSC to confirm compliance and identify any areas of concern. The new text for item 4f ii. reads: "ii. all drugs for which testing is conducted and cut-off concentrations by specimen type (i.e., urine or oral fluid)". d) CNSC staff agree with the comment. CNSC staff added the following guidance text in support of how data should be reported. "For items 4e I and fiii, the data should be sorted by testing circumstances, for example, pre-placement, transfer, reasonable grounds, return to work, and follow-up." e) The privacy concerns raised by licensees have been addressed by the changes made to item iii. CNSC staff require this information to gain insight into the classes of drugs workers are testing positive for. This will provide insight into licensee performance and trending with respect to drug usage, and specimen type, and as such no change was made to this item. f) CNSC staff agree with the suggestion. CNSC staff added guidance text to describe subversion attempts. The new text reads, "For item 4f i, subversion attempts include but are not limited to adulteration and substitution."</p>
30	Bruce Power, OPG, NB Power	3.4	<p>Industry has major concerns with clause 8 and the cyber security requirements added to the quarterly report on operational security. Licensees request CNSC staff include cyber security reporting as a key agenda item for a pre-publication workshop with industry. Specifically, licensees: a) Believe clause 8 should refer specifically to the cyber security of "Cyber Essential Assets". b) Understand the intent of sub-bullets (a) and (d) is to ask for summaries of high-level program reviews such as audits and drills. Many facility assessment tools are very specific and large in number -- reporting these would be a significant burden. Currently, high-level reviews are conducted a few times a year and licensees believe the proposed frequency should be annual, not quarterly. c) Note that clause 8 does not have an analogue in the physical security section and the words "performance" and "posture" in sub-bullets (c) and (d) are vague. What constitutes a "cyber security posture change?" d) Note that it would not be applicable every quarter to provide a summary of results from cyber security drills as per sub-bullet (d). e) Wonder if sub-bullet (e) refers to Incident Response procedures and not to playbooks (which are numerous, highly-detailed and frequently-updated)? f) Believe sub-bullet (f) should use a graded approach, similar to clause 2.4. More clarity is required for what is meant by "...could have had cyber security related implications or consequences ..."</p>	<p>a) The scope of clause 8 in Section 3.4 applies to any cyber asset that can compromise a cyber essential asset (CEA), including sensitive information that may compromise CEA. CNSC staff amended the introductory text to item 8 to clarify that reporting provisions relate to the NPP's cyber security program. The revised text reads: "for the NPP cyber security program, include..." b) For 8a, CNSC staff is interested in the high-level reviews that the licensees conduct periodically. CNSC staff amended the text to request audits or self-assessments that were conducted during the reporting period. The revised text reads: "a summary of any audit or self-assessment of the cyber security program or its elements that was conducted in the quarter" For 8d, if no exercises or drills were carried out during the reporting period, there is no need to report, therefore CNSC staff made no changes to bullet d. c) For 8c, security posture is defined in N290.7:21 and further described in clause 4.3.3.3.1 (b). CNSC staff added guidance to clarify this. The guidance text added was: "For item 8c, security posture is defined in CSA N290.7:21. Clause 4.3.3.3.3 of this standard describes changes in security posture. "</p>

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			<p>Industry urges the CNSC to require annual (not quarterly) reporting for cyber essential elements and to ensure this REGDOC's requirements align with the recently-released <i>Bill C-26, An Act respecting cyber security, amending the Telecommunications Act and making consequential amendments to other Acts</i>.</p> <p>For future drafts, licensees urge the CNSC to:</p> <ul style="list-style-type: none"> a) Change the first line of clause 8 to read, "for <u>Cyber Essential Asset</u> security, include:" b) Change the reporting frequency to annually, not quarterly, for sub-bullets (a) and (d). c) Clarify what CNSC expectations are when it asks for summaries of "performance" and "posture." d) Amend sub-bullet (d) to require a summary of significant drills and exercises annually, not quarterly. e) Clarify that sub-bullet (e) refers to Incident Response procedures. f) Amend sub-bullet (f) to read, "a brief description of any situations (including the identification of cyber vulnerabilities) or events, <u>taking into account system significance as described in CSA N290.7</u>, that had or could have had cyber security related implications or consequences and which were not reported under an event report." <p>Quarterly reporting for clause 8 and bullets (a) through (f) will be extremely onerous and could require some licensees to divert up to two full-time staff to collect and submit the requested information every three months. This will take limited and expert IT resources away from their core work of strengthening cyber security systems.</p> <p>Industry is confident annual reporting of the referenced information will provide CNSC staff with the insights it requires for effective regulatory oversight.</p>	<p>Performance is addressed in 8b (not d), and as per N290.7:31, the cyber security program must be reviewed and maintained (clause 4.3.3). CNSC staff added guidance to clarify this, but no further change to the reporting requirement was made. The guidance text reads: "Item 8b aligns with requirements from CSA N290.7:21 that are designed to confirm the continued effectiveness of the cyber security program or applicable elements of the program (4.3.3 Reviewing and maintaining)."</p> <p>d) The intent of this requirement is for the licensee to report closest to the quarter in which the drill or exercise was conducted. If a drill or exercise was not conducted during a particular quarter, then there is no need to report it. No change was made to this text.</p> <p>e) CNSC staff added text to clarify that the intent is to report on high-level processes. The new text reads: "any update to the cyber security incident response process (e.g., incident response procedures)"</p> <p>f) CNSC staff do not agree with the graded approach in this context. The screening rule for what is meant by "could have had cyber security implications or consequences" is whether the licensee initiated their incident response process and found something that was not abnormal (e.g., alert raised due to authorized activities) but did not raise to the level of the reporting requirements.</p> <p>To reduce any confusion, CNSC staff changed the text in 8f. The revised text reads: "a brief description of any situations or events that had or could have had cyber security related implications or consequences and which were not reported under an event report."</p>
31	Bruce Power, OPG, NB Power	3.4	<p>Clause 9, which says, "updates related to special security equipment ..." is redundant. Submissions are already provided under quarterly updates on special equipment as per <i>REGDOC- 2.12.1 volume 1, High Security Facilities: Nuclear Response Force</i>.</p> <p>Remove clause 9.</p> <p>As per previous comments, duplicate reporting is resource-intensive and could require some licensees to reassign staff from other priority work to compile data with no obvious or corresponding improvement to nuclear safety.</p>	<p>The intent is to house all CNSC reporting requirements in REGDOC-3.1.1, <i>Reporting requirements for Nuclear Power Plants</i>. CNSC staff recognize that these particular reporting requirements will be housed in two REGDOCs until the security series REGDOCs are revised. CNSC staff do not expect licensees to report twice. No change was made to the text.</p>
32	Bruce Power, OPG, NB Power	3.5	<p>Industry has a many significant concerns with the increased – and often duplicate – level of reporting in the proposed annual report on radiation protection and asks for this to be discussed during a pre-publication workshop.</p> <p>This draft requires all the same information as the current REGDOC version plus a significant amount of additional detail with no clear, corresponding improvement to nuclear safety.</p> <p>This includes:</p> <ul style="list-style-type: none"> • Justification of a licensee's ALARA program by a description of all RP initiatives and planned dose reduction initiatives as well as dose-saving initiatives which were implemented. This should not be prescriptive and "any achievable" results may not always be in the form of a radiation protection initiative. • A summary, targets and look-ahead of initiatives for the next year. • A discussion of trends for the last five years. • An additional dose-reporting category for forced outages, the number of units operating, number of units being refurbished, days in operation, number of outages, outage durations and median dose. • A new report format that requires lens of eye skin dose and extremity dose data. • All dose data presented in a histogram format, which is a time-consuming requirement. • A requirement to report the "maximum effective dose received by workers who are not classified as NEWs." This is quite difficult to provide. It is normal for individuals to on-board as NEWs, then leave and come back as a non-NEW (or vice versa). Licensees would need to address these cases manually. • A new requirement for average, median, and maximum numbers for whole body dose, skin dose, extremity dose, and lens of the eye dose. • A new requirement for a maximum dose value for 5 year dose period, which is currently a maximum yearly dose. • A new requirement for the number of staff monitored, the number of non-zero doses as well as the number of non-NEWs monitored and number of non-zero dose in this category <ol style="list-style-type: none"> 1. • A discussion of licensee's RP programs, including highlights, revisions to governance, trend analysis of corrective action process/self-assessments. This is extremely broad and administratively-intense with no clear value-added. There is no actual RPR/REGDOC requirement to perform confirmatory sampling, so why are licensees being asked to provide this? How does this align with provincial reporting requirements? <p>Industry urges CNSC staff to remove the proposed annual report and retain the effective, well-understood requirements in the current version of <i>REGDOC-3.1.1</i>.</p>	<p>The information being collected as part of the Annual report on radiation protection has historically been collected by CNSC staff through various means. The annual report is intended to codify the report contents, bring regulatory clarity and certainty to the data submitted, and to achieve consistency in the submissions from across the industry. Some licensees provide a discussion on their radiation protection programs during quarterly meetings and others do not. CNSC staff are establishing a consistent standard to be applied to all licensees, including potential new licences, in our reporting requirements. Also, note that some of the information that was formerly part of the quarterly report on nuclear power plant personnel (reported in final quarter of the year) has been moved to the radiation protection annual report, which doesn't reflect a duplication in reporting.</p> <p>In response to the comments received, the Annual report on radiation protection was altered to focus on the information CNSC view as key to understanding the performance of licensees' radiation protection programs.</p> <p>In response to the specific items highlighted by the reviewers:</p> <ul style="list-style-type: none"> • Bullet 1: CNSC staff modified the section on the ALARA program to align with the other CNSC reporting documents. The change reduces the level of detail requested in the RP Annual Report. Bullets 1b and c in section 3.5 now read: "a summary that includes but is not limited to the following, ...b. initiatives and activities conducted in the last calendar year to improve the control of worker doses and radiological hazards. c. planned initiatives and targets" • Bullet 2: The summary, targets, and look-ahead initiatives should be prepared on an annual basis, and for this reason CNSC staff re-worded bullet 1 of section 3.5 as described above. • Bullet 3: Dose trends is not a new request; this is currently requested in the final quarter of they year as part of the Quarterly report on nuclear power plant personnel and has been moved to the Annual report on radiation protection as part of the revision for version 3. • Bullet 4: The categories for reporting the collective dose are the same as those reported quarterly under SPI 1. CNSC staff changed the wording to clarify this intent. The bullet asking for collective dose (bullet 2c in section 3.5) now reads: <ol style="list-style-type: none"> i. Collective dose, separated into: <ul style="list-style-type: none"> • routine operations and major projects • internal dose and external dose • total collective effective dose (person-mSv) • summary of year-over-year dose trends

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			<p>This would be in keeping with the intent of the federal government's Red Tape Reduction Action Plan and the CNSC's own initiative to modernize Annual Compliance Reporting. It's unclear what value is added by including all of the new information in an annual report.</p> <p>As currently written, the additional and repeat reporting could require some licensees to reassign staff from other priority work to compile this data with no obvious or corresponding improvement to nuclear safety.</p> <p>With all the new requirements, this report is quite an extensive request, especially since this information (and much of the information requested on quarterly and annually scheduled reporting) is already provided in writing for the CNSC's quarterly meeting, ALARA Five-Year plans and Safety Performance Indicator (SPI) sheets.</p> <p>More specifically, while information like the effective dose, lens-of- the-eye dose, skin dose and extremity dose can be gathered, it would be a cumbersome, time-consuming task since most of these items are dependent on TLD data and it takes approximately two months after the end of the dosimetry period to readout the TLDs and upload the results to RIS/RDS. In addition, it isn't possible for Dosimetry to divide between online, outage, and MCR/refurbishment doses</p>	<ul style="list-style-type: none"> Bullets 5& 6: The <i>Radiation Protection Regulations</i> require monitoring of equivalent doses to the skin, lens of the eye and extremities. Having all the dose data reported to the CNSC in a single report reduces duplication and provides consistency in the information reported across the licensees. The suggested tabular format for reporting doses allows CNSC staff to see the distribution of doses received by workers which allows staff to assess the performance of the licensees' radiation protection program, and to determine if the licensee is setting reasonable internal targets for dose limits. A sample template that licensees may use for submitting this information was added to Appendix D. However, in response to this comment, CNSC staff changed the histograms categories for the skin and extremity doses. The three values chosen are above the minimum recordable activity, above the 50 mSv requirement for licensed dosimetry, and above the 50% point. Bullet 7: Licensees must be able to determine that no dose limits are exceeded, for NEWs and non-NEWs. This is a requirement to demonstrate compliance with NSCA 27(a) and <i>Radiation Protection Regulations</i> 13(1). Bullet 8: These new requests contain information that cannot be otherwise retrieved by CNSC staff. Licensees should find this information easy to retrieve and share with CNSC staff. CNSC staff have altered the text to request only the average (non-zero doses) and the maximum dose. These changes are reflected in bullet 2d-2h in section 3.5. Bullet 9: The maximum dose for a 5-year period is a regulatory requirement under the <i>Radiation Protection Regulations</i> that CNSC staff need to be able to review. Including it in this revision closes a gap that existed the current review process and will make it more straightforward to ensure the regulatory requirements are met. Bullet 10: CNSC staff are requesting information on the number of persons monitored for radiation exposure and the number of persons who received a non-zero (ie. Measurable) dose as part of assessing the licensees' radiation protection program. <p>CNSC staff recognize that internal exposures can take time to be assessed and such dose assessments may not be concluded in the Quarter in which the exposure occurred.</p>
33	Bruce Power, OPG, NB Power	3.5	<p>In addition to the Major concerns noted in the previous comment, licensees believe several new requirements related to the annual report on radiation protection are unclear as written.</p> <p>They include:</p> <p>(a) The Note on page 10, which reads, "For sites with multiple reactors, the licensee shall report the data in individual annual reports for each station, as specified in their licence(s): the maximum effective dose received by workers who are not classified as NEWs." What about those who are classified as NEWs part way through a year?</p> <p>(b) What is intended by sub-bullet "3 iii discrete particles" under the radiological hazard control?</p> <p>(c) Licensees also seek greater clarity on the new requirement for "maximum individual WB dose for the current 5 year dosimetry period."</p> <p>(d) A new requirement for a detailed discussion for radiological hazard control data and trends for PCEs, DRPs, and LCEs.</p> <p>(e) A description of "other challenges the licensee encountered during the period, and how they were addressed."</p> <p>(f) The new requirement to confirm sampling information, including the number of workers that qualified, the number of workers monitored, type of sampling and the number of positive samples. For each positive sample, this draft requires the result of investigation/cause, evaluation for candidates for routine bioassay program, and dose assigned for positive results. Is the intention here to report positive PAS samples in scheduled annual report instead of in unscheduled report under section A.18?</p> <p>Remove the additional reporting in this report and retain the effective, well-understood requirements in the current version of <i>REGDOC-3.1.1</i>.</p> <p>Otherwise, staff is encouraged to amend this section to:</p> <p>(a) Clearly say licensees with a consolidated PROL can prepare one report and clarify reporting expectations for workers who are classified as NEWs part way through a year.</p> <p>(b) Clarify if "discrete particles" are a subset of loose contamination events.</p> <p>(c) Clearly say the "maximum individual WB dose for the current 5 year dosimetry period" is only dose from the licensee, which is industry's current understanding.</p> <p>(d) Clarify what is expected in this section and why DRPs are considered separate from LCEs, since DRPs are a type of LCE.</p> <p>(e) Clarify what is meant by "other challenges." This is overly broad and more specifics are needed.</p> <p>(f) Clarify how positive PAS results are reported. Does it replace unscheduled reporting? If not, industry already reports positive PAS samples through preliminary unscheduled reporting. Does this apply only for TRU or other confirmatory sampling? For instance, some licensees request</p>	<p>With respect to the comments:</p> <p>(a) As noted in the response to comment 32, licensees must be able to determine that no dose limits are exceeded. To improve clarity, CNSC staff removed the note.</p> <p>(b) CNSC staff removed sub-bullet 3iii from section 3.5 since discrete particles are included under loose contamination.</p> <p>(c) As indicated in the response to comment 32, this is for the dose received at the licensee's facility. CNSC staff added guidance text to clarify this. The text added is "Worker doses are doses received in support of the licensed activities".</p> <p>(d) The reference to discrete particles has been removed (as noted above). CNSC staff revised the text related to contamination events. The revised text reads: "1. A summary that includes but is not limited to the following:...g. major trends associated with contamination events through the year, separated into personal contamination events and loose contamination events."</p> <p>(e) CNSC staff removed this request from the annual radiation protection report.</p> <p>(f) Alpha reporting is done through the annual report and in SPI 3 (unless it is an actual or potential exposure in excess of legal radiation dose limits under A.20). CNSC staff revised the wording in section 3.5 bullet c and SPI 3 to improve clarity.</p> <p>The revised text for section 3.5 bullet 1f reads:</p> <p>i. "1. a summary that includes but is not limited to the following:...f. major trends associated with unplanned internal exposures during the year, including information about the type of monitoring used and whether the investigations associated with exposures determined if any changes needed to be made to a worker's routine monitoring, or if changes needed to be made to licensee's bioassay program radiological hazard control"</p> <p>Guidance text to further clarify the section 3.5 item 1f was added to the regulatory document. The new guidance text reads:</p> <p>"The licensee should identify if there are any outstanding dose assessments at the time the report is submitted and when and how this information will be submitted."</p> <p>The reporting of internal exposures is not limited to doses from transuranic elements, although, it does not include tritium exposures. CNSC staff added guidance to this effect.</p>

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			<p>confirmatory sampling for Fe-55 and Sr-90 for MCR workers. What does qualified mean in this context? Does this mean the total pool of workers who performed high risk alpha work? What does the number of workers monitored mean? Does this mean the workers that were selected or those that submitted the sample? The requirement to provide the number of positive results is unrealistic. As previously mentioned, there can be several months between samples being submitted and licensees receiving results. At most, licensees can provide the information on any results received for the year.</p>	<p>CNSC staff also adjusted text in SPI 3 to clarify which internal exposures should be reported under this SPI. The revised text for SPI 3 reads:</p> <p>Purpose: To indicate the estimated unplanned external whole-body exposure and unplanned internal exposure received by an individual at the NPP and its related facilities."</p> <p>Note: The term "unplanned" refers to a radiation dose that exceeds the estimated planned dose to an individual for the radiological work to be performed.</p> <p>The licensees are to provide a tracking number for each Tier 1 and Tier 2 event and a brief description of each event.</p> <p>For any unplanned internal exposure other than tritium, the licensees are to provide a brief description of the event, including the radionuclides of concern, such as radioiodine, C-14, MFAP or TRU, the dose received from the event and any other relevant details."</p>
34	Bruce Power, OPG, NB Power	3.6	<p>Industry seeks clarification regarding the opening sentence, which reads, "The environmental protection report shall be submitted annually and shall contain the following information from the NPP and all its related facilities:" The phrase "all its related facilities" is quite broad and there could be misalignment between facilities' interpretation of "related facilities" which could result in inconsistent reporting, Amend to read, "The environmental protection report shall be submitted annually and shall contain the following information from the NPP and all its related facilities <u>as defined in the EMS:</u>"</p>	<p>CNSC staff reviewed this comment, and the comment #83. CNSC staff changed the wording in section 3.6 and in the SPI Environmental Releases – Radiological (SPI 5) to align. The text in section 3.6 was changed to: "The environment protection report shall be submitted annually and shall contain the following information from the NPP and those facilities owned or leased by the nuclear operator that have radiological releases to the environment that contribute to the annual total effective dose to public from the site and have licensed release limits (e.g. Derived Release Limits (DRLs)) and/or environmental action levels."</p>
35	Bruce Power, OPG, NB Power	3.6	<p>Industry seeks clarification regarding clause 2, which reads, "a summary of the objectives of the environmental protection measures conducted in the last calendar year, and whether the objectives have been met." The objectives of an environmental monitoring or effluent/emissions monitoring program do not change from year to year, but the activities to meet the objectives may. As written, this statement is confusing and makes it difficult to provide accurate information to report. Amend clause 2 to read, "A summary of <u>activities conducted in the last calendar year to meet environmental protection measure objectives</u> the objectives of the environmental protection measures conducted in the last calendar year, and whether the objectives have been met."</p>	<p>CNSC staff agree with the comment and made the proposed change. The second item in Section 3.6 now reads: "a summary of activities conducted in the last calendar year to meet environmental protection measure objectives"</p>
36	Bruce Power, OPG, NB Power	3.6	<p>Industry seeks additional clarity for clause 3. What types of updates or changes to environmental protection measures warrant inclusion since tracking minor items could be onerous? Depending on CNSC expectations, this could increase the risk of inconsistent reporting and administrative efforts with no corresponding safety improvement. Amend clause 3 to read, "A summary of any <u>significant</u> updates made to the environmental protection measures, the reason for these changes, and the current timelines for the next planned periodic reviews of the environmental protection measures."</p>	<p>CNSC staff agree with the suggestion and made the requested change to the text. Item 3 in section 3.6 now reads: "a summary of any significant updates made to the environmental protection measures, the reason for these changes, and the current timelines for the next planned periodic reviews of the environmental protection measures".</p>
37	Bruce Power, OPG, NB Power	3.6	<p>Clause 4 and sub-bullets (a) and (b) are ambiguous and confusing. Environmental action levels (EAL) are not applicable to all licensees for contaminants and EALs would be covered as a licence limit. It's important to have clear guidance as to how data should be presented in the annual EPR to ensure all licensees present consistent data to the regulator. As written, it's unclear how this bullet aligns with provincial reporting requirements.</p> <p>Also:</p> <ul style="list-style-type: none"> • Both sub-bullets say "at minimum" and then "where applicable." • Reporting and monitoring requirement is triggered based on CSA N288.5. Does this draft mean reporting is required if monitoring/reporting is triggered based on CSA N288.5? Are these suggested for normally seen radionuclides in CANDU reactors? • Since conventional (hazardous) emissions are reported based on ECA requirements – which may be revised and some reporting requirements removed in the future - the term "e.g." may be better than using "i.e." in this instance. 	<p>CNSC staff acknowledge the comment and revised item 4 in section 3.6 of the document. CNSC staff kept environmental action levels in the text, but include "where applicable" to account for facilities that don't have environmental action levels. The text "at minimum" was deleted from bullets. The revised text reads:</p> <p>"4. the results of the effluent/emissions monitoring program, for both radiological and hazardous substances (e.g. activity concentrations, flow rates and loadings), in SI units, suitable for evaluation of compliance against environmental action levels, where applicable, and licence limits</p> <ol style="list-style-type: none"> the licensee shall report the following for releases to air, where applicable: tritium oxide (HTO), elemental tritium (HT), carbon-14, noble gases, radioiodine, gross alpha, and gross beta/gamma the licensee shall report the following for releases to water, where applicable, tritium oxide (HTO), carbon-14, gross alpha, and gross beta/gamma hazardous substances to air and/or water as reported to other Authorities Having Jurisdiction (AHJs)"

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			<p>• For hazardous substances, this draft should say, “refer to ECA requirements.” For example, the MECP has started changing/simplifying the MISA related requirements. “Loadings” may not be required to be reported any more for conventional emissions. Only reporting on concentrations maybe required in the future.</p> <p>Amend bullet 4 to read, “the results of the effluent/emissions monitoring program, for both radiological and hazardous substances including the hazardous substances (i.e. e.g. activity concentrations, flow rates and loadings), in SI units, suitable for evaluation of compliance against environmental action levels and licence limits</p> <p>a. at minimum, the licensee shall report the following for releases to air, where applicable: tritium oxide (HTO), elemental tritium (HT), carbon-14, noble gases, radioiodine, gross alpha, and gross beta/gamma</p> <p>b. at minimum, the licensee shall report the following for releases to water, where applicable: tritium oxide (HTO), carbon-14, gross alpha, and gross beta/gamma</p> <p>c. hazardous substances to air and/or water as reported to other AHJs.”</p>	
39	Bruce Power, OPG, NB Power	3.6	<p>What is meant by “associated supportive variables” in clause 6? Clarify what is meant by “associated supportive variables.”</p>	<p>CNSC staff added the following text as guidance for item 6 in section 3.6: “Associated supportive variables are used to interpret the results of the environmental monitoring program and can include background data, environmental quality guidelines and screening levels.”</p>
40	Bruce Power, OPG, NB Power	3.6	<p>Industry has major concerns with clause 9. The wording “non-reportable, unusual or unforeseen conditions. ...and other findings or results” is ambiguous. Industry needs the flexibility to operate programs day-to-day without the burden of reporting “every unusual or unforeseen event or other findings or results.” Currently, the CNSC is copied on all event reports, QRSPI and regulatory reporting to Authorities Having Jurisdiction (AHJs). Events and issues are already reported and any concerns can be brought to the quarterly meetings for discussion. Remove clause 9.</p> <p>At a minimum, amend it to read, “a summary of reportable events and non-reportable, unusual or unforeseen conditions (e.g., uncontrolled releases) that might require corrective action or additional monitoring, and other findings or results, with respect to the conduct of discussion of results out of trend that might require corrective action or additional monitoring and their impact on the environmental monitoring program.”</p> <p>The proposed wording could cause increased, unwarranted scrutiny from the public and undue burden on the industry. As written, there is no room for operational flexibility to address minor issues as part of normal operations. Non-reportable and unforeseen conditions do not meet a threshold for reporting and should be addressed in-house using established corrective action programs. There would be considerable cost to industry for additional resources for superfluous reporting of non-significant, unreportable conditions which will not improve environmental protection.</p>	<p>The intent is not to add reporting requirements. Item 9 will remain in section 3.6 but CNSC staff modified the wording modified based on the comment received. The revised text reads: “a summary of reportable events and abnormal results that might require corrective action or additional monitoring and their impact on the environmental monitoring program.”</p>
41	Bruce Power, OPG, NB Power	3.6	<p>Industry has concerns with the Guidance that reads, “For item 7, include ERA predictions as well as any standards/guidelines, as applicable, to all figures where monitoring data are presented.” This is an unrealistic request since there is not enough time to realize the environmental impacts from predicted activities. It is more appropriate to report this on a 5-year basis.</p> <p>Amend the Guidance to read, “For item 7, include ERA predictions as well as any standards/ guidelines, as applicable, to all figures where monitoring data are presented.”</p>	<p>CNSC staff adjusted the wording in the guidance item 7 of section 3.6 to clarify the intent of the item. The revised text reads: “For item 7, include the latest ERA predictions as well as any standards/guidelines, as applicable, to all figures where monitoring data are presented.”</p>
43	Bruce Power, OPG, NB Power	4	<p>What is the difference between a report and a notification? If a notification can be submitted by email, why do some notifications also have a requirement for a detailed report (20b and 20d, 21)? The guidance for Section 4 says, “For notifications to the CNSC, the licensee may choose to notify using either the electronic event report forms or another appropriate means.” What is an electronic report form? Clarify the difference between a report and a notification.</p>	<p>In version 2 of the document, notifications of events and administrative notifications were identified in the same column of the table. In this revision, a new category of administrative notifications was created to separate the types of notifications that are purely administrative and do not require an event report, from those types of situations that require an event report so that CNSC staff can review the situation.</p> <p>The reporting provisions cited in this comment relate to exposure events. Reports are required for these so that CNSC staff can assess the situation and the dose received to individuals so that they can be properly notified and receive the proper treatment and follow-up care. The reports also allow CNSC staff to review corrective measures put in place to prevent a similar exposure incident from happening again.</p> <p>CNSC staff changed the guidance for section 4. It now reads: “For notifications to the CNSC, the licensee may choose to notify using either an electronic form or other appropriate means”.</p>
44	Bruce Power, OPG, NB Power	4.1	<p>Industry has a major privacy concern with clause 8, which requires “identification of persons by their full legal names and position titles affected by the situation or event, including: a. any exposure of a person to radiation”</p>	<p>In clause 3 of section 2 of the REGDOC, it states: “3. the licensee shall mark all reports made or filed under this regulatory document with an appropriate protection and classification and shall file reports under the appropriate security precautions”, which is intended to be used by licensees and the CNSC to protect the privacy of information.</p> <p>CNSC staff changed the text in item 8 to “identification of persons affected by the situation or event, including:” and adding the following to guidance:</p>

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			Remove the "full legal name" requirement to protect the privacy of workers having their identities published in a publicly-available report. Otherwise, most reports would need to be treated as confidential. It is inappropriate to release a worker's identify in a public document for being exposed to radiation through the course of their work.	"For the purposes of identifying persons in item 8, the licensee may provide the individual's full legal name and position title or a unique identifier, such as an employee number or a dose information system number (DISN)."
45	Bruce Power, OPG, NB Power	4.1	<p>In addition to the major concern above, industry seeks the following clarifications regarding the contents of preliminary event reports and notifications:</p> <p>a) As per sub-bullet 7c, stating causal analysis methods is not necessary for initial communications via a preliminary report and will only cause confusion since the public will not appreciate the nuances of different investigative methods. It's not significant for low-level investigations.</p> <p>b) Does sub-bullet 7f change what licensees report? Will it expand? How do licensees know the scope of SSCs important to safety?</p> <p>c) What is meant by "exposure" in sub-bullet 8a?</p> <p>d) Though only Guidance, industry has concern with the suggestion that "date" refers to the date when management becomes aware of the occurrence of an event. If followed, this could pressure licensees to make premature reporting decisions before all of the information is known.</p> <p>For added clarity, CNSC staff is urged to:</p> <p>a) Remove 7c.</p> <p>b) Clarify if sub-bullet 7f will change what licensees report.</p> <p>c) Provide more context as to what is meant by "exposure" in 8a.</p> <p>d) Remove this guidance or further clarify what is meant by "date" and when the "time clock" starts. From SCR/PICA initiation? From licensee management determination?</p>	<p>a) CNSC staff intend for licensees to apply methods of investigation only as far as applicable, as noted in the section preamble.</p> <p>b) As indicated in section 2, item 6, licensees are responsible for defining the list of SSCs important to safety. Refer to comment number 10 in this table for more information on SSCs important to safety.</p> <p>c) This text is unchanged from the previous version of this REGDOC. Exposure is as it is defined in the CNSC Glossary.</p> <p>d) See the response for number 8 for "becoming aware". The information in the preliminary event report is requested to the degree practicable and applicable. Further, if, upon investigation, a licensee determines an event previously reported was not actually reportable, they can make use of the retraction process.</p>
46	Bruce Power, OPG, NB Power	4.2	<p>Industry has significant concerns with the proposed new requirements in clauses 4-14, which are quite intrusive and often redundant. CNSC staff is urged to include this as an agenda item for a pre-publication workshop. Discussions with industry are needed to reconsider public posting requirements for detailed event reports and find the proper balance between encouraging thorough investigations and posting information for public awareness.</p> <p>For example:</p> <p>a) Clause 6 requires "a description of the role of contractor companies and their subcontractors in the event and event analysis, if applicable." This is too intrusive and infringes on the privacy of contractors and their reputations since event reports are to be publicly posted. CNSC staff can inquire about this outside of the formal reporting requirements should it be felt relevant.</p> <p>b) Clause 14 regarding dose calculations is overly intrusive, overlaps with DSL reporting and requires additional discussion with industry.</p> <p>Remove the new requirements in clauses 4-14 and retain the existing, effective wording in <i>REGDOC-3.1.1</i> to avoid confusion.</p> <p>If CNSC staff members wish to have additional levels of detail, they can rightfully request the actual investigation or attend associated meetings.</p> <p>While industry recognizes and shares the CNSC's desire to share relevant, contextual information with the public, the draft requirements for detailed event reporting may cause confusion, concerns over privacy rights and unnecessary administrative churn.</p> <p>For example, facilities are licensed to perform dose calculations and the CNSC approves the methodologies used. The level of detail being requested for dose assignments would be quite cumbersome to prepare, compile and submit. It also insinuates that CNSC staff does not trust licensees to follow their own program requirements for dose assessments and assignment.</p>	<p>The CNSC does not automatically publish all information submitted in an event report. The CNSC has a duty to protect the privacy of individuals and companies, as appropriate. Information submitted to the CNSC may be released through an access to information request. There are exclusions in <i>Access to Information Act</i> for certain types of information. Information meeting this exclusions would not be released. If a contractor or sub-contractor is involved, the CNSC would contact them to determine what, if any information falls under an exclusion, prior to releasing the requested information.</p> <p>As indicated in section 2 of the document, licensees are responsible for marking the reports with the appropriate protection and classification.</p> <p>Dose calculation information is standard information asked after an event in order for staff to verify the calculations. As the commenter noted, detailed event reports are only required for significant events. It should be noted that some, but not all dosimetry analysis performed, are licensed by the dosimetry licence (ex. Alpha) and this will provide the necessary information for staff to assess a response.</p>
47	Bruce Power, OPG, NB Power	4.2	<p>The Guidance for item 9 inappropriately says the "root cause analysis ... should be submitted to the CNSC." Remove this guidance.</p> <p>Root cause analyses - indeed, any internal reports - may be written in a manner that is not consistent with a submission to the CNSC. Setting an expectation to submit the root cause analysis may have a chilling effect on the self-critical nature of the report and a negative impact on nuclear safety. Although industry acknowledges the expectation is guidance, licensees fundamentally disagree with the expectation to routinely provide this type of internal report to the CNSC. Summaries of the report can, and are, provided to the CNSC. The CNSC is welcome to request root cause analyses, if oversight warrants further follow-up, since the CNSC has the statutory authority to inspect any document at any time. As such, the proposed requirement has no added benefit to nuclear safety.</p>	<p>If a licensee performs a root cause analysis in response to an event that is categorized as significant, the CNSC should to receive a copy of the analysis. If the root cause analysis contains sensitive information in tone or content, the licensee should submit it with the proper classification, and the CNSC will treat the information accordingly.</p> <p>CNSC staff added guidance to this effect: "In item 4a, the licensee should include the methods of cause analysis, such as but not limited to root cause, common cause, apparent cause, troubleshooting and event cause. The root cause analysis, if performed, should be submitted to the CNSC."</p>
48	Bruce Power, OPG, NB Power	4.3	<p>It's unclear what format the CNSC would like for supplemental information or how much this option would be used. Clarify the format (email/formal letter) in which supplemental information should be submitted.</p>	<p>The requirement for supplemental information has been removed.</p>

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49	Bruce Power, OPG, NB Power	4.4	<p>The ability to withdraw an event report is a welcome change, though licensees expect to use it rarely. However, why should an event report related to an actual or potential dose exceedance not be subject to the withdrawal process? The CNSC encourages early reporting via <i>REGDOC-3.1.1</i>. In such cases, it seems plausible that some potential dose exceedances could be reported only to have subsequent information/dosimetry results reveal the report was not warranted. Licensees should have the option to withdraw any type of event report. Also, this draft says the retraction needs to be approved by the CNSC. That means if licensees conservatively report (because of compressed timelines), they may not be able to retract even if they find an event actually wasn't reportable.</p> <p>Consider this item for discussion at an industry workshop prior to publication of <i>REGDOC-3.1.1, version 3</i>. Remove the exemption related to actual or potential dose exceedances. Also, clarify the format (email/formal letter) in which a retraction request should be submitted and reconsider the retraction approval process.</p>	<p>CNSC staff accept the comment. CNSC staff removed the reference to reporting provision 20b from section 4.4. If a licensee, after investigation, believes that an event they reported was not actually reportable, licensees are encouraged to submit a request for a retraction.</p>
50	Bruce Power, OPG, NB Power	App. A	<p>Version 3 continues the practice of quoting from the regulations and providing specific reporting provisions.</p> <p>This can cause significant confusion for two reasons: (1) Does the text from the regulation apply or does the specific reporting provision apply? In other words, are the specific reporting provisions in addition to the quoted text, or in lieu of them? (2) The numbering is not consistent, which causes confusion among staff unfamiliar with <i>REGDOC-3.1.1</i> or the <i>NCSA</i>. (Please note that <i>REGDOC-3.1.1</i> is used routinely by hundreds of staff at each licensee to evaluate reportability of station condition records; these staff are not necessarily accustomed to, or trained on, the regulatory framework in Canada.)</p> <p>As an example, consider A.1: The text quotes from <i>NCSA</i>, Section 27, then provides specific reporting provisions. The numbering is clearly inconsistent, which makes it harder to use <i>REGDOC-3.1.1</i>, or to describe to users where to find the information they need. The reporting requirements are also confusing: is it necessary to report contraventions of the Act? Please note the Act is quoted, and then specific reporting provisions are provided. The reader may reasonably conclude that programmatic failures should be reported, as well as contraventions of the licence, but the reader may not realize that contraventions of the Act are reportable. This is very error-likely. While Regulatory Affairs staff fully understands that contraventions of the Act are reportable, please consider that untrained users must and do use <i>REGDOC-3.1.1</i> on a daily basis. Remove the quoted text from the regulations from each clause of Appendix A. For clarity, cite only the relevant reporting provisions; these may be specific reporting provisions, or in some cases, the requirements of the regulations would be restated.</p> <p>If it is necessary to include references to the regulations—as the basis for the reporting requirements— move these references (quoted text, or simply references) to guidance.</p> <p>As an example, A.1 could be shortened and clarified to read, “The licensee shall report on the following situations or events: contraventions of the <i>NCSA</i>, programmatic failure of a program referenced in the licence, contravention of the licence.”</p> <p>Additional information could be provided in guidance. If desired, references to the <i>NCSA</i> could be included in the guidance. This is much clearer and will help reduce the potential for error. Similar changes should be made throughout Appendix A. The challenge in interpreting Appendix A is one of the largest frustrations with <i>REGDOC-3.1.1</i>, and one which has the most significance.</p> <p>Licensees are committed to providing timely and accurate event reports. While many event reports are clearly reportable, not all are. There is an opportunity for the CNSC to make an editorial change that will improve the process for compliance. <i>REGDOC-3.1.1</i> has a very large number of users, many of whom are not trained on the <i>NCSA</i>. Additional effort to simplify and clarify <i>REGDOC-3.1.1</i> will help the CNSC and the licensees meet their obligations towards nuclear safety.</p>	<p>CNSC staff made changes to Appendix A to address the concerns raised in this comment and to improve clarity. CNSC staff note that Appendix A contains both cited regulatory provisions as well as specific reporting provisions that have been developed separate from the regulations to ensure the safe operation of reactor facilities, and that all impacted workers should be adequately trained to understand this content.</p> <p>These changes include:</p> <ul style="list-style-type: none"> • simplifying the introductory text to the Appendix, removing any information that may have contradicted similar information found in the body of the document • creating a new category of reporting requirements for administrative notifications; this is a change in how the requirements are grouped • for any provision requiring an event report, indicating if a preliminary report is needed (and the timeframe for reporting), and if a detailed report is needed or not (and the timeframe for reporting) • for certain reporting provisions, contextual regulatory text is presented as an introduction for the reporting provision
51	Bruce Power, OPG, NB Power	App. A	<p>While industry appreciates the proposal to allow reports to be provided (usually) within 14 days (previously 5 business days), there may be challenges with implementing the proposed change as it relates to calendar days.</p> <p>CNSC staff has proposed that time periods specified for reporting are calendar days (previously, it was based on business days), based on the Interpretations Act. Industry understands the effect of this change is that: (a) reports may be due on weekends but not on federal holidays (b) the “clock” does not stop for holidays.</p>	<p>See response to comment 8 regarding “becoming aware”.</p> <p>Given the regulatory basis for the shift in language to “becoming aware”, the CNSC wanted to provide licensees with more time to report on lower significance events. Rather than offering 5 business days (the equivalent of 7 calendar days), the reporting timeframe was extended to 10 business days (or 14 calendar days) to provide a larger window of time to collect information for the preliminary event report. Calendar days were chosen to align with the federal <i>Interpretation Act</i>, given that business days can vary provincially. Licensees are not obligated to report on the day of the deadline – they can either submit their PER on the last business day that occurs before the deadline or speak to their CNSC designated contact to request an extension.</p>

Detailed Comments Table, Draft REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants, Version 3

	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>While nuclear facilities are indeed 24/7 operations, administrative support is typically provided during normal business hours five days/week.</p> <p>Also, why do clauses 16 and 17 have 7-day requirements when almost every other clause has 14-day requirements? Retain the previous expectation that event reports should be submitted 5 business days after the oral report.</p> <p>Explain why clauses 16 and 17 have 7-day requirements when almost every other clause has 14-day requirements? The proposed change may reduce the time available to prepare preliminary reports. Imposing an artificial urgency on administrative tasks may have a slightly negative impact on nuclear safety if staff focus on meeting deadlines rather than work that is more important to safety. For reports due within 14 days or 60 days, the difference between v2 and v3 of <i>REGDOC-3.1.1</i> is not particularly significant. However, preliminary reports are due 7 days following oral reports. If an oral report is made on a Sunday, the preliminary report would be due on the following Sunday. All administrative tasks would need to be complete by end of day Friday—at most 5 days after the event. If that Friday were a holiday, the time available to perform the administrative tasks would be reduced even further.</p>	<p>The reporting time frame for A.16b was clarified to say: “7 days prior to the outage”.</p> <p>Based on this comment, CNSC staff changed the reporting time frames for reporting requirement A.17. Preliminary event reports for higher significance events are to be made immediately and within 14 days for lower significance events. Detailed event reports are only required for higher significance events and are to be submitted within 60 days.</p>
52	Bruce Power, OPG, NB Power	App. A	<p>It is not clear to licensees why notifications are part of the event reporting requirements (i.e., Appendix A). The following notifications do not relate to unexpected situations:</p> <ul style="list-style-type: none"> • A.3 (authorized delegates/responsible persons) • A.9 (notification of intent to dispose of a record) • A.16 (notification of a planned maintenance outage) <p>The information provided does not align with the expectations for event reports; these are very clearly different in nature from event reports. Remove these items from <i>REGDOC-3.1.1</i>.</p> <p>Alternatively, they could be moved to a new appendix for notifications, allowing Appendix A to focus on events/situations. This would improve clarity and usefulness of <i>REGDOC-3.1.1</i>.</p> <p>Removing A.3 and A.9 from <i>REGDOC-3.1.1</i> would have no impact on industry or the CNSC (as the requirements are derived from the regulations, notification would still be provided), but would help shorten, simplify, and clarify <i>REGDOC-3.1.1</i>.</p> <p>Removing A.16 would reduce administrative burden on the industry. Preparation of the information for this notification does not appear to have a positive impact on nuclear safety. CNSC site staff already participates in outage planning meetings and have access to very detailed information on scope. Should the CNSC wish to retain this information in <i>REGDOC-3.1.1</i>, industry requests staff explain the benefit to its oversight function. The information provided is already available to the CNSC: (a) commitments are made in formal correspondence, (b) PIP plans are approved by the CNSC, and CNSC site staff has access to more detailed outage scope documents, and (c) the notifications do not address unplanned outages.</p>	<p>REGDOC 3.1.1 is for all reporting to the CNSC. It includes notifications required in regulations. To address the issue of notifications such as those identified in this comment, CNSC staff created a category for administrative notifications. This category is used in Appendix A. A section 4.3 was added to clarify the information required for an administrative notification to the CNSC.</p>
53	Bruce Power, OPG, NB Power	App A	<p>Industry seeks clarification on:</p> <ol style="list-style-type: none"> a) The 2nd bullet, which calls for “immediate reporting for dangerous occurrences,” though not all immediate reports are dangerous. b) What is meant by “lower significance situations”? <p>CNSC staff is urged to:</p> <ol style="list-style-type: none"> a) Consider expanding the definitions to include “potentially dangerous” or “near misses.” b) Clarify what it sees as “lower significance situations.” 	<p>CNSC staff shortened the introductory text for Appendix A to remove duplication and inconsistencies within the document. The changes made removed the text referred to in this comment. Reporting of dangerous occurrences is addressed in item A.32 of Appendix A. Section 2, item 5 deals with determining the safety significance of an event for the purposes of reporting.</p>
54	Bruce Power, OPG, NB Power	A.1	<p>Industry seeks additional clarity for the following in A.1:</p> <ol style="list-style-type: none"> a) The 1st bullet under examples of non-compliance that are programmatic, which says, “an item of non-compliance with a control measure ...” Programmatic breakdowns imply multiple incidences. b) Regarding the references on pages 23-26: A.4 should be B.4 and a number of subsequent revisions are required. Note – a number of titles or references to regulations/acts are also missing. This could impact future trending and consistency in clause use. <p>For clarity:</p> <ol style="list-style-type: none"> a) Remove the 1st bullet or use a better example. b) Review numbering, titles and references for accuracy and consistency. 	<ol style="list-style-type: none"> a) The items listed in the guidance section are examples only. CNSC staff expect that licensees will comply with their licensing basis which includes the programs cited in their licence and the control measures provided in the licensee’s application for the licensed activities. It is the responsibility of the licensee to determine if a programmatic failure has occurred in relation to an activity that was authorized by the NSCA. b) CNSC staff reviewed the referencing within the document and made corrections as required.

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	Reviewer	Section or para	Reviewer's comment	CNSC response
55	Bruce Power, OPG, NB Power	A.4	<p>Additional clarity is sought for guidance under 4a. As written, the guidance is contradictory when it says, "This reporting is in response to an unexpected occurrence that creates a hazard to the safe operation of the NPP" and "Reportable situations include... false alarms that activate the site nuclear emergency plan." False alarms do not necessarily create a hazard to the safe operation of the NPP. Additionally, "An event is not reportable if ... no mitigating actions were required."</p> <p>Also:</p> <p>a) The 2nd bullet is unclear when it says, "- use of abnormal or emergency operating procedures by meeting the entry conditions, including evacuation of an area." Under RPP-00047, there are abnormal conditions which require evacuation, i.e. tritium levels widespread, that are classified as alert or incident. Does this draft now require reporting of radiological incidents or alerts?</p> <p>b) The 3rd bullet is unclear when it says, "sounding the emergency alarm, mobilizing the site emergency response team (ERT) or offsite emergency responders" False alarms should not be included.</p> <p>c) Under "A fire is reportable if:" should there be "or" after each line as it was in the Interpretation Document?</p> <p>d) Under "An earthquake is reportable if:" The 1st bullet "it was felt at the site" is too ambiguous even for guidance.</p> <p>e) The guidance indicates that every time the ERT is mobilized, <i>REGDOC-3.1.1</i> reporting is required. This would result in reports for minor spill events that do not reach the natural environment or have spill exemption criteria in regulations. Clarify the guidance to decrease the potential for errors. Specifically, staff is asked to:</p> <p>a) Clarify if this draft requires reporting of radiological incidents or alerts.</p> <p>b) Clarify that false alarms are not included.</p> <p>c) Clarify if the use of "or" from the Interpretation Document can be reintroduced.</p> <p>d) Remove the bullet "it was felt at the site" under earthquake reporting.</p> <p>e) Amend the Guidance to read, "An event is not reportable if: An alarm was sounded, the emergency response team responded, but no <u>significant</u> mitigating actions were required <u>[e.g., minor releases that do not reach the natural environment or are exempt from MECP reporting]."</u></p>	<p>a) The intent is for radiological incidents and alerts to be reported under reporting provision A.4. Licensees are expected to report any unexpected occurrence that creates a hazard including radiological incidents and alerts. An additional bullet point was added to the guidance to clarify this point. The revised text reads, "multiple false alarms that indicate a declining trend of an SSC important to safety's fitness for service".</p> <p>b) CNSC staff revised the text of the guidance bullet to improve clarity. The new text reads: "sounding the emergency alarm, mobilizing the site emergency response team (ERT) or offsite emergency responders, unless no mitigating actions were required".</p> <p>Given the change indicated above, the 1st bullet under "An event is not reportable if:" was removed.</p> <p>c) No change was made to the text. This structure is consistent with the rest of the bullet lists in the Appendix. If it were a case where all conditions needed to be met, it would be stated as such. As written, if any of the situations apply, the fire is reportable.</p> <p>d) CNSC staff amended the text to improve clarity. The revised guidance text reads: "It was felt or registered at the site".</p> <p>e) See item b) above, the bullet in question was removed from the text.</p>
56	Bruce Power, OPG, NB Power	A.5	<p>The guidance for A.5 is not clear when it says, "... occurring within the boundary of the nuclear facility even if unrelated to the operation of the NPP." Does this refer to the site boundary or the facility boundary? Clarify what is meant by the boundary of the nuclear facility.</p>	<p>CNSC staff accept the comment and amended the text in A.5 to read: "Any death within the exclusion zone or the outer facility site boundary (whichever is larger), regardless of cause, or any death resulting from an injury or illness, regardless of time intervening between injury or illness and death, will be reported. This applies even if the death is unrelated to the operation of the NPP."</p>
57	Bruce Power, OPG, NB Power	A.6	<p>Industry understands the requirement for A.6 applies to workers certified to operate the nuclear power plant and not necessarily to AHPs or Class II RSOs. However, it not explicit in this draft, there is the potential for confusion since AHPs are not shift workers. Class II RSOs may or may not be certified with respect to a facility inside or outside the nuclear power plant, which may or may not be authorized by a licence separate from the PROL. Confirm industry's understanding of this clause and provide the following guidance: "<u>The requirement applies only to individuals certified to operate the NPP and not to Authorized Health Physicists or class II Radiation Safety Officers.</u>" Or, if the CNSC intends this requirement to apply to AHPs or class II RSOs, add guidance to read: "<u>The requirement applies to all certified personnel, including Authorized Health Physicists and/or class II Radiation Safety Officers.</u>"</p>	<p>Reporting requirement A.6 applies to all certified personnel. This is not new text for this revision. No change was made to the document in response to this comment.</p>
58	Bruce Power, OPG, NB Power	A.8	<p>As per <i>GNSCR</i>, Section 31(2), subsection (1) does not apply for power reactor operators (the PROL requires reporting pursuant to <i>REGDOC-3.1.1</i>). Since 31(1) does not apply, is it required to report any action that the licensee has taken or proposes to take? Remove the text quoted from the regulations in A.8 and all other clauses. Retain only specific reporting provisions and the minimum text needed to clearly specify the reporting requirement.</p>	<p>CNSC staff agree that the structure of item A.8 may lead to confusion. To clarify the intent, the specific reporting provision was removed from A.8. The regulatory text was kept.</p>
59	Bruce Power, OPG, NB Power	A.9	<p>Why does A.9, clause 9, include requirements under the <i>NCSA</i> that are not reporting requirements? (<i>GNSCR</i> Section 28(2)(a) and Section 28(3)). Is it intended that <i>GNSCR</i>, Section 28(3), is included in the scope of this item? Remove the text quoted from the regulations in A.9 and all other clauses. Retain only specific reporting provisions, and the minimum text needed to clearly specify the reporting requirement.</p>	<p>The text from <i>GNSCR</i> 28(2)(a) is there to provide context for what <i>GNSCR</i> 28(2)(b) and 28(3) are referring to. As per the regulations, licensees must notify the Commission in advance of disposing of specific records. As a result, CNSC staff have not modified the text.</p> <p>To address the issue of notifications such as those identified in this comment, CNSC staff created a category for administrative notifications. This category is used in Appendix A. A section 4.3 was added to clarify the information required for an administrative notification to the CNSC.</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
60	Bruce Power, OPG, NB Power	A.16	<p>The guidance for A.16 (b) says notification of changes to planned outage scope should include additions to scope resulting from planned inspections. Previously, some licensees have interpreted the NORU requirements to apply only in advance of a planned outage; changes to outage scope during the outage were not reported to the CNSC. However, the CNSC has now imposed an expectation to report on changes to outage scope during the outage. This is going to greatly increase the volume of reporting with no benefit to nuclear safety. Any inspection in a planned outage could result in changes to scope, whether additions or removals. Those changes are to be dispositioned as per the OCAS. What benefit does the CNSC gain from receiving reports of all changes to scope during an outage? Additionally, CSA requirements result in inspection reports being sent to the CNSC following the outage. The guidance in <i>REGDOC-3.1.1</i> is therefore even more stringent than the expectations of CSA standards that define the requirements for inspections. Remove the guidance for (b), which reads, "This notification should include additions to outage scope, such as component repairs or replacement resulting from conducting a planned inspection during the outage." This will add significantly to licensee's reporting burden with no benefit to nuclear safety.</p>	<p>CNSC staff see value in collecting information on deviations from the planned outage. The guidance text associated with A.16(b) is better suited to A.16(c); additional work done during the outage should be reported in the outage of completion assurance statement. CNSC staff removed the guidance text from A.16(b), and revised the guidance for A.16(c). The revised guidance reads: "This notification should include additions to outage scope, such as component repairs or replacement. Regulatory undertakings that are not completed during the outage should be identified in the OCAS."</p>
61	Bruce Power, OPG, NB Power	A.18	<p>The proposed text for A.18 fails to discuss reporting requirements for alpha uptakes, which is a significant, missed opportunity to add much-needed clarity and address an ongoing, major issue for licensees.</p> <p>Currently, the interpretations document says reporting is required for "potential unplanned intake of alpha contamination by a worker as a result of licensed activities prompting a preliminary intake dose assessment." This threshold is inappropriate. As such, we request CNSC staff to explain whether it intends reporting of alpha uptakes to continue under <i>REGDOC-3.1.1 v3</i> despite the lack of any mention in the document.</p> <p>Licensees request undefined reporting requirements be removed from <i>REGDOC-3.1.1</i>. If the CNSC intends to retain the requirement to report alpha uptakes, industry request a workshop before publication of version 3 so CNSC staff can:</p> <p>(a) Explicitly define the intent to report alpha uptakes as a specific reporting provision. (b) Define a reporting threshold that is consistent between licensees. (c) Define a reporting threshold that is commensurate with the safety significance of any such uptake.</p> <p>During this workshop, industry would propose the CNSC use the same 10 mrem threshold for alpha events as used for other internal uptakes. CNSC staff would continue to have visibility on all alpha events through the enhanced quarterly reporting.</p> <p>Clause 18 is one of the most concerning for the industry. Its reporting threshold is too low to justify. It is not commensurate with the safety significance, which results in "nuisance" reporting that unnecessarily adds to the administrative burden for licensees and, industry assumes, the CNSC. The requirement to report has the potential to negatively impact public perception of licensee performance and worker perception of safety issues.</p> <p>To be clear: currently, reporting of alpha uptakes is required even when the uptake: (a) Is within the statutory dose limits that are defined by the CNSC (b) Does not reflect any safety issues or failure to apply the radiation protection program. (c) Is so low that no dose assignment can be performed (d) So low that it could not be detected by other licensees with less sensitive monitoring equipment.</p> <p>Industry does not believe this level of reporting is justified under the mandate of the CNSC and request relief from unnecessary reporting. While licensees are fully committed to meeting the requirements of <i>REGDOC-3.1.1</i> and respect the CNSC's oversight needs, they must also balance the effort required to produce reports and the potential, unintended negative consequences of unnecessary reporting. Members of the public may assume safety issues exist if reports are required. If reporting thresholds are set unnecessarily low, this may harm a licensee's reputation and relationship with stakeholders.</p>	<p>Alpha uptakes are to be captured in SPI 3 and the annual radiation protection report.</p>
62	Bruce Power, OPG, NB Power	A.18	<p>Clarification is sought for: (a) The 1st bullet, which reads, "any matter or item of regulatory interest that the CNSC has previously or currently expressed interest in and/or concern." It's unclear how licensees are to know which items the CNSC previously had interest and/or concern. (b) As per previous comments, positive PAS samples have been reported through this section as unscheduled reports in the past. Has this now moved to scheduled reporting? (c) The 4th bullet, which read, "negative trends or non-conservative behaviours." This is not defined or clarified. Given the large volume of condition records captured by licensee corrective action programs, this could result in a large volume of reporting if taken literally.</p>	<p>a) The text for the specific reporting provision A.18 remains unchanged. This provision is intended to be broad as part of its intended use is to provide licensees a place to report events and situations that are not covered elsewhere. b) Alpha radiation exposures are reported through quarterly SPI reports and the Annual Report for Radiation Protection. c) CNSC staff agree the term is not clear. The bullet point referring to negative trends and non-conservative behaviour has been removed from guidance. d) The licensee may submit copies of reports by email or regular mail. No change was made to the text as a result of this comment.</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>(d) The 1st sentence under Guidance reads, "The licensee may submit copies of the report(s) or notification(s) prepared for other governing regulatory bodies to the CNSC as a preliminary event report." Can licensees still provide this by email as is current practice? CNSC staff is urged to:</p> <p>(a) Explain what it means by "any matter or item of regulatory interest that the CNSC has previously or currently expressed interest in and/or concern." This is quite broad, all-encompassing, and should be narrowed.</p> <p>(b) Confirm if PAS samples are to be treated as scheduled or unscheduled reporting.</p> <p>(c) Explain the desired intent with respect to reporting negative trends and non-conservative behaviours.</p> <p>(d) Confirm that licensees may still use email to "submit copies of the report(s) or notification(s) prepared for other governing regulatory bodies to the CNSC as a preliminary event report."</p>	
63	Bruce Power, OPG, NB Power	A.19	<p>This clause has caused confusion between licensees and the CNSC in the past. Industry appreciates the guidance being updated (i.e. the current interpretations document refers to "malice and forethought" while this draft avoids the term "malice" and clarifies that reporting is not required for an "unintentional mistake or ignorance"). This is a clear improvement.</p> <p>However:</p> <p>(a) The guidance provides a circular definition: "misuse refers to intentional misuse." Also, the guidance is not entirely clear regarding mistaken actions. In some cases, reportability may be in doubt. For example, if a user intentionally uses the device in an inappropriate way, but is ignorant of the expectations for use or the consequences, reporting appears to be required as well as not required. Licensees don't believe it's appropriate to define or redefine "misuse" (because the term is used in legislation). Instead, industry suggests an approach that focuses on what reports are required rather than how a word is defined. (Please see suggested change).</p> <p>(b) The 2nd sentence under guidance says, "Violations to the alcohol or drug-related fitness for duty policy, including the use, sale, distribution, possession or presence of illegal drugs, or the consumption or presence of alcohol or cannabis at a high-security site, should be reported under this reporting provision" Possession or presence of alcohol/cannabis are not regulations and this could lead to a significant administrative burden of banned substances being detected and reporting during routine searches. These are station/site requirements, not regulatory.</p> <p>(c) The 3rd sentence under guidance says, "The discovery of a degradation or vulnerability that may permit undetected drug or alcohol use or abuse by workers, such as but not limited to quality assurance or testing errors, should be reported under this reporting provision." The same statement was used an example for reporting under A.1 bullet 1a). For clarity, CNSC staff is urged to avoid redefining the term "misuse" and amend:</p> <p>(a) The opening line under Guidance to read, "Reporting is not required if the alteration or misuse has no potential to impact the protection of the environment or the health or safety of persons. Additionally, reporting is not required if the alteration or misuse was unintentional (i.e., due to mistake or ignorance). The term "misuse" refers to intentional misuse and would include tampering and using something in an unsuitable or unintended way, but would not include an unintentional mistake or ignorance."</p> <p>(b) Remove this from Preliminary Reporting.</p> <p>(c) Remove the statement from A.1 bullet 1a).</p>	<p>a) CNSC staff have changed the wording in the guidance to improve clarity on the term 'misuse'. The revised text reads: "The term "misuse" refers to intentional tampering and using something in an unsuitable or unintended way."</p> <p>b) CNSC staff believe the items listed in the second paragraph are of regulatory interest and should be reported to the CNSC. No change was made to the text as a result of the comment.</p> <p>c) In response to this comment, CNSC staff changed the guidance text in A.19. The new text reads: "Any intentional act that could jeopardize the integrity of alcohol and drug testing results, or may permit undetected drug or alcohol use or abuse by workers should be reported under this reporting provision." No change was made to the text in A.1.</p>
64	Bruce Power, OPG, NB Power	A.20	<p>Industry seeks additional clarity on the following:</p> <ul style="list-style-type: none"> • Clause 20b, which says, "Radiation Protection Regulations (RPR): 15 (1) The effective dose limits and equivalent dose limits prescribed in sections 13 and 14 do not apply to a person participating in the control of an emergency." This is an example of something quoted in the regulations that does not appear to have any relation to reportability. What would industry report? • In Clause 20c "Specific reporting provisions," the word "events" has been replaced by "situations or events." What is the difference between a situation and an event? <p>Clarify what licensees would report under Clause 20b and what the difference is between a "situation" and an "event" as per 20c.</p>	<p>For 20b: CNSC staff agree with the comment. The text from <i>Radiation Protection Regulations</i> 15 (1) has been removed from this item.</p> <p>For 20c: The change to the text in this revision of the regulatory document was made for consistency and clarity within the document. There is no intent to increase the reporting requirements for this item.</p>
65	Bruce Power, OPG, NB Power	A.22	<p>Industry seeks clarity for:</p> <p>(a) The 1st sentence under guidance, which reads, "For item b), a failure to collect an individual sample where justified..." it is not clear what is meant by "where justified."</p> <p>(b) The Note that reads, "spills... not exceeding regulatory limits should be reported in the quarterly safety performance indicators... SPI-6, Spills." SPI-6, Spills, template includes only Category A, B, and C reportable spills and spills that have a regulatory exemption from reporting are not included in the template. Reporting spills to the CNSC that are not reportable to the MECP causes confusion and unnecessary administrative burden.</p>	<p>a) CNSC staff accept the comment that the guidance for item b is ambiguous. To improve clarity, CNSC staff removed "where justified" from the sentence. The revised text reads: "For item b, a failure to collect an individual sample is not considered failure to monitor."</p> <p>b) Spills meeting the criteria of a category A, B or C level spill need to be reported in SPI-6, Spills, even if they were not reported as an event under reporting provision A.22, because they were below the threshold for an event report. CNSC staff have revised the note to improve the clarity. The revised text reads: "Note: Spills and release estimates for events not exceeding regulatory limits should be reported in the quarterly safety performance indicators, SPI-5, Environmental Releases - Radiological and SPI-6, Spills following the categorization indicated in those SPIs (see Appendix B)."</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>CNSC staff is urged to:</p> <p>(a) Add a note to the guidance that reads, "Note: Justification does not include human performance errors causing a missed sample."</p> <p>(b) Align guidance and SPI-6, Spills and amend the Note to read, "Note: Spills and release estimates for events not exceeding regulatory limits should be reported in the quarterly safety performance indicators, SPI-5, Environmental Releases- Radiological and SPI-6, Spills (see Appendix B)."</p>	
66	Bruce Power, OPG, NB Power	A.24	<p>Clarity is sought for item 18.(3), which reads, "Where a licensee, in the course of conducting a leak test on a sealed source or on shielding, detects the leakage of 200 Bq or more of a nuclear substance, the licensee shall (d) immediately after complying with paragraphs (a) to (c), notify the Commission that the leakage has been detected."</p> <p>This section should specify this is only when leak testing is required by NSRD regulation or license.</p>	<p>The text cites 18(3) of the <i>Nuclear Substance and Radiation Device Regulations</i> for leak testing, which applies to licensees with activities regulated under these regulations. No change to the text was made.</p>
67	Bruce Power, OPG, NB Power	A.25	<p>According to this section, there are many more detailed requirements for reporting than in the current REGDOC. Are these new requirements or just items already required and added from the NSRD regulations?</p> <p>Please confirm if these are new requirements or items that already required and added from the NSRD regulations.</p>	<p>The requirements for sealed source tracking were housed in the licence conditions handbooks (LCH) for licensees as a placeholder until the next revision of the REGDOC-3.1.1. Once this version of the regulatory document is published, the LCHs will be revised to remove that licence condition as it will now be in the REGDOC-3.1.1.</p>
68	Bruce Power, OPG, NB Power	A.26	<p>What reporting is required if the situation or event is of low significance? Is it still required to be reported immediately?</p> <p>Clarify the reporting requirements for low significance events.</p>	<p>All incidents of theft or loss of a nuclear substance, prescribed equipment or prescribed information must be reported immediately. CNSC staff revised the table to remove reference to "higher significance" for A.26.</p>
69	Bruce Power, OPG, NB Power	A.27	<p>Industry has questions and concerns regarding the following:</p> <p>a) What criteria need to be met to be considered an attempted breach?</p> <p>b) The requirement under item b, sub-bullet vi requires reports on "the application of any use of force." There remains a difference of opinion between some licensees and CNSC staff on what constitutes a "use of force" application. Without additional clarity and agreement on the term, there will be discrepancy and disagreement on what is to be reported.</p> <p>c) The phrase under guidance which says, "Licensees should assume threats are credible until law enforcement determines otherwise" is not reasonable or necessary. Licensees have the capability to determine credibility. This guidance has the potential to increase spurious reporting/unnecessary engagement with local law enforcement.</p> <p>d) Under subsection 29, Specific reporting provisions, sub-bullet (a) should be updated to simply say CEAs.</p> <p>CNSC staff is urged to:</p> <p>(a) Clarify what criteria need to be met to be considered an attempted breach?</p> <p>(b) Remove sub-bullet vi until agreement is reached between licensees and the CNSC what constitutes a "use of force" application.</p> <p>(c) Remove the 1st sentence of the 2nd paragraph under guidance, "Licensees should assume threats are credible until law enforcement determines otherwise."</p> <p>(d) Amend sub-bullet (a) at the top of page 57 to read, "any attempted or actual cyber-attack <u>against Cyber Essential Assets</u> computer-based systems and/or subsystems that adversely impacts or potentially impacts the safety, security, emergency preparedness or safeguard functions."</p>	<p>a) No change was made to the text. 'Attempted breach' is a term understood by those working in the security field and no definition is necessary. An attempted breach is when an unauthorized individual attempts to or actually gains access or attempts to circumvent any security related equipment</p> <p>b) CNSC staff added guidance text to clarify what constitutes use of force. NPP security forces are trained on use of force continuum. The following guidance text was added: "The application of use of force is reportable if an officer uses force greater than physical presence or communication on the Ontario Use of Force Model (2004), the RCMP's Incident Management/Intervention Model (IMIM), or equivalent".</p> <p>c) The intent is to have licensees immediately report all threats, and then work with the law enforcement to determine threat credibility. If, upon investigation, it is determined that a threat is not credible, the licensee can use the retraction process outlined in the regulatory document. No change was made to the text.</p> <p>d) CNSC staff changed the text of the specific reporting provision A.27 a) in response to this comment. The revised text reads: "an attempted or actual cyber-attack that adversely impacts or potentially impacts Cyber Essential Assets (CEAs). Cyber-attack and CEA are defined in CSA N290.7."</p>
70	Bruce Power, OPG, NB Power	A.28	<p>The two bullets under specific reporting provisions for the Annual Report for Threat and Risk Assessment are not appropriate for this document.</p> <p>Remove the two bullets under specific reporting conditions:</p> <p>• "the licensee, upon their assessment that is conducted every 12 months, shall provide a summary to the CNSC of the information collected and analyzed from the previous year's assessment, and provide information about changes to the facility and surrounding community that influenced the threat and risk assessment"</p> <p>• every 5 years, the licensee shall provide to the Commission a copy of the written record together with a statement of actions taken as a result of the threat and risk assessment, within 60 days after completion of the assessment"</p> <p>The bullets are licence conditions, not reporting requirements. This is unnecessary reporting.</p>	<p>CNSC staff simplified the text for the actual reporting requirement, and only the regulatory text from NSR 7.4(4) is included; there is no specific reporting provision for this item.</p>
71	Bruce Power, OPG, NB Power	A.31	<p>This draft is missing the following statement from the interpretation document: "If all the information can be stated in the Preliminary Event Report then no Detailed Event Report is necessary."</p> <p>Industry urges future drafts of this REGDOC to reinstate the phrase, "If all the information can be stated in the Preliminary Event Report then no Detailed Event Report is necessary."</p>	<p>The proposed change was not made. However, CNSC staff modified Appendix A to clarify when a detailed event report (DER) is required.</p>
73	Bruce Power, OPG, NB Power	A.36	<p>Sub-bullet iv under specific reporting provisions is vague when it says, "any other conditions outlined in the public agent or peace officer authorization."</p> <p>Clarify the intent of this sub-bullet with a clear statement and possible examples.</p>	<p>The intent of this bullet point is to capture any reporting conditions that a public agent may have. To clarify that the reporting to the CNSC is in regards to reporting conditions, not all conditions of an authorization, CNSC staff changed the text in A.36. The new text reads: "any other reporting conditions outlined in the public agent authorization".</p>

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74	Bruce Power, OPG, NB Power	A.36	Industry seeks additional clarity for the Guidance statement, "The discharge of a firearm or special security equipment is considered a higher significance event. The police agency of jurisdiction needs to be made immediately aware of any stolen or missing firearms. These reporting provisions apply if a firearm is negligently, accidentally or unintentionally discharged on site or not, for any reason." The phrase "for any reason" raises questions about shooting range or training activities leading to a facility/course being inappropriately closed or suspended, impacting qualifications. This guidance requires additional context to ensure it remains consistent with other jurisdictions that use and train with similar weapons.	The intent of this item was to have any negligent, accidental or unintentional firearm discharge reported to the police force of jurisdiction as well as the CNSC, regardless of circumstance or location. The discharge of a firearm in a shooting range would not be negligent, accidental or unintentional. CNSC staff amended the text for clarity. The new text reads: "The discharge of a firearm or special security equipment is considered a higher significance event. The police agency of jurisdiction needs to be made immediately aware of any stolen or missing firearms. These reporting provisions apply if a firearm is negligently, accidentally or unintentionally discharged for any reason. These reporting provisions apply regardless of whether the firearm discharge occurred on site or off site."
75	Bruce Power, OPG, NB Power	A.36	There is a reference to the term "special equipment." While this is defined in <i>REGDOC-2.12.1 High Security Facilities, Volume I: Nuclear Response Force (version 2)</i> , it is defined somewhat loosely, and warrants greater clarity to avoid misunderstandings between licensees and the regulator. Clarify the definition of "special equipment."	The "special equipment" referenced in A.36 Firearms or special security equipment (there is no A.37 in the consultation draft) features a newly defined term, special security equipment, that responds to this comments. See the glossary of the consultation draft: Special security equipment (NEW) Includes prohibited and restricted firearms, items and devices that a licensee can only acquire under the authority of the CNSC acting as a public service agency under the <i>Public Agents Firearms Regulations</i> made under the <i>Firearms Act</i> .
76	Bruce Power, OPG, NB Power	App. B	Appendix B includes the Safety Performance Indicator data sheets, but does not specify whether these data sheets (format) are requirements or guidance. It appears the exact format of the data sheets may be considered a requirement. Licensees need the flexibility to adjust formatting for efficiency and clarity. Please add text that confirms the data sheets are considered guidance.	As indicated in comment 14, "Sample data sheets are provided on the CNSC website" was added to the guidance in section 3.1. The format of the data sheets provided is intended as guidance.
77	Bruce Power, OPG, NB Power	B.1	What is considered an "apparent change" in SPI results? Is this a change to previously reported data? Or, is it a change in emissions or effluent trends? Add a description of "apparent change."	CNSC staff need a holistic view of licensees' programs. As indicated in comment 16, CNSC staff want to be informed of improvements as well as potential issues. This is also where licensees are to report changes or corrections in previously reported SPI data.
78	Bruce Power, OPG, NB Power	B.1	Similar to earlier comments, industry has concerns with the increased – and often duplicate – level of reporting for collective radiation exposure. Specifically: <ul style="list-style-type: none"> • This draft requires a quarterly report with the same dose information as the current REGDOC as well as: number of units operating; units being "rehabilitated"; days in operation; average wb dose; median wb dose; maximum WB dose(along with workgroup and job description); outage duration; number of workers receiving non zero dose broken down between outage and online. Another category for dose reporting has also been added for forced outages. • The current version of <i>REGDOC-3.1.1</i> requires PCEs by tier. This draft requires the same plus: skin dose from contamination events; SCR numbers for Tier 1 and 2; a description of events; references to the governance numbers for PCE classification. It's also broken down by unit, which is an issue since licensees do not classify PCEs in this way. Licensees generally don't calculate skin dose from PCEs. It is usually done when it exceeds a PCIR limit. If the dose estimate is < 250 mrem (minimum recordable dose), 0 mrem is assigned. Maybe this should be changed to skin dose greater than the minimum recordable dose? • This draft requires all the same information as the current REGDOC regarding unplanned tritium exposures by tier, plus a separate category for non-tritium internal exposure and the recording level. It also says, "For any unplanned internal exposure other than tritium, the licensees are to provide a brief description of the event, including the radionuclides of concern, such as radioiodine, C-14, MFAP or TRU, the dose received from the event and any other relevant details." Remove the additional, duplicate reporting from future drafts of <i>REGDOC-3.1.1</i> . It's unclear what value is added by including all of the new information. As currently written, the additional and duplicative reporting could require some licensees to reassign staff from other priority work to compile this data with no obvious or corresponding improvement to nuclear safety. This information is already presented in the Quarterly Radiation Protection Meeting, which presents an opportunity for misaligned data and misinterpretation, since the dates of the quarterly meeting information do not align with the QRSPI dates. What exactly does the CNSC need this additional information for, and what is the value which justifies the extra effort expended by the licensee?	As noted in the response to the comment number 32, references to basis documents in SPI B.4 have been removed.
79	Bruce Power, OPG, NB Power	B.2	Industry seeks additional clarity for section on Personal Contamination Events. Specifically: a) The line on page 73 that says, "The licensee's current basis document(s)* that define the three PCE Tiers are ..." is not needed. These are already listed in LCHs and including them here is redundant and not consistent with other SPIs.	(a) As noted in the response to the comments number 32, references to basis documents in SPI B.2 have been removed. (b) CNSC staff changed the text in the notes for SPI B.2 to make it more generic. The revised text reads: "The licensees are to provide the skin dose received from a skin contamination greater than the minimum recordable dose".

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			<p>b) Is the Survey Number (instead of SCR #) sufficient for Tier 2 events? Under some licensees' procedures, SCRs are not entered for a Tier 2 PCE event unless it is greater than 10,000 cpm on the skin or 40,000 cpm on clothes or shoes.</p> <p>CSNC staff is urged to:</p> <p>a) Remove the line and associated chart on page 73 that says, "The licensee's current basis document(s)* that define the three PCE Tiers are:"</p> <p>b) Clarify that a Survey Number (instead of SCR #) is sufficient for Tier 2 events.</p>	
80	Bruce Power, OPG, NB Power	B.3	<p>Similar to the previous comment, the line on page 75 that says, "The licensee's current basis document(s) that define Unplanned Dose / Unplanned Exposure Tiers events are:" is not needed.</p> <p>These are already listed in LCHs and including them here is redundant and not consistent with other SPIs.</p> <p>Remove the line and associated chart on page 75 that says, "The licensee's current basis document(s) that define Unplanned Dose / Unplanned Exposure Tiers events are:"</p>	As noted in the response to the comment number 32, references to basis documents in SPI B.3 have been removed.
81	Bruce Power, OPG, NB Power	B.4	<p>Licensees seek additional clarity on the section regarding Loose Contamination Events.</p> <p>For improved clarity, licensees suggest future drafts should:</p> <ul style="list-style-type: none"> Change the title of B.4 to "Loose Contamination Events" Under definitions, replace "loose" with "removable" to align with the Notes. Amend to read, "Tier 1 event: Removable (Loose) or fixed... Tier 2 event: Removable (Loose) or fixed... Tier 3 events: Widespread removable (Loose)..." List governing docs that classify loose contamination tiers, not unplanned dose tiers Provide more context for important terms and definitions. For instance: <ul style="list-style-type: none"> The term "loose contamination" includes uncontrolled nuclear substances independent of whether the substance is removable or fixed. Why not just call this total contamination? The term "widespread" uses the following definition: "contamination is found in multiple locations traceable to a common source." If it was not traceable to a common source, it would not be widespread? 	<p>This SPI was not changed from the version 2 of REGDOC 3.1.1. Based on the comment provided, CNSC staff revised the form for more clarity, as follows:</p> <ul style="list-style-type: none"> Retitled the form to "Loose and/or Fixed Contamination Events" Re-write the purpose to read: "To indicate the loose and/or fixed contamination events that occurred at the NPP and its related facilities. Excluded from this are PCEs, which are covered under SPI 2 (see section B.2)." Add an "and/or" to the Tier 1 and 2 definitions Remove the first paragraph under Notes which refers to loose contamination. <p>No change was made to the term widespread, as 'widespread contamination' is commonly understood by persons responsible for radiation protection.</p>
82	Bruce Power, OPG, NB Power	B.4	<p>Similar to previous comments, the line on page 78 that says, "The licensee's current basis document(s) that define Unplanned Dose / Unplanned Exposure Tiers events are:" is not needed.</p> <p>These are already listed in LCHs and including them here is redundant and not consistent with other SPIs.</p> <p>Remove the line and associated chart on page 78 that says, "The licensee's current basis document(s) that define Unplanned Dose / Unplanned Exposure Tiers events are:"</p>	As noted in the response to the comment number 32, references to basis documents in SPI B.4 have been removed.
83	Bruce Power, OPG, NB Power	B.5	<p>Industry has a major concern with the Note regarding "related facilities." It is not practical to provide emissions and effluent data for "related facilities" that are not owned or leased by the operator. For example, on the Bruce Power site, there are other licensed facilities owned by CNL and OPG.</p> <p>Amend the Note to read, "Related facilities" are those facilities <u>owned or leased by the nuclear operator</u> that have radiological releases to the environment that contribute to the annual total effective dose to public from the site and have licensed release limits (e.g. Derived Release Limits (DRLs)) and/or environmental action levels."</p> <p>As written, Bruce Power would be required to report emissions and effluent from CNL and OPG buildings on the Bruce Power, OPG, NB Power site because they contribute to the annual total effective dose to public from the site.</p>	CNSC staff amended the text in the note for clarity and to align with section B.6 (see comment number 34). The revised text reads: "Releases, other than airborne and waterborne releases from those facilities owned or leased by the nuclear operator that have licensed release limits and/or environmental action levels in the NPP licence, are not included in this SPI."
84	Bruce Power, OPG, NB Power	B.5	<p>Industry seeks clarity for the following points:</p> <p>(a) Under Notes, is the requirement to submit effluent data in an electronic spreadsheet format (as part of the quarterly SPI reports) intended to support the NPRI-CNSC Radionuclide Data Linkages project? It appears this requirement is a duplication of efforts as the radionuclide data is already submitted to the CNSC via QRSPI reporting.</p> <p>(b) It is not practical to provide emissions and effluent data for "related facilities" that are not owned or leased by the operator. For example, on the Bruce Power site, there are other licensed facilities that are owned by CNL and OPG.</p> <p>(c) Under the Performance Indicator Data Sheet, monthly waterborne releases for the quarter (discharges to water): The DRL (Bq/year) and AL (Bq/month) should be removed from the Carbon-14 column heading. DRL (Bq/year) and AL (Bq/month) are not required for any other waterborne or airborne radionuclides. As written, this is inconsistent with format of weekly airborne releases section. This causes confusion.</p>	<p>a) The requirement is to provide the effluent data in a machine readable format. This is to facilitate posting the data on Open Government portals. CNSC staff revised the text of the note to clarify this intent. The new text reads: "In addition to the SPI form, licensees shall submit their effluent data in a machine readable format as part of their quarterly SPI reports."</p> <p>b) See response to comment number 83.</p> <p>c) CNSC staff accept the comment and removed the reference to AL and DRL in the Carbon-14 column heading.</p>

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			<p>(d) Under the Performance Indicator Data Sheet Bruce Power, OPG, NB Power does not report airborne elemental tritium emissions, which has already been dispositioned as not required. For future drafts, CNSC staff is urged to: (a) Add a Note to explain the need for and purpose of the electronic spreadsheet. (b) Change to, "Related facilities" are those facilities <u>owned or leased by the nuclear operator</u> that have radiological releases to the environment that contribute to the annual total effective dose to public from the site and have licensed release limits (e.g. Derived Release Limits (DRLs)) and/or environmental action levels. (c) Amend the waterborne Carbon-14 column heading to read: Carbon-14 AL: Bq/month DRL: Bq/year (d) Add a Note to bottom of the table that says: <u>*Note: Reporting of airborne elemental tritium is only required for facilities where it is applicable.</u></p>	<p>d)The common practice when data fields do not apply is to leave them blank or indicate they are not applicable. This applies beyond this single item. No change was made to the text as a result of this comment.</p>
85	Bruce Power, OPG, NB Power	B.7	<p>Under notes and the final sentence on page 85, the current reporting form is as per the COG guide (based on WANO GL 2001-04) Amend to read, "This SPI is intended to match the <u>Candu Owners Group (COG)</u> World Association of Nuclear Operators (WANO) performance indicator of the same name."</p>	<p>CNSC staff made the suggested change. The revised text reads: "This SPI is intended to match the CANDU Owners Group (COG) performance indicator of the same name."</p>
86	Bruce Power, OPG, NB Power	B.10 B.11 B.12	<p>The Reference Period (hrs) in the table for the Performance Indicator Data sheet is not defined. Industry assumes it's the number of hours in the quarter, but seeks clarity. Define Reference period.</p>	<p>The Unit Capability Factor (SPI 10), Unplanned Capability Loss Factor (SPI 11) and Forced Loss Rate (SPI 12) align with the <u>WANO's definitions</u> Typically the reference period is 7000 hours. When benchmarking the performance of Canadian Nuclear Industry against other WANO countries we must use the same measurements, and definitions, otherwise the comparisons become inaccurate. No changes were made to the text as a result of this comment.</p>
87	Bruce Power, OPG, NB Power	B.10 B.11 B.12	<p>The calculation for SPI 10 and 12 uses a different UEL (unplanned energy loss) than SPI 11 as SPI 11's UEL includes the High Lake Water Temperature losses (HLWT) in the calculation. So, unless there is an additional line item for UEL including HLWT in the combined data sheet, licensees don't believe SPI 10, 11 and 12 should be combined into one data sheet. However, SPI 10 and SPI 12 can be combined as they both use the same UEL. Add a line item for UEL including HLWT in the combined data sheet</p>	<p>The data sheets for SPIs 10, 11 and 12 were combined so that the licensees would not have to submit the same data on different SPI data sheets. CNSC staff accept the comment that SPI 11 uses a different unplanned energy loss, and made the requested change to the data sheet to add a line item for UEL including High Lake Water Temperature (HLWT).</p>
88	Bruce Power, OPG, NB Power	B.17	<p>Regarding the "Missed Standby SSTs" in the table for the Performance Indicator Data Sheet, industry assumes this should be standby safety-related systems tests. Is there a missing row for "performed" in this category? Please clarify.</p>	<p>CNSC staff accept the comments and made the suggested changes; "Missed Standby SSTs" was changed to "standby safety-related STs" and a new row for "performed standby safety-related STs" was added.</p>
89	Bruce Power, OPG, NB Power	B.18	<p>Industry does not report online and outage work orders and does this calculation online only. Amend the final sentence of the 3rd paragraph under the Note to read, "Work orders include both online and outage work orders.</p>	<p>CNSC staff accept the comment and made the suggested change. The amended text reads: "Work orders include online work orders".</p>
90	Bruce Power, OPG, NB Power	B. 19	<p>Industry seeks clarity on the following items related to the Chemistry Index: a) Calculations: a - ai/Ai definition no longer applicable b - sum(ai)/sum(Ai) definition is the equation and does not require a specific definition as it is the same as the main definition. b) The formula for the final indicator score continues to use ai and Ai for the I/S hours and total hours respectively. The new Indicator Data Sheet uses ISI and Oi instead, even though these seem to be the same thing. Perhaps one of these variables should be changed to align with the other to prevent confusion. c) Parameters monitored: a - "Feedwater" is one word to describe the system b - Formatting..."dissolved O2" should be beside "Feedwater" and not twice under "Condensate Extraction Pump" d) Note 1: Ai is defined as "the number of hours the plant is in an operational state during the quarter, as defined by licensee-specific documentation" but note 1 defines it as "The total operating hours in the period refers to the total operating hours for the system to which the chemical parameter pertains." If the plant is in the shutdown state, but the system is in service does it count towards the total operational hours? e) Note 2: If a sample is not taken within the Station's documented sampling frequency + grace period is it considered out of specification? Note 2 indicates "Parameters that are included in the indicator but were not measured (because the monitoring capability did not exist or the measurements</p>	<p>a) CNSC staff have removed the terms that are not in the equation for the Chemistry index from the list of variables. b) CNSC staff corrected the terms used in the description to align with the terms in the data sheet. Ai was replaced with Oi and ai was replaced with Isi. c) CNSC staff made the following changes to the text in the section about parameters monitored: • the spelling of "feedwater" was corrected. • Dissolved O2 was removed from "Condensate extraction pump" d) Licensees determine what is an operational state. For the purposes of reporting, if the plant is in a shutdown state, but a system needs to be operational during the shutdown and any associated chemistry parameters need to be controlled, then it should be included in the "total operational hours". CNSC staff changed the text in note 1 to clarify this point. The revised text for note 1 reads: "The total operating hours in the period refers to the total operating hours during which the chemical parameter needed to be controlled." e) If a sample is not taken within the frequency and grace period specified in licensee documentation, then it is out of specification. The licensee must note any such occurrences in the report.</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>were not obtained during the period; e.g., an instrument not available) will be reported as being out-of-specification. In cases where the parameter is out-of-specification due to the unavailability of a facility, the parameter shall be reported as being out-of-specification." This suggests that as long as licensees obtain the sample within the quarter - and it is within specification – they would not consider it out of specification. Notes 4 and 5 do not adequately clarify this.</p> <p>f) Note 3: "If a parameter is in (or out of) specification before a shutdown, it is considered to remain in (or out of) specification once the system is back in service until it is re-analyzed and found to be otherwise." This statement is not accurate as system conditions and specifications are completely different when the unit/system is shutdown than when operating. The system condition during and after a unit start-up are likely different state than prior to shutdown, so considering the parameters to be in (or out of) specification from shutdown to start-up would be an inaccurate representation. Also, if a parameter is analyzed out of specification before an outage but during the outage it is analyzed within specification, is the parameter I/S or O/S upon start-up from the outage?</p> <p>g) If a parameter is out of specification and then misses the sampling frequency, does this count the time as double? (e.g. Every hour that a parameter is out of spec and outside frequency would be 2 hours?)</p> <p>h) Note 4: Performance must be reported for all time periods when system is considered to be in an operational state as defined by licensee-specific documents." This statement is not accurate as "Operating State" for each system as defined in the CYS/CCP documents may not align with the required calculations by the CNSC. In some cases, different parameters for the same system are calculated based on different operating conditions.</p> <p>i) Note 7: "For multi-unit sites..." should be under Note 8 as Note 7 calculation is for individual parameters.</p> <p>j) Performance Indicator Data Sheet: Line in table separates IS# and O# for each parameter (formatting).</p> <p>k) In the definitions, the ai seems to be in a different font and possibly bold (formatting).</p> <p>Amend future drafts to:</p> <p>a) Delete ai/Ai and sum(ai)/sum(Ai) definitions.</p> <p>b) Make nomenclature consistent between the REGDOC text and the data sheets.</p> <p>c) Do not separate "Feedwater" into two words and move "dissolved O2" beside "Feedwater."</p> <p>d) Clarify if the plant is in the shutdown state, but the system is in service, does it count towards the total operational hours.</p> <p>e) Clarify the intent.</p> <p>f) Reword verbiage to reinforce performance only reported for unit operating conditions and reported values are applicable until shutdown. Could completely delete listed statement.</p> <p>g) Clarify if a parameter is out of specification and then misses the sampling frequency, does this count the time as double.</p> <p>h) Reword verbiage to clarify that reported performance is based on given CNSC requirements per system and specific parameters.</p> <p>i) Move listed statement from Note 7 to Note 8 or delete.</p> <p>j) Remove line (merge cells) for each parameter to be clear same parameter covers both IS# and O# (formatting).</p> <p>k) Ensure common fonts are used for readability.</p>	<p>f) Note 3 is for systems whose performance is reported for unit operating conditions. If a parameter is out of specification before a shutdown, it is considered also out of specification after start-up until proved otherwise. No change was made to the text in response to this comment.</p> <p>g) For clarification, CNSC staff added the following text to note 2, "If a parameter is out of specification and then misses the sampling frequency, the time is not counted as double. The time out of specification is what is counted."</p> <p>h) The operational state of any system is defined by licensee documentation. The CNSC does not define operational state for the purposes of SPI 19 and 20. For additional information see point a) above.</p> <p>i) The sentence, "For multi-unit sites, the unit performance is the average of the performance of the individual control parameters." was moved to Note 8.</p> <p>j) and k) CNSC staff made the suggested formatting changes.</p>
91	Bruce Power, OPG, NB Power	B.20	<p>Industry seeks clarity on the following items related to the Chemistry Compliance Index (non-GSS and GSS):</p> <p>a) Parameters monitored, Non-GSS conditions: [Gd] in moderator (unit in poison outage OR SDS2 actuated) - OR was added. If SDS2 is actuated, it will be a poison outage - i.e. these two items are the same and not mutually exclusive).</p> <p>b) Parameters monitored, GSS conditions: Parameters listed apply for OPGSS and RBGSS, but do NOT apply when the Moderator system is drained during an outage (DGSS). DGSS is still considered a GSS, but in this case the MCG system parameters are the control parameters.</p> <p>c) Performance Indicator Data Sheet:</p> <p>a - Line in table separates IS# and O# for each parameter (formatting).</p> <p>b - ECI pH and hydrazine are parameters to be included, but are in Unit 0. Current table does not have column for Unit 0 at either station.</p> <p>d) Under definitions, add Emergency Core Cooling (ECC) to recognize that's what ECI is called at some stations. For clarity, staff is urged to amend future drafts to:</p> <p>a) Remove "or" from [Gd] in moderator line.</p> <p>b) Clarify condition or add in parameters to cover for DGSS.</p> <p>c) Remove line (merge cells) for each parameter to be clear same parameter covers both IS# and O# (formatting) and add columns for Unit 0A and Unit 0B.</p> <p>d) Add Emergency Core Cooling (ECC) to the definitions.</p>	<p>a) CNSC staff made the proposed change. The revised text reads: [Gd] in moderator (unit poison outage after SDS2 actuated).</p> <p>b) The licensee's chemistry procedures identify the chemistry specifications and which system is operating under different operating and shutdown states. The associated monitoring requirements for these systems are identified in the procedures. No change to the text was made in response to this comment.</p> <p>c) CNSC staff reformatted the data sheet as suggested.</p> <p>d) CNSC staff added Emergency Core Cooling (ECC) to the list of parameters monitored. The item in question now reads: "Emergency coolant injection (ECI) or emergency core cooling (ECC) system high-pressure water tank(s) pH" and "ECI or ECC high-pressure water tank(s) hydrazine concentration".</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
92	Bruce Power, OPG, NB Power	B.21	<p>The requirement to report for contractors is new and has not historically been combined with utility data. Combining contractor and utility data will provide information that is not historically comparable and does not accurately reflect safety performance of Nuclear Power Plant employees. Industry urges CNSC staff not to combine utility and contractor data and amend its definition section to read, "Exposure hours are the total number of hours of employment of all <u>NPP employees workers</u> for each member utility for each reporting period. <u>NPP employees include regular, full-time or part-time employees as well as temporary employees who are employed for the duration of time and paid directly by the reporting utility. This includes regular hires, direct contractors / augmented / supplemented staff and contractors working through a separate company.</u>"</p> <p>This is an additional regulatory burden with no impact on nuclear safety. Requiring utilities to follow up with multiple contracting employers and injury information creates an additional administrative workload that is error-likely and will generate data that is not historically comparable and does not accurately reflect the safety performance of Nuclear Power Plant employees.</p> <p>Contractual arrangements between utilities and their contractors vary widely. Generally, the utility pays the contractor who pays their employees. It is also difficult or commercially disadvantageous to have contractors on a fixed price contractual arrangement provide exposure hours.</p>	<p>Due to the more recent large projects like refurbishments, an increasing number of contractors are working at the Nuclear Power Plants. The same high standards of safety need to be applied to both contractors as well as the employees paid directly by the utility. The Commission members specifically asked for the same high standards to be applied to all workers working at the NPPs.</p> <p>During the CNSC's staff discussion with the licensees on this topic it was apparent that all licensees track all injuries to workers, regardless of whether they are contractors or not, as long as the injury happens on site. If the numbers of hours worked is not available, a realistic or lower estimate can be used, so that the injury rates remain conservative.</p> <p>Contractors Industrial Safety Accident Rate is also a performance indicator collected by WANO and constitutes a good benchmark for comparing the performance of Canadian nuclear industry to that in other countries.</p> <p>No change was made to the document in response to this comment.</p>
93	Bruce Power, OPG, NB Power	B.21	<p>The new requirement regarding the number of injuries resulting in restricted work is not value-added information. Amend the definition of restricted work to read, "<u>An employee is deemed to be working in a restricted capacity due to a work-related injury or illness resulting in the employee being unable to perform their regular permanent job (i.e. is accommodated in an-other role), or is unable to work the normal time period of their pre-injury or illness work days (i.e. reduced hours of work).</u>"</p> <p>This is additional requirement has no impact on nuclear safety. People respond differently to injury and pain and there are different treatment plans according to the physical response of the body to injury or illness. Restricted work does not necessarily reflect safety performance of Nuclear Power Plant employees.</p>	<p>The restricted work is included in WANO's Industrial Safety Accident Rate performance indicator, and it has been for a long time. Comparing Industrial Safety Accident Rate for the licensees in Canada, to the same rate in other countries allows for benchmarking of the Canadian nuclear industry to others in the world.</p> <p>No change was made to the document in response to this comment.</p>
94	Bruce Power, OPG, NB Power	B.21	<p>It is not clear what "lost days" means in the definition section. Calendar Days Lost are included when work-related and medically-supported (as per COG GL 2012-01 Rev 0). A normally scheduled day off is not counted as a work-related "lost day."</p> <p>The definition for Exposure Hours has also changed to "hours" in this draft. This affects all of the rate calculations. For accuracy, CNSC staff is urged to:</p> <p>a) Amend the 1st paragraph to read, "The accident severity rate is the total number of <u>working</u> days lost for lost time injuries per 200,000 person hours worked at an NPP."</p> <p>b) Amend the 4th paragraph under definitions to read, "A lost-time injury is an injury or illness resulting in lost <u>working</u> days beyond the date of injury as a direct result of an occupational injury or illness incident. A fatality is not considered a lost-time injury."</p> <p>c) Amend the 6th paragraph to read, "Lost days are the number of <u>calendar days working days that the employee is unable to work beyond the day of injury/illness</u> recommended by a <u>Health Care Professional</u>. Lost time ends as of the date that the worker is deemed fit to work either full or restricted work, or up to a maximum of 180 calendar days for any individual case."</p> <p>d) Remove the 3rd paragraph under NOTES, which reads, "<u>The Canadian federal reporting requirement for severity includes shifts not worked. For example, suppose a person is hurt on the last regularly scheduled shift and then is away for two days that were regularly scheduled off. If the person would not have been able to work those two days, but was able to return to work on the first regularly scheduled day, those two days would be counted as lost days.</u>"</p> <p>Counting all calendar days lost instead of "working days lost" provides inaccurate data with no corresponding improvement to nuclear safety.</p>	<p>The lost days definition aligns with WANO's definition of lost days. When benchmarking the performance of Canadian Nuclear Industry against other WANO countries we must use the same measurements, and definitions, otherwise the comparisons become inaccurate.</p> <p>An employee may not regularly work on Saturday or Sunday but if he or she cannot work the overtime because of an occupational injury or then this will be reflected in this indicator. If only regular work days would be counted, this information will be lost.</p> <p>No change was made to the document in response to this comment.</p>
95	Bruce Power, OPG, NB Power	B.22	<p>Industry seeks clarity on a number of items related to the Radiological Emergency Performance Index, Specifically:</p> <p>(a) Industry seeks improved verbiage in the 4th paragraph under Notes to clarify what must be included in the REP index and the extent of activities to which "evaluated" vs "assessed" applies. The draft separates "drills evaluated by ERO" and "exercises and other simulated emergencies that are assessed." The scope of evaluated/unevaluated activities is unclear given this wording. Clarity is important to comply with the new wording regarding "performance criteria." The draft wording could be interpreted as only applicable to "other simulated emergencies that are assessed" and excludes activities of "emergencies, drills evaluated by ERO, and exercises."</p> <p>(b) Clarity around the draft wording which reads, "The ERO consists of, but not limited to, the following ..." is open-ended and unclear what licensees are required to include. Additionally, there are new items added to list that are not consistent with <i>REGDOC-2.10.1 version 2</i>. For clarity, this draft should reference the licensee's emergency preparedness plan which has already been reviewed by CNSC.</p> <p>(c) Clarity regarding the "Number of performance opportunities scheduled" as it is outside scope of the definition given in B.22 and is not required to calculate the REP Index. As emergencies are included in B.22 and not scheduled, these cannot be included in the measure. Amend:</p>	<p>a) and b) CNSC staff addressed changed the existing text to improve clarity. The text below replaces the paragraph in the draft that starts "Emergencies, drills evaluated by..." and the bulleted list.</p> <p>The new text is: "Include emergencies or drills evaluated by the emergency response organization (ERO), exercises and other simulated emergencies that are assessed and that interact with one or more of the emergency response facilities or functions as specified in the licensee's emergency preparedness plan."</p> <p>C) CNSC staff modified the text in the purpose and definition of the SPI. The new text is below. "Purpose: To provide a measurement of the performance of a nuclear power plant's emergency preparedness plan during radiological emergencies or simulated radiological emergencies.</p>

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	Reviewer	Section or para	Reviewer's comment	CNSC response
			<p>(a) The 4th paragraph to read, "Emergencies, drills evaluated by the emergency response organization (ERO), exercises and other simulated emergencies that are assessed and that interact <u>Emergencies and evaluated simulated emergencies that are a part of drills, exercises, or practical evaluation opportunities for which the emergency interacts with one or more of the following facilities or functions shall be included in this indicator. Evaluated shall be taken to mean as observed and assessed by the emergency response organization with comparison to the specified performance criteria.</u>"</p> <p>(b) Amend the 5th paragraph to read, "The ERO Emergency response facilities and functions, as specified in the licensee's emergency preparedness plan consists of, but not limited to, the following facilities and functions:"</p> <p>(c) Amend the data sheet to read, "Number of performance opportunities completed is the total number of emergencies and <u>evaluated</u> simulated emergencies, drills evaluated by the ERO and exercises that are a part of drills, exercises, or practical evaluation opportunities, excluding training, during the quarter."</p> <p>Industry also requests:</p> <ul style="list-style-type: none"> • CNSC staff provide the rationale for requiring the "Total number of designated ERO positions." • The following be added, "<u>Pre-determined dates shall be used to measure the number of performance opportunities scheduled</u>" 	<p>Definition:</p> <p>The radiological emergencies performance (REP) index is the percentage of all the successful performance opportunities to the total number of performance opportunities identified during the quarter. Performance opportunities includes emergencies and simulated emergencies (drills, exercises or practical evaluations, excluding training)."</p> <p>The comment in the first bullet about ERO positions is misplaced and should be associated with B.23 Emergency Response Organization Drill Participation Index. CNSC staff request the number of ERO positions because it provides CNSC staff with a gauge of how many individuals are in designated ERO positions and allows for trending.</p> <p>CNSC staff do not accept the change proposed in the second bullet.</p>
96	Bruce Power, OPG, NB Power	B.23	<p>Industry seeks clarity on the following items:</p> <p>(a) The Purpose statement has an apparent conflict with the title and understood intent of the SPI, i.e. intent is only participation in ERO delivered drills. The term 'events' can be understood to mean an actual emergency or Operations specific training (non-ERO).</p> <p>(b) Use of "events" under Calculation and the 3rd paragraph under Notes.</p> <p>(c) The terms 'Total available ERO personnel' or 'Total number of qualified key ERO personnel' are not needed and could lead to confusion.</p> <p>(d) Under the Data Sheet, the 'Total number of designated ERO positions' is outside scope of the definition given for B.23 and not required to calculate the ERO Drill Participation Index. This number will rarely differ in QRSPi as changes to ERO positions are uncommon.</p> <p>(e) Request clarity and consistency of verbiage in the instruction, definitions of (A) and (B), and percentage participating on data sheet.</p> <p>Amend:</p> <p>(a) The Purpose to read, "To track the participation of emergency response organization (ERO) personnel in <u>proficiency-enhancing</u> drills, exercises, or events <u>practical evaluation opportunities</u> within a nuclear power plant."</p> <p>(b) The Definition to read, "The percentage of the total <u>available number of</u> ERO personnel <u>fulfilling designated ERO positions</u> who have participated in proficiency-enhancing drills, exercises, <u>or</u> practical evaluation opportunities or events during the quarter." A = number of ERO personnel fulfilling designated ERO positions that have participated in a qualifying proficiency-enhancing drill, exercise, <u>or</u> practical evaluation opportunity, or event during the quarter."</p> <p>The 3rd paragraph under notes to read, "Multiple assignees to a given designated ERO position may each be counted for their individual participation in performing the designated ERO position at different times in the same proficiency-enhancing drill, exercise, <u>or</u> practical evaluation opportunity or event during the quarter."</p> <p>(c) Remove 4th paragraph: "Total available ERO personnel" and "Total number of qualified key ERO personnel" are equivalent."</p> <p>(d) For the Data Sheet:</p> <p>a. provide the rationale for 'Total number of designated ERO positions.</p> <p>b. Amend the 1st paragraph to read, "Submit the total number of ERO personnel fulfilling designated ERO positions and the number that participated in <u>qualifying proficiency-enhancing</u> drills, exercise, <u>or</u> practical evaluation <u>opportunities or events</u> at the nuclear power plant during the quarter."</p> <p>c. Amend the 3rd paragraph to read, "Number of ERO personnel fulfilling designated ERO positions that are participating have participated in <u>a</u> qualifying drill, exercise, <u>or</u> practical evaluation <u>opportunity, or events during the quarter</u> (A)"</p> <p>d. Amend the 4th paragraph to read, "Total number of qualified key ERO personnel fulfilling designated ERO positions <u>during the quarter</u> (B)"</p> <p>e. Amend the 5th paragraph to read, "Percentage of participating qualified key ERO personnel (A/B)*100"</p>	<p>a) and b) CNSC staff agree that this SPI is for drills and not events. Therefore, the text in the Purpose, the Definition and throughout the data sheet (where appropriate) was amended. The revised text is below.</p> <p>"Purpose:</p> <p>To track the participation of emergency response organization (ERO) personnel in simulated emergencies (drills, exercises, or practical evaluations, except training) within a nuclear power plant.</p> <p>Definition:</p> <p>The percentage of the total available ERO personnel who have participated in simulated emergencies during the quarter.</p> <p>A = number of ERO personnel fulfilling designated ERO positions that have participated in a simulated emergency during the quarter</p> <p>Designated ERO positions are those performing the following functions:</p> <ul style="list-style-type: none"> • categorization of simulated emergency" c). CNSC staff agree with the proposal and have removed the 4th paragraph from B.23. <p><u>For the Data Sheet</u></p> <p>a) Rational for requesting the total number of ERO positions is to understand how many total positions there are to compare that with the number of persons that have participated in a drill.</p> <p>b) CNSC staff changed the text to use "simulated emergency" consistent with the changes made to the Purpose and Description in item a) above.</p> <p>c) CNSC staff changed the text to use "simulated emergency" consistent with the changes made to the Purpose and Description in item a) above.</p> <p>d) CNSC staff accepted the proposed change. The revised text reads: "Total number of qualified ERO personnel fulfilling designated ERO positions during the quarter (B)."</p> <p>e) e) CNSC staff accepted the proposed change. The revised text is: "Percentage of participating qualified ERO personnel (A/B)*100".</p>
97	Bruce Power, OPG, NB Power	App. C	<p>There is no reference in Appendix C for Components Important to Safety (CIS)</p> <p>Based on the guidance in <i>REGDOC-2.6.1</i>, NPP's are required to report on CIS. Therefore, licensees suggest adding additional guidance in this draft for CIS.</p>	<p>The guidance in section C.2 of Appendix C makes reference to components important to safety so that licensees may report on them, if they choose to. No change will be made at this time. In future, CNSC staff may work with licensees to establish suitable criteria for reporting on components important to safety in the Annual Risk and Reliability Report, but that will not be part of the current revision.</p>
98	Bruce Power, OPG, NB Power	C.3.1.1	<p>The predicted reliability table format is captioned as "Table C.2 Predicted Reliability" in versions 2 and 3. In version 3, Section 3.1.1 references the table, but incorrectly calls it "table B.2" rather than "table C.2."</p> <p>Amend the 1st sentence to read, "...as to the target (see table <u>C.2</u>)."</p>	<p>CNSC staff corrected the reference identified in the comment. The section now refers to table C.2.</p>

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99	Bruce Power, OPG, NB Power	C.3.1.3	The sentence following table C.6 says, "This data is included to provide ... of class III power... and emergency or qualified power systems..." This sentence is applicable only to table C.4, and not table C.6 (which applies to all systems important to safety). Delete the sentence following table C.6.	CNSC staff made the proposed change. The sentence following table C.6 was deleted, since table C.6 applies to all systems important to safety.
100	Bruce Power, OPG, NB Power	C.3.1	Industry has concerns with bullet 5, which says, " an explanation of changes in the predicted reliability of the system from the predicted reliability reported in previous years." As written, the expectation seems to be that all changes must be provided with an explanation, though industry believes this was only intended for declining/negative performance. Amend to read, "an explanation of <u>declining performance changes</u> in the predicted reliability of the system from the predicted reliability reported in previous years."	As noted in comment number 16, CNSC staff want to be informed of improvements as well as potential issues. CNSC staff changed the text to improve clarity. The revised text reads: "an explanation of notable changes in the predicted reliability of the system from the predicted reliability reported in previous years."
101	Bruce Power, OPG, NB Power	App. D	The titles of Section 4.2.1, 4.2.2 and 4.2.3 are all the same. Consider a main heading for that section, "Irradiated fuel post-irradiation examination" and then subheadings for 4.2.1, 4.2.2 and 4.2.3 that better clarify what info should be there. May need to clarify if there is a difference between 4.2.2 and 4.2.3	The headings and titles are in alignment with the forms currently in use by industry. Appendix D will be removed from REGDOC-3.1.1. The sample reporting template will be provided to licensees
102	Bruce Power, OPG, NB Power	App. D	In table D.4, under the category "4.1.4 Trapped debris or debris fretting marks," there are two items: "4.1.4 a) All observations" and "4.1.4 b) Significant observations." For 4.1.4 a) does this mean "all" or "all other" (i.e. all observations that are not significant)? Historically, licensees have been reporting numbers as though 4.1.4 a) means all "other" observations. To align with licensees' historical understanding, amend 4.1.4 a) to read, "All <u>other</u> observations."	The intent of 4.1.4 a) is to capture all observations including significant observations, while 4.1.4 b) is reserved for significant observations only. CNSC staff note that significant observations tend to be less than 1% of all observations. No changes were made in response to this comment.
103	Bruce Power, OPG, NB Power	Glossary	Industry has concerns with the following new definitions and ask CNSC staff to discuss them during a pre-publication workshop: a) The new definition for " significant fuel damage " should be changed to refer to "safety limits" instead of "fitness for service limits." Also, it is not clear how 1% would be calculated. The definition for "serious process failure" also refers to significant fuel damage and needs to be addressed to make sure licensees can assess serious process failures correctly and not impact unit restart. b) The proposed change to the definition of " serious process failure " also appears to be more in line with AOO acceptance criteria. c) The proposed, expanded definition for " Structures, systems and components (SSCs) important to safety " that replaces "safety related systems." Licensees request CNSC staff include the following definitions as discussion items in a pre-publication workshop and: a) Amend the definition of "significant fuel damage to read, "An event or situation that leads to fuel failure resulting in release of fission products <u>brought the fuel (>1%) outside of its fitness for service limits.</u> " b) Clarify the intent of the change. Currently, some licensees perform a subset of AOO-related analysis, but this new definition implies all AOO analysis is now required as a contingency. c) Clarify the intent of the draft definition for SSCs, which currently reads, "Systems of a reactor facility that are associated with the initiation, prevention, detection or mitigation of any failure sequence and that have an impact on reducing the possibility of damage to fuel, associated release of radionuclides or both." Licensees need a common understanding with CNSC staff on each of these key, wide-reaching terms. CNSC approval to restart from a serious process failure, which makes these definitions very important.	Note – on July 28 2023, industry indicated by email that they were no longer seeking revisions to the definition of <i>Serious Process Failure</i> . a) No change was made to the revised definition for "significant fuel damage". The current glossary definition that referred to "fuel integrity criteria defined in version-controlled documents", which pointed to unknown documents and/or criteria. Furthermore, as the current definition would require licensees to report single fuel bundle failures that may have resulted from mechanical failures rather than from serious process failures the new definition was developed to re-establish the original intent of the definition with that which was developed in C-6. The Fitness for service limits for fuel sheath temperature and fuel sheath strain, which were developed by the Industry through COG are concrete values that can ensure a consistent approach for all licensees and will allow for a timely response from the CNSC to approve restart with the added improvement of ensuring fitness for service of fuel during future transients. The licensing I-131 limits are based upon the limiting containment bypass accident for each plant, and so are plant specific. The lower bound number of defects for the most sensitive plants is roughly 50 bundles or 1% of the core. Selecting 1% avoids single channel events and is more consistent with C-6's definition of significant fuel failures as opposed to the current definition of a single fuel failure. Furthermore, if a single component of a bundle is not fit for service (e.g. one pin) then the entire bundle is not fit for service, which is based on Cathena modelling which calculates using the "hot pin concept" i.e. only 1 pin is modelled and the assumption would be that several pins are in the same state b) The intent is not to require an AOO analysis, but to complete an AOO-like analysis. As part of the implementation the LCH's will be updated to refer to licensee's documentation for responding to serious process failures, criteria and specific requirements for seeking approval to restart following a potential or serious process failure. c) The intent of the definition for structures, systems and components (SSCs) important to safety is to replace the now obsolete term "safety related systems", to bring the regulatory document in line with current CSA standards. The term "safety related systems" used to be defined in CSA standards that have since been superseded by versions that do not contain that term.
	Bruce Power, OPG, NB Power	New A.37	CNSC justification for the new metric is required. For many licensees this is managed at the Provincial level and the regulations are set by each Province. This type of incident would require specific reporting to the CNSC above and would be beyond the current means of providing industrial accident reports to the CNSC. Recommend changing this from a specific REGDOC 3.1.1 reporting clause to being covered under the existing clause for " <i>Other reportable situations and events</i> ". Provide guidance in A.18 (formerly REGDOC-3.1.1, Version 2, Appendix A, Table A.1, item D.18) to include details of this type of submission to clearly identify the concern aside from the other industrial safety submissions to provincial authorities.	The CNSC has among its objects set out in the NSCA 9(a)ii "to regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information in order to prevent unreasonable risk, to the environment, and to the health and safety of persons, associated with that development, production, possession or use". As part of its oversight activities, the CNSC needs to be informed when a worker is exposed to any hazardous substance that exceeds the legal limit. This may differ from the Ministry of Labour's (or equivalent) reporting threshold. Introducing this item as its own reporting item, rather than including it under A.18 gives clarity on the reporting thresholds and allows for monitoring of the frequency of these types of occurrences.

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			<p>Licensees' current injury reporting system already captures the information. The intent would be to include a report sent to our provincial authority and submit it under <i>A.18</i> to the CNSC and not be mandated to report it separately under this proposed clause.</p> <p>Impact: Licensees can support the introduction of this metric as a supplemental to <i>A.18</i>.</p>	

APPENDIX C: Forms related to REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, version 3

REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants, version 3 Forms

This file contains the forms associated with REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants* version 3. The forms related to Safety Performance Indicators will be posted on the CNSC's [website](#). The sample template event reporting forms will be sent to licensees with the Implementation Letter.

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Forms for Safety Performance Indicator Reports

B.1 Collective Radiation Exposure

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Collective Radiation Exposure	
NPP:	
Year:	
Quarter:	
Online (in operation) whole-body dose:	
External dose (mSv)	
Internal dose (mSv)	
Total online (in operation) whole-body dose (mSv)	
Number of workers receiving a non-zero radiation dose	
Number of units operating	
Number of units being rehabilitated	
Days in operation	
Outage whole-body dose from major projects and planned outages:	
External dose (mSv)	
Internal dose (mSv)	
Total major project and planned outage whole-body dose (mSv)	
Number of workers receiving a non-zero radiation dose	
Outage duration (days)	
Outage whole-body dose from unplanned/forced outages:	
External dose (mSv)	
Internal dose (mSv)	
Total unplanned outage/forced outage whole-body dose (mSv)	
Number of workers receiving a non-zero radiation dose	
Unplanned outage duration (days)	
Total dose:	
Total online and outage external dose (mSv)	
Total online and outage internal dose (mSv)	
Total collective dose (mSv)	
Maximum dose	
Maximum whole-body dose	
Worker's work group	

Work performed	
Additional details as required:	
Prepared by:	Date:

B.2 Personnel Contamination Events

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Personnel Contamination Events								
NPP:								
Year:								
Quarter:								
PCE	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Tier 1 (>50,000 cpm)								
Tier 2 (>5,000 cpm)								
Tier 3 (≥ 100 cpm)								

Additional details as required:

Prepared by:

Date:

B.3 Unplanned Dose / Unplanned Exposure

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title:	Unplanned Dose / Unplanned Exposure
NPP:	
Year:	
Quarter:	
Unplanned external whole-body exposure	
Tier 1: ≥ 2 mSv (200 mrem) above plan:	_____
Tier 2: ≥ 1 mSv (100 mrem) above plan:	_____
Tier 3: ≥ 0.1 mSv (10 mrem) above plan:	_____
Unplanned internal tritium exposure	
Tier 1: ≥ 2 mSv (200 mrem) above plan:	_____
Tier 2: ≥ 1 mSv (100 mrem) above plan:	_____
Tier 3: ≥ 0.3 mSv (30 mrem) above plan:	_____
Unplanned internal exposure (other than tritium)	
\geq the licensee's recording level:	_____

Additional details as required:

Prepared by:

Date:

B.4 Loose and/or Fixed Contamination Events

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Loose and/or Fixed Contamination Events	
NPP:	
Year:	
Quarter:	
Tier 1: Loose and/or fixed contamination ≥ 37 kBq/m ² in zone 1 or public domain:	_____
Tier 2: Loose and/or fixed contamination in unzoned area, zone 1 or public domain, or widespread loose in zone 2:	_____
Tier 3: Widespread loose contamination in zone 3 or isolated loose in zone 2:	_____
Additional details as required:	
Prepared by:	Date:

B.5 Environmental Releases – Radiological

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Environmental Releases – Radiological															
NPP:															
Year:															
Quarter:															
Weekly airborne releases for the quarter (discharges to air): (AL = action limit and DRL = derived release limit)															
	Tritium oxide		Elemental tritium		Noble gases		Radioiodines		Particulates (Gross alpha)		Particulates (Gross beta/gamma)		Carbon-14		
Week	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	Bq/wk	%DRL/wk	
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
Monthly waterborne releases for the quarter (discharges to water): (AL = action limit and DRL = derived release limit)															

Month	Tritium oxide		Particulates (Gross alpha)		Particulates (Gross beta/gamma)		Carbon-14	
	Bq/month	%DRL/month	Bq/month	%DRL/month	Bq/month	%DRL/month	Bq/month	%DRL/month
M1								
M2								
M3								
Total								
Additional details as required:								
Prepared by:					Date:			

B.6 Spills

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Spills	
NPP:	
Year:	
Quarter:	
Category A/1:	_____
Category B/2:	_____
Category C/3:	_____
Additional details as required:	
Prepared by:	Date:

B.7 Mispositioning Index

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Mispositioning Index				
NPP:				
Year:				
Quarter:				
Additional details on E and C events as required:				
	Number of Mispositioning events/month (E)	Number of Consequential Mispositioning events/month (C)	Number of Non- Consequential Mispositioning events/month (NC)	Mispositioning Index Value (MIV)
Current month				
Current month-1				
Current month-2				
Average MIV for all 3 months				
<p>Note: Mispositioning index value (MIV) = $100 - (E*10) - (C*5) - (NC*1)$</p>				
Additional details as required:				
Prepared by:			Date:	

B.8 Number of Unplanned Transients

Performance Indicator Data Sheet Revision Date: yyyy-mm-dd

Title: Number of Unplanned Transients				
NPP:				
Year:				
Quarter:				
Section 1.0 Reactor trips:				
Auto or manual	Affected trip parameter(s)	% full power prior to trip	Event date	Reference
Section 2.0 Reactor stepbacks:				
Auto or manual	Affected trip parameter(s)	% full power prior to trip	Event date	Reference
Section 3.0 Reactor setbacks:				
Auto or manual	Affected trip parameter(s)	% full power prior to trip	Event date	Reference
Additional details as required:				
Prepared by:			Date:	

B.9 Reactivity Management Index

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Reactivity Management Index																																																																							
NPP:																																																																							
Year:																																																																							
Quarter:																																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Event Identifier Number</th> <th style="width: 15%;">RMEC Category</th> <th style="width: 15%;">RMEC Type</th> <th style="width: 15%;">Unit</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>						Event Identifier Number	RMEC Category	RMEC Type	Unit	Title	Date																																																												
Event Identifier Number	RMEC Category	RMEC Type	Unit	Title	Date																																																																		
Additional details as required:																																																																							
Prepared by:				Date:																																																																			

B.10 Unit Capability Factor

Performance Indicator Data Sheet (SPIs 10, 11 and 12)

Revision Date: yyyy-mm-dd

Title: Unit Capability Factor, Unplanned Capability Loss Factor and Forced Loss Rate								
NPP:								
Year:								
Quarter:								
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Unit Capacity (MWe)								
Reference Period (hrs)								
Reference Energy Generation (MWe-hrs)								
Planned Energy Losses (MWe-hrs)								
Unplanned Energy Loss (Mwe-hrs)								
Unplanned Energy Loss including High Lake Water Temperature (UEL including HLWT) (Mwe-hrs) (SPI 11)								
Unplanned Outage Extension Energy Losses (MWe-hrs)								

Unit Capability Factor (%) (SPI 10)								
Unplanned Capability Loss Factor (%) (SPI 11)								
Forced Loss Rate (%) (SPI 12)								
<p>Notes:</p> <p style="margin-left: 40px;">Unit capability factor (UCF) = ((REG – PEL – UEL) / REG) * 100%</p> <p style="margin-left: 40px;">Unplanned capability loss factor (UCLF) = (UEL) / REG) * 100%</p> <p style="margin-left: 40px;">Forced Loss Rate (FLR) = FEL / (REG – (PEL + OEL)) * 100%</p>								
<p>Additional details as required:</p>								
Prepared by:	Date:							

B.13 Reactor Trip Rate (RTR)

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Reactor Trip Rate (RTR)								
NPP:								
Year:								
Quarter:								
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Total number of automatic SDS trips								
Total hours during which reactor is critical (hrs)								
Reactor Trip Rate								
<p>Note: Reactor Trip Rate (RTR) = (total unplanned reactor trips while critical for the last 4 quarters * 7000) / (total number of hours reactor critical during the last 4 quarters). Note: 7000 hours represents a full year</p>								

Additional details as required:

Prepared by:

Date:

B.14 Corrective Maintenance Backlog

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Corrective Maintenance (CM) Backlog									
NPP:									
Year:									
Quarter:									
	Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Corrective critical work backlog									
Corrective non-critical work backlog									
Additional details as required:									
Prepared by:					Date:				

B.15 Deficient Maintenance Backlog

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Deficient Maintenance Backlog									
NPP:									
Year:									
Quarter:									
	Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Deficient critical work backlog									
Deficient non-critical work backlog									
Additional details as required:									
Prepared by:					Date:				

B.16 Deferral of Preventive Maintenance

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Deferral of Preventive Maintenance										
NPP:										
Year:										
Quarter:										
	Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit	Unit 5	Unit 6	Unit 7	Unit 8
Number of deferrals of critical preventative maintenance tasks										
Total number of deferred preventative maintenance tasks										
Additional details as required:										
Prepared by:						Date:				

B.17 Safety System Test Performance

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Safety System Test Performance										
NPP:										
Unit:										
Year:										
Quarter:										
	Unit 0	Unit 1	Unit 2	Unit 3	Unit 4	Unit	Unit 5	Unit 6	Unit 7	Unit 8
Missed Special safety system tests										
Performed Special safety system tests										
Missed Standby safety system tests										
Performed standby safety system tests										
Missed Safety-related process system tests										

Performed Safety-related process system tests										
Total Missed Tests										
Total Performed Tests										

Total missed tests (Special + Standby + Safety-related) = _____

Total tests performed (Special + Standby + Safety-related) = _____

Note: Count any SSTs that cover both standby and SSCs important to safety testing in one safety system test in both data fields.

Additional details as required:

Prepared by:

Date:

B.18 Preventive Maintenance Completion Ratio

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Preventive Maintenance Completion Ratio										
NPP:										
Year:										
Quarter:										
	Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit	Unit 5	Unit 6	Unit 7	Unit 8
Preventative Maintenance Jobs on SSCs important to safety completed										
Corrective Maintenance Jobs on SSCs important to safety completed										
Preventative Maintenance Completion Ration %										
Additional details as required:										

Prepared by:	Date:
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B.19 Chemistry Index

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Chemistry Index									
NPP: Year: Quarter:									
In Specification = IS _# is the number of hours that the parameter is within specification defined by the licensee documentation while each reactor unit is in an operational state.									
Operational = O _# is the number of hours that the parameter's corresponding plant system is operational as defined by licensee documentation while each reactor unit is an operational state.									
Parameter	Hours (hrs)	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Primary heat transport system pH _a (calc)	IS ₁								
	O ₁								
Primary heat transport system Dissolved D ₂	IS ₂								
	O ₂								
	IS ₃								

Primary heat transport system chloride	O ₃								
Primary heat transport system fluoride	IS ₄								
	O ₄								
Primary heat transport system conductivity	IS ₅								
	O ₅								
Annulus gas [O ₂]	IS ₆								
	O ₆								
Steam generators chloride	IS ₇								
	O ₇								
Steam generators sulphate	IS ₈								
	O ₈								
	IS ₉								

Steam generators sodium	O ₉								
Feedwater dissolved O ₂	IS ₁₀								
	O ₁₀								
Feedwater total iron	IS ₁₁								
	O ₁₁								
Feedwater total copper	IS ₁₂								
	O ₁₂								
Feedwater hydrazine	IS ₁₃								
	O ₁₃								
Condensate extraction pump dissolved [O ₂]	IS ₁₄								
	O ₁₄								
	IS ₁₅								

Condensate extraction pump pH	O ₁₅								
Total hours in specification									
Total hours in operation									
Chemistry index (%)									
Additional details as required (attach supplementary pages as necessary):									
Prepared by:					Date:				

B.20 Chemistry Compliance Index (non-GSS and GSS)

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Chemistry Compliance Index (non-GSS and GSS)											
NPP:											
Year:											
Quarter:											
<p>In Specification = IS_# is the number of hours that the parameter is within specification defined by the licensee documentation while each reactor unit is an operational state.</p> <p>Operational = O_# is the number of hours that the parameter's corresponding plant system is operational as defined by licensee documentation while each reactor unit is an operational state</p>											
Parameter		Unit 0A	Unit 0B	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
[Gd] in liquid injection safety system poison injection tanks	IS ₁										
	O ₁										
[Gd] in moderator (unit in poison outage after SDS2 actuated)	IS ₂										
	O ₂										
Moderator D ₂ O isotopic	IS ₃										
	O ₃										

Moderator ^3H	IS ₄											
	O ₄											
Moderator cover gas D ₂	IS ₅											
	O ₅											
Moderator conductivity	IS ₆											
	O ₆											
Primary heat transport system D ₂ O isotopic	IS ₇											
	O ₇											
Primary heat transport system ^3H	IS ₈											
	O ₈											
Primary heat transport system ^{131}I	IS ₉											
	O ₉											

D ₂ in cover gas of primary heat transport D ₂ O storage tank	IS ₁₀											
	O ₁₀											
Moderator to primary heat transport system D ₂ O isotopic purity difference check	IS ₁₁											
	O ₁₁											
Annulus gas system dew point	IS ₁₂											
	O ₁₂											
End shield cooling water pH	IS ₁₃											
	O ₁₃											
End shield cooling cover gas H ₂ (for Point Lepreau, Pickering 5-8)	IS ₁₄											
	O ₁₄											
ECI or ECC high-pressure water tanks pH	IS ₁₅											
	O ₁₅											

ECI or ECC high-pressure tank(s) hydrazine concentration	IS ₁₆										
	O ₁₆										
Liquid zone control cover gas [H ₂]	IS ₁₇										
	O ₁₇										
Liquid zone control conductivity	IS ₁₈										
	O ₁₈										
Total hours in specification during non-GSS											
Total hours in operation during non-GSS											
Non-GSS Chemistry Compliance Index (%)											

Guaranteed shutdown state (GSS)

In Specification = IS_# is the number of hours that the parameter is within specification defined by the licensee documentation while each reactor unit is an operational state.

Operational = O_# is the number of hours that the parameter's corresponding plant system is operational as defined by licensee documentation while each reactor unit is an operational state

Parameter		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Liquid injection safety system poison injection tanks pH ₂ (when SDS2 is available)	IS ₁								
	O ₁								
[Gd] in moderator	IS ₂								
	O ₂								
Moderator D ₂ O conductivity	IS ₃								
	O ₃								
Moderator D ₂ O pH _a	IS ₄								
	O ₄								
	IS ₅								

Supplementary parameter(s) sampled	O ₅									
	IS ₆									
	O ₆									
	IS ₇									
	O ₇									
Total hours in specification during GSS										
Total hours in GSS										
GSS Chemistry Compliance Index (%)										
Chemistry Compliance index (%)										

Additional details as required:	
Prepared by:	Date:

B.21 Conventional Health and Safety

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Conventional Health and Safety							
NPP:							
Year:							
Quarter:							
Worker category	Lost days	Number of fatalities	Number of lost-time injuries (LTIs)	Number of medically treated injuries	Number of injuries resulting in restricted work	Exposure hours (total number of hours worked at NPP)	Exposure hours Actual or Estimated
Employees							○ Actual ○ Estimated
Direct contractors							○ Actual ○ Estimated
Third-party contractors							○ Actual ○ Estimated
Total							
<p>Note: if information is unknown, indicate this in the table. For exposure hours, provide a conservative estimate if the actual number is unknown.</p> <p>**Need to make sure the distinction between direct contractors and 3rd party contractors is clear.**</p> <p>Calculated accident severity rate = _____</p> <p>Calculated accident frequency rate = _____</p> <p>Calculated industrial safety accident rate = _____</p>							
Additional details as required:							

Prepared by:	Date:
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B.22 Radiological Emergencies Performance Index

Performance Indicator Data Sheet Revision Date: yyyy-mm-dd

Title: Radiological Emergencies Performance Index	
NPP: Year: Quarter:	
<p>Number of performance opportunities completed is the total number of emergencies and simulated emergencies, drills evaluated by the ERO and exercises, excluding training, during the quarter.</p> <p>Number of successful performance opportunities is the total number of opportunities in which the timeliness and accuracy criteria specified in the licensee’s emergency preparedness plan have been met.</p> <p>Number of performance opportunities scheduled = _____</p> <p>Number of successful performance opportunities completed = _____</p> <p>Number of performance opportunities completed = _____</p>	
Additional details as required:	
Prepared by:	Date:

B.23 Emergency Response organization (ERO) Drill Participation Index

Performance Indicator Data Sheet Revision Date: yyyy-mm-dd

Title: Emergency Response organization (ERO) Drill Participation Index	
NPP: Year: Quarter:	
Submit the total number of ERO personnel fulfilling designated ERO positions and the number that participated in simulated emergencies at the nuclear power plant during the quarter.	
ERO drill participation index	
Total number of designated ERO positions	= _____
Number of ERO personnel fulfilling designated ERO positions that are participating in simulated emergencies (A)	= _____
Total number of qualified ERO personnel fulfilling designated ERO positions during the quarter (B)	= _____
Percentage of participating qualified ERO personnel (A/B)*100	= _____
Additional details as required:	
Prepared by:	Date:

B.25 Low- and Intermediate-Level Radioactive Solid Waste Generated

Performance Indicator Data Sheet

Revision Date: yyyy-mm-dd

Title: Low- and Intermediate-Level Radioactive Solid Waste Generated	
NPP:	
Year:	
Quarter:	
Low-level radioactive solid waste generated (m ³) = _____ Intermediate-level radioactive solid waste generated (m ³) = _____	
Additional details as required:	
Prepared by:	Date:

Event Reporting Templates

Event and Immediate Notification Preliminary Event Report

Licensee: [Please select address]

Prescribed Information: Yes No

For preliminary event reports, the information is required as far as practicable and applicable. Each section should be reviewed; use "NA" if "Not Applicable" or "TBD" for "To Be Determined". For reports pursuant to personnel (e.g. Table A.1 – 6 and 20(b)), please use separate form: "Personnel Situation Report".

Report No.:	Event Title:					
Report Type				Most applicable reporting provision: (Appendix A)		
<input type="checkbox"/> Preliminary Report - Report Complete? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Detailed Report – Preliminary Report Reference:						
<input type="checkbox"/> Event Reporting and Immediate Notifications: <input type="checkbox"/> <i>Immediately</i> Reportable under Appendix A: 2, 5, 7, 10, 11(a), 20(a-d), 23, 24, 26, 31 32(b), 33, 36, 37 <input type="checkbox"/> Reportable based on safety significance under Appendix A – 1(a), 4(a, b), 11(b, c), 12, 13, 14, 15, 17, 18, 19, 22, 27, 35 <input type="checkbox"/> Event is Higher significance and <i>Immediately</i> Reportable <input type="checkbox"/> Event Lower significance and reportable within 14 days <input type="checkbox"/> Reportable within under Appendix A (other timelines) – 8, 21 <input type="checkbox"/> Administrative Report or Notification: <input type="checkbox"/> <i>Immediately</i> Reportable under Appendix A – 1(b), 29, 32(a), 34 <input type="checkbox"/> Reportable under Appendix A (various timelines)– 3, 9, 16, 25, 28, 30						
Facility	Unit(s)	Date of Event	Time of Event	Date of Discovery (if different)	Time of Discovery (if different)	Event Duration
Affected structures, systems, components:						
System Name (USI, SCI or BSI and/or Equipment Code):						
Pressure Boundary	Design Flow Diagram	Design Pressure	Hydrostatic Test Pressure	Material Type and Code Classification		
Magnitude, size or quantification of degradation/fault (if applicable): <i>(e.g., approximate size, length, depth or leak rates, deviation from set point)</i>						

Event Description
Conditions of site, prior, during and after event, and operating condition of affected units, including reactor power:
Description of occurrence, circumstances and consequences of the situation, including any research or analysis that led to awareness of the problem or potential problem, the nature of any non-compliance with a licence condition, and any secondary events of regulatory interest:
Safety and control functions affected, including a summary of any impairment of a special safety system or SSCs important to safety:
Cause(s), including a summary of any analysis completed and evaluation of any design, operating and or training deficiencies and conclusions:
Code(s), standard(s) or methodology used to assess the significance of the degradation (if applicable):
Extent of condition or any review of a comparable situations or events
Measured or estimated doses to plant personnel and public as a consequence of the situation or event:

Resulting impact on the environment. Include name of the nuclear/hazardous substance, the estimated or measured quantity/rate and manner of release:
Other municipal, provincial and federal authorities that were notified of the situation or event:
<input type="checkbox"/> - TSSA, <input type="checkbox"/> - MOE, <input type="checkbox"/> - MOL, <input type="checkbox"/> - Environment Canada, <input type="checkbox"/> - RCMP/Local Law Enforcement , <input type="checkbox"/> - Other ()
Actions and/or remedial actions taken or proposed to be taken to correct or prevent recurrence of event, including, where applicable, actions identified and taken to restore the effectiveness of the radiation or environmental protection programs:
For immediately reportable events include notification details (CNSC Contact Name, Date and Time)

Designated representative of licensee:

Name: _____ **Title:** _____ **Date of report:** _____

Cyber Security Event Preliminary Event Report Form

Licensee: [Please select address]

Prescribed Information: Yes No

For preliminary event reports, the information is required as far as practicable and applicable. Each section should be reviewed; use "NA" if "Not Applicable" or "TBD" for "To Be Determined". For reports pursuant to personnel (e.g. Table A.1 – 6 and 20(b)), please use separate form: "Personnel Situation Report".

Report No.:		Event Title:				
Report Type				Most applicable reporting provision: (Appendix A)		
<input type="checkbox"/> Preliminary Report - Report Complete? <input type="checkbox"/> Yes <input type="checkbox"/> No						
<input type="checkbox"/> Detailed Report – Preliminary Report Reference:						
<input type="checkbox"/> 3.1.1 Event Reporting: <input type="checkbox"/> Table A.1 (27) – Event is reportable <input type="checkbox"/> Immediately OR <input type="checkbox"/> 14 calendar days based on significance system in CAS N290.7. <input type="checkbox"/> Other – Appendix A # (____)						
<input type="checkbox"/> 3.1.1 Notification: <input type="checkbox"/> Table A.1 (30) – Notification 60 days prior to cyber security exercise <input type="checkbox"/> Other – Appendix A# (____)						
Facility	Unit(s)	Date of Event	Time of Event	Date of Discovery (if different)	Time of Discovery (if different)	Event Duration
Affected structures, systems, components, network:						
System Name (USI, SCI or BSI and/or Equipment Code):						
Affected system information						

Safety or security classification	
Function	
Physical location	
Functional domain (eg. business system, operations, physical protection, emergency preparedness, safeguards, maintenance)	
Software	
Has system been restored?	
Event Description	
<p>Conditions of site, prior, during and after event, and operating condition of affected units, including reactor power. Description of cyber security infrastructure in place at time of incident.</p>	
<p>Description of occurrence, circumstances, detection and consequences of the situation, including any research or analysis that led to awareness of the problem or potential problem, the nature of any non-compliance with a licence condition, and any secondary events of regulatory interest:</p>	
<p>Description of adversary tactics, techniques and procedures. Provide information on suspected method of intrusion/attack, evidence of deception, vulnerabilities exploited, malware involved, if known.</p>	
<p>Timeline of event. Timeline should include date and time of initial infection, detection, and notification of internal stakeholders and external organizations:</p>	
<p>Threat actor, if known. Include possible motivation and level of confidence in attribution.</p>	
<p>Information, including prescribed information, potentially accessed, stolen, destroyed, and/or falsified. Include security classification:</p>	
<p>Cause(s), including a summary of any analysis completed and evaluation of any design, operating and or training deficiencies and conclusions:</p>	

Code(s), standard(s) or methodology used to assess the significance of the degradation (if applicable):	
Extent of condition or any review of a comparable situations or events, particularly with respect to safety, security, safeguards, emergency preparedness and communications networks/assets and backups used for situations. Indicate whether extent of condition has been determined for all networks:	
Boundary of infection Propagation pathway Level and extent of unauthorized access	
Measured or estimated doses to plant personnel and public as a consequence of the situation or event:	
Resulting impact on the environment. Include name of the nuclear/hazardous substance, the estimated or measured quantity/rate and manner of release:	
Other municipal, provincial and federal authorities that were notified of the situation or event:	
<input type="checkbox"/> - Local police <input type="checkbox"/> - RCMP <input type="checkbox"/> - Canadian Centre for Cyber Security <input type="checkbox"/> - Other NPP licensees ()	
Actions and/or remedial actions taken or proposed to be taken to correct or prevent recurrence of event, including, where applicable, actions identified and taken to restore the effectiveness of the radiation or environmental protection programs:	
Threat Risk Assessment	
<input type="checkbox"/> - Threat risk assessment requires updating <input type="checkbox"/> - No update to threat risk assessment required	
For immediately reportable events include notification details (CNSC Contact Name, Date and Time)	

Designated representative of licensee:		
Name: _____	Title: _____	Date of report: _____