



# Record of Decision

DEC 22-H2

In the Matter of

Applicant New Brunswick Power Corporation

Subject Application to Renew the Power Reactor  
Operating Licence of the Point Lepreau  
Nuclear Generating Station

Public Hearing January 26, 2022 (Part 1)  
Dates May 10-12, 2022 (Part 2)

Summary Record June 21, 2022  
of Decision Date

Detailed Record October 5, 2022  
of Decision Date

**RECORD OF DECISION – DEC 22-H2**

Applicant: New Brunswick Power Corporation

Address/Location: 515 King Street  
Fredericton, NB E3B 4X1

Purpose: Application to Renew the Power Reactor Operating Licence of the Point Lepreau Nuclear Generating Station

Application received: June 30, 2021

Dates of public hearing: January 26, 2022 (Part 1)  
May 10-12, 2022 (Part 2)

Location: Part 1: Virtual Hearing  
  
Part 2: Delta Hotel Saint John, Ballrooms A & B  
39 King Street  
Saint John, NB E2L 4W3

Members present: R. Velshi, President  
T. Berube  
S. Demeter  
R. Kahgee

Registrar: D. Saumure  
Recording Secretary: D. MacDonald  
Senior General Counsel: L. Thiele

|             |  |   |
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| See appendix A   |  |  |
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**Decision:** Licence Renewed

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## 1.0 INTRODUCTION

1. New Brunswick Power Corporation (NB Power) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> for the renewal of the Power Reactor Operating Licence (PROL) for its [Point Lepreau Nuclear Generating Station](#) (PLNGS) located in Lepreau, New Brunswick (NB), and on the territory covered by the Peace and Friendship Treaties with the Maliseet, Passamaquoddy and Mi'gmaq<sup>2</sup> peoples. NB Power requested a renewal of the licence for a period of 25 years. The then-current licence, PROL 17.01/2022, expired on June 30, 2022. On June 21, 2022, the Commission renewed the licence for the PLNGS for a period of 10 years.<sup>3</sup> This *Record of Decision* provides the detailed reasons for that decision.
2. The PLNGS site consists of a single 705-megawatt electric (MWe) Canada Deuterium Uranium-6 (CANDU-6) pressurized heavy water reactor and the Solid Radioactive Waste Management Facility (SRWMF). The SRWMF is used for the storage of radioactive waste, including used fuel, which is produced at the PLNGS site. NB Power holds a single licence for all activities at the PLNGS site, including the possession of nuclear substances and prescribed equipment. The reactor at the PLNGS began commercial operations in 1983 and was returned to commercial operation in 2012, following the completion of reactor refurbishment carried out between 2008 and 2012.

### Issues

3. The Commission is required to determine whether and what requirements the [Impact Assessment Act](#) (IAA)<sup>4</sup> imposes in relation to the activities sought to be authorized in NB Power's application to renew the licence for PLNGS. Satisfying any such requirements can be a prerequisite to licensing.
4. Pursuant to paragraphs 24(4)(a) and (b) of the [Nuclear Safety and Control Act](#) (NSCA)<sup>5</sup>, the Commission must be satisfied that:
  - a) NB Power is qualified to carry on the activity that the licence would authorize; and
  - b) in carrying on that activity, NB Power would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

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<sup>1</sup> The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

<sup>2</sup> Also "Mi'kmaq"

<sup>3</sup> The [Summary Record of Decision](#) is available on the CNSC website.

<sup>4</sup> S.C. 2019, c. 28, s. 1

<sup>5</sup> S.C. 1997, c. 9

5. As an agent of the Crown, the Commission recognizes its role in fulfilling the Crown's constitutional obligations, along with advancing reconciliation with Canada's Indigenous peoples. The Commission's responsibilities include the duty to consult and, where appropriate, accommodate Indigenous interests where the Crown contemplates conduct which may adversely impact potential or established Aboriginal<sup>6</sup> or treaty rights<sup>7</sup>. As such, the Commission must determine what engagement and consultation steps and accommodation measures are called for, respecting Indigenous interests.

### Public Hearing

6. On August 17, 2021, the Commission published a [Notice of Public Hearing and Participant Funding](#) for this matter, which invited requests to intervene by March 28, 2022. The Commission subsequently published two revised notices. The first, on [October 13, 2021](#), rescheduled Part 2 of the hearing to the following week. The second, on [April 7, 2022](#), added an additional day to Part 2 of the hearing and provided updated information on the hearing venue.
7. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission over which she would preside, including Commission members Dr. Timothy Berube, Dr. Sandor Demeter, and Mr. Randall Kahgee. The Commission, in making its decision, considered information presented for a two-part public hearing held virtually on January 26, 2022, and from May 10 to 12, 2022, in Saint John, New Brunswick. The public hearing was conducted in accordance with the [Canadian Nuclear Safety Commission Rules of Procedure](#)<sup>8</sup> (the Rules). During the public hearing, the Commission considered written submissions and heard oral presentations from NB Power ([CMD 22-H2.1](#), [CMD 22-H2.1A](#), [CMD 22-H2.1B](#)) and CNSC staff ([CMD 22-H2](#), [CMD 22-H2.A](#), [CMD 22-H2.B](#), and [CMD 22-H2.C](#)). The Commission also considered oral and written submissions from 243 intervenors (see Appendix A for a list of interventions). The hearing was webcast live via the CNSC website, and [video archives](#) are available on the CNSC's website. A *Summary Record of Decision* was issued on June 21, 2022.

### Request for Ruling

8. In accordance with section 20 of the Rules, PEACE-NB filed a request with the Commission for a ruling, captured in [CMD 22-H2.139B](#). PEACE-NB requested that:

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<sup>6</sup> "Aboriginal" is the term used in this document when referring to the Crown's duty to consult as that is the term used in S. 35 of the *Constitution Act, 1982*. In all other cases, "Indigenous" is the preferred terminology and used accordingly.

<sup>7</sup> *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73; *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, 2004 SCC 74

<sup>8</sup> Statutory Orders and Regulations (SOR)/2000-211.

- The Commission acknowledge there was a change in the PSA based Seismic Margin large release limit from .4g<sup>9</sup> to .344g in the 2017 licensing hearings.
- The Commission instruct NB Power to perform upgrades until they meet the previous .4g limit for large release as part of their continuous improvement program within the next 5 years.

The Commission heard this oral request for a ruling and asked that PEACE-NB submit its request in writing. The Commission provided CNSC staff and NB Power an opportunity to present their views on the request within 2 weeks. CNSC staff and NB Power provided the Commission with supplemental information pertaining to this request for ruling, which is captured in [CMD 22-H2.D](#) and [CMD 22-H2.1C](#), respectively.

9. CNSC staff provided information on the analysis methods used for seismic events.<sup>10</sup> CNSC staff reported that, at the time of the 2017 licensing hearing, NB Power used the probabilistic safety assessment (PSA)-based seismic margin assessment (SMA) method, the outcome of which is the high confidence of low probability of failure (HCLPF). CNSC staff explained that a full seismic PSA is preferred over a PSA-based SMA, as it allows for the quantification of the frequency of core damage or large releases and a comparison of these frequencies to established safety goals. CNSC staff reported that, since 2017, NB Power adopted a full seismic PSA, and that NB Power completed a seismic PSA update in 2021. CNSC staff confirmed that the core damage and large release frequencies of the updated seismic PSA meet the safety goals.
10. NB Power reported that typically one review-level earthquake is used in seismic assessments, but that in its 2008 PSA-based SMA it adopted a second “stretch” safety objective of a 0.4g HCLPF for prevention of large radiological releases, while maintaining the 0.3g HCLPF safety objective for severe core damage. NB Power reported that following a 2015 hazard assessment, it adopted a single review-level earthquake of 0.344g and that it met the HCLPF safety objective for the prevention of large releases and severe core damage. CNSC staff confirmed that there are no regulatory requirements specifying the HCLPF limit, and that a 0.4g HCLPF has not, at any time, been a licensing requirement. CNSC staff explained that the methodology NB Power used for the 2008 seismic assessment, which was accepted by CNSC staff, stated that a HCLPF in the range of 0.3g to 0.35g will be adopted as a safety objective. CNSC staff also explained that a safety objective is not equivalent to a safety limit.
11. With respect to PEACE NB’s request for ruling, the Commission finds that:
  - A seismic large release HCLPF limit of 0.4g is not, and has not been, a licensing requirement for the PLNGS.
  - There is no reasonable basis on which to require NB Power to perform upgrades to meet a 0.4g HCLPF limit, which is not a regulatory requirement.

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<sup>9</sup> “g” is a unit of acceleration. 1g is equal to the average gravitational acceleration at the earth’s surface.

<sup>10</sup> Section 3, [CMD 22-H2.D](#)



The Commission bases this conclusion on the following:

- The Commission notes that the HCLPF safety objective is a target, set by the licensee, not a limit that should not be exceeded.
- The Commission agrees with CNSC staff's assessment that NB Power's seismic PSA remains within regulatory requirements and that any changes to the methodology of the PSA for the PLNGS have been conducted in accordance with regulatory requirements.
- The Commission acknowledges that NB Power has moved from a PSA-based SMA to a full seismic PSA.

Further details on NB Power's PSA for the PLNGS are captured in section 4.2.4 of this *Record of Decision*.

#### Participant Funding Program

12. Pursuant to paragraph 21(1)(b.1) of the NSCA, the Commission has established a [Participant Funding Program](#) (PFP) to facilitate the participation of Indigenous Nations and communities, members of the public and stakeholders in Commission proceedings. In [August 2021](#), up to \$100,000 in funding was made available through the CNSC's PFP to review NB Power's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions. A Funding Review Committee (FRC), independent of the CNSC, reviewed the funding applications received and made recommendations on the allocation of funds. Based on the recommendations from the FRC, the CNSC awarded a total of [up to \\$176,741.98 to 7 applicants](#).

- Dr. Helmy Ragheb – up to \$1,500
- Gordon Dalzell – up to \$1,500
- Passamaquoddy Recognition Group Inc. – up to \$45,522.50
- Kopit Lodge – up to \$24,255
- Canadian Environmental Law Association – up to \$20,630
- Wolastoqey Nation in New Brunswick – up to \$33,701.16<sup>11</sup>
- Mi'gmawel Tplu'taqnn Incorporated – up to \$49,633.32

#### Mandate of the Commission

13. Many intervenors provided the Commission with information about the economic impact of the PLNGS. The Commission notes that, as the regulatory authority over nuclear matters in Canada, it has no economic mandate and will not base its decisions on the economic impact of a facility. It is the health, safety and security of persons, the protection of the environment, national security, and the

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<sup>11</sup> The Wolastoqey Nation in New Brunswick was unable to provide the CNSC with an intervention for this hearing.

implementation of the international obligations to which Canada has agreed that guide its decisions, in accordance with the NSCA.

### Scope of the Hearing

14. Some intervenors raised concerns regarding possible future activities at the PLNGS site, such as the development of small modular reactors (SMRs) and the reprocessing of nuclear fuel waste. The scope of the hearing did not include such possible future activities. In its application to renew the PROL for the PLNGS, NB Power included the same licensed activities as authorized under its current licence. The Commission notes that any future changes to these licensed activities would require authorization by the Commission and that any such requests would be subject to the Commission's hearing process when, and if, such an application comes before the Commission.

### Errata

15. On June 21, 2022, the Commission renewed NB Power's licence for the PLNGS. The renewed licence, PROL 22.00/2032, is valid from July 1, 2022, until June 30, 2032. The Commission notes that the licence number of the renewed licence, PROL 22.00/2032, which was based on the proposed licence in CNSC staff's submission,<sup>12</sup> is inconsistent with the established nomenclature related to the PLNGS. Therefore, to retain continuity with past licences, the Commission has revoked licence PROL 22.00/2032 and replaced it with the licence PROL 17.00/2032. Aside from the licence number, all terms and conditions of PROL 17.00/2032 are identical to those of PROL 22.00/2032, as discussed in this *Record of Decision*. The replaced licence number, PROL 17.00/2032, has been used in lieu of PROL 22.00/2032 throughout this *Record of Decision*.

## **2.0 DECISION**

16. Based on its consideration of this matter, as described in more detail in the following sections of this *Record of Decision*, the Commission is satisfied that:
- no requirements under the Impact Assessment Act (IAA) are imposed in relation to this matter;
  - the Commission's responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests have been satisfied;
  - NB Power is qualified to carry on the activities that the licence will authorize; and

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<sup>12</sup> Page 149, [CMD 22-H2](#), *Proposed Licence*

- NB Power, in carrying on these activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Power Reactor Operating Licence issued to New Brunswick Power Corporation for its Point Lepreau Nuclear Generating Station located in Lepreau, New Brunswick. The renewed licence, PROL 17.00/2032, is valid from July 1, 2022, until June 30, 2032.

17. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 22-H2. The Commission also delegates authority for the purposes of licence conditions 3.2 and 15.2, as recommended by CNSC staff.
18. The Commission finds the proposed financial guarantee amount of \$755.0 million (as of March 31, 2020) to be acceptable, and the related *Financial Security and Access Agreement* to be appropriate, as discussed further in section 4.4.2 of this *Record of Decision*.
19. With this decision, the Commission directs CNSC staff to report on the performance of NB Power and the PLNGS, as part of the periodic [\*Regulatory Oversight Report for Canadian Nuclear Power Generating Sites\*](#). CNSC staff shall present these reports at a public proceeding of the Commission. The Commission also directs CNSC staff to inform the Commission, as part of the *Regulatory Oversight Report*, of any changes made to the Licence Conditions Handbook (LCH). The Commission notes that CNSC staff can bring any matter to the Commission as applicable.
20. The Commission directs that NB Power provide a comprehensive update to the Commission on the conduct of its licensed activities at the PLNGS at the mid-point of the licence term, and no later than 2027. This update shall be made at a public proceeding that is to be conducted in the community in proximity to the PLNGS and shall allow for the participation, both orally and in writing, of members of the public and Indigenous Nations and communities. At this update, the Commission will also expect CNSC staff to provide information for the Commission to consider respecting the performance of NB Power during the licence term across all Safety and Control Areas (SCAs), that will consolidate relevant information from periodic *Regulatory Oversight Reports*, and that will provide a status update on other matters of regulatory importance to the Commission and to the community. The Commission intends that this public meeting will allow a meaningful opportunity for discussion of the views of members of the public and Indigenous Nations and communities, and will enable the Commission to be updated and kept apprised of matter of importance, including about plans for the future of the PLNGS site. Additionally, the Commission expects NB Power and CNSC staff in their updates to

specifically demonstrate the progress to date of addressing some of the issues of importance to the Commission and to intervenors, including:

- the conduct of Indigenous knowledge (IK) studies, and incorporation of IK in PLNGS practises;
- the formalization of engagement agreements with Indigenous Nations and communities, and the advancement of reconciliation; and
- work to reduce the PLNGS tritium source term.

21. The Commission recognizes the frequent concerns raised by intervenors at this and other public hearings regarding the availability of CMD reference materials. It is the expectation of the Commission that, by default, documents pertaining to a matter before the Commission be made readily available to members of the public and Indigenous Nations and communities. The Commission directs CNSC staff to implement a process to ensure the openness and transparency of information pertaining to matters before the Commission, such as documents referenced in CNSC staff submissions. The Commission notes that, as per section 12 of the Rules and detailed in the CNSC's [Guidance Document on Confidential Filings](#), it is the Commission that determines whether information shall be considered confidential<sup>13</sup>. Where information is determined to be confidential, the Commission expects suitable alternatives, such as a public summary or controlled access, to be readily available instead.

### **3.0 APPLICABILITY OF THE *IMPACT ASSESSMENT ACT***

22. In coming to its decision, the Commission was first required to determine whether any requirement under the IAA applied to the project and whether an impact assessment of the proposal was required.
23. The IAA came into force on August 28, 2019. Pursuant to the IAA and the [Physical Activities Regulations](#)<sup>14</sup> made under it, impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. A licence renewal is not a project designated under the *Physical Activities Regulations*. The Commission is satisfied there is no requirement under the IAA for an impact assessment to be completed. The Commission is also satisfied that there are no other applicable requirements of the IAA to be addressed in this matter.<sup>15</sup>

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<sup>13</sup> Information that is prescribed information for the purposes of the NSCA, as per section 21 of the [General Nuclear Safety and Control Regulations](#), is deemed confidential as a matter of course.

<sup>14</sup> SOR/2019-285

<sup>15</sup> The IAA can impose other requirements on federal authorities in respect of authorizing projects that are not designated as requiring an impact assessment, including projects that are to be carried out on federal lands, or projects outside of Canada. This licence renewal does not engage any such applicable IAA requirements

24. Based on the information provided for this hearing, the Commission concludes that there are no applicable requirements of the IAA to be addressed in regard to this licence renewal. Environmental protection is further discussed in Section 4.2.9 of this *Record of Decision*.

#### **4.0 ISSUES AND COMMISSION FINDINGS**

25. In making its licensing decision, the Commission considered a number of issues and submissions relating to NB Power's qualification to carry out the licensed activities authorized in the proposed licence. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.
26. The matter before the Commission is a renewal of an existing PROL, with no change in scope of the activities performed at the currently licensed site. The Commission notes that the licensed activities of the proposed licence remain the same as those already authorized in the current licence.
27. These reasons focus on the issues most relevant for this application, specifically:
- completeness of the licence application;
  - the 14 Safety and Control Areas (SCAs);
  - Indigenous engagement and consultation;
  - other matters of regulatory importance, such as public engagement, decommissioning plans and financial guarantee, and cost recovery; and
  - licence length and conditions

#### **4.1 Completeness of Licence Application**

28. NB Power submitted a licence renewal application for the PLNGS on June 30, 2021. In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by NB Power, as required by the NSCA, the [\*General Nuclear Safety and Control Regulations\*](#)<sup>16</sup> (GNSCR), the [\*Class I Nuclear Facilities Regulations\*](#)<sup>17</sup>, and other applicable regulations made under the NSCA, including the [\*Nuclear Security Regulations\*](#)<sup>18</sup>, the [\*Radiation Protection Regulations\*](#)<sup>19</sup>, and the [\*Nuclear Non-Proliferation Import and Export Control Regulations\*](#)<sup>20</sup>.

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<sup>16</sup> SOR/2000-202.

<sup>17</sup> SOR/2000-204

<sup>18</sup> SOR/2000-209

<sup>19</sup> SOR/2000-203

<sup>20</sup> SOR/2000-210

29. Regarding an application for the renewal of a licence, Section 5 of the GNSCR provides:

An application for the renewal of a licence shall contain

- (a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and
- (b) a statement identifying the changes in the information that was previously submitted.

Additionally, Section 7 of the GNSCR provides:

An application for a licence or for the renewal, suspension in whole or in part, amendment, revocation or replacement of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence.

30. NB Power's application and submission ([CMD 22-H2.1](#)) include information about the PLNGS site and activities to be licensed, the programs and policies across all 14 SCAs, other matters of regulatory interest, and detailed reference documents. In section 2.5 of its submission ([CMD 22-H2](#)), CNSC staff confirmed that NB Power's application was complete and contained sufficient supporting information to demonstrate that an adequate licensing basis had been established.
31. In its intervention, PEACE-NB ([CMD 22-H2.139](#) and [CMD 22-H2.139A](#)) expressed its general opinion that NB Power's application was not complete with respect to the requirements of [CNSC regulatory document \(REGDOC\)-1.1.3, Licence Application Guide: Licence to Operate a Nuclear Power Plant](#).<sup>21</sup> REGDOC-1.1.3 sets out requirements and guidance on applying to operate a Nuclear Power Plant (NPP) in Canada and identifies the information that should be included in the application. PEACE-NB did not specify what aspects of NB Power's application it believed were incomplete. Based on its review of the information submitted by NB Power and CNSC staff, the Commission sees no basis on which to find that the application was incomplete. The Commission finds that CNSC staff's review of NB Power's application was thorough and is satisfied that NB Power's application meets the regulatory requirements.
32. The Commission concludes that NB Power's licence application to renew the PROL of the PLNGS is complete and complies with the regulatory requirements respecting such an application. NB Power has submitted a comprehensive application with suitable reference material and the Commission notes that it is an application for the renewal of an existing licence with no substantive changes to the licensing basis.

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<sup>21</sup> REGDOC-1.1.3, *Licence Application Guide: Licence to Operate a Nuclear Power Plant*, CNSC, July 2022

## 4.2 Safety and Control Areas

33. The Commission examined CNSC staff's assessment of NB Power's performance in all 14 SCAs for the purpose of evaluating this application. The Commission also examined CNSC staff's assessment of NB Power's Periodic Safety Review (PSR) and associated integrated implementation plan (IIP), conducted in accordance with [REGDOC-2.3.3, \*Periodic Safety Reviews\*](#)<sup>22</sup>. NB Power's current PSR (referred to as PSR-2) is discussed in section 4.2.3. Throughout the current licence period,<sup>23</sup> CNSC staff rated NB Power's performance in all 14 SCAs as "satisfactory" or better.<sup>24</sup>

### 4.2.1 Management System

34. NB Power's management system covers the framework that establishes the processes and programs required to ensure that, in operating the PLNGS, NB Power achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.
35. NB Power provided the Commission with information on its management system,<sup>25</sup> including its governing documentation and processes, its organizational structure, and its safety culture assessments. NB Power also submitted information on its various performance assessment and improvement initiatives, including its corrective action program. Several intervenors, including the International Brotherhood of Electrical Workers (IBEW) Local 37 ([CMD 22-H2.209](#)), whose members include PLNGS workers, expressed the view that NB Power maintains a strong safety culture at the PLNGS.
36. CNSC staff submitted information on its assessment of NB Power's management system during the current licence period.<sup>26</sup> CNSC staff found that NB Power maintains and implements a management system at the PLNGS in accordance with the requirements of CSA group<sup>27</sup> (CSA) standard N286-12, *Management System Requirements for Nuclear Facilities*<sup>28</sup> (CSA N286-12). CNSC staff reported that NB Power transitioned from the 2005 version of CSA N286 to the 2012 version during the current licence period and noted that NB Power plans to update its environmental qualification process during the proposed licence period to align with CSA N286-12 and CSA standard N290.13-05, *Environmental Qualification of*

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<sup>22</sup> REGDOC-2.3.3, *Periodic Safety Reviews*, CNSC, April 2015

<sup>23</sup> Based 2017-2020 performance ratings and 2021 preliminary ratings.

<sup>24</sup> The performance rating of "satisfactory" is the highest such rating. Use of the "fully satisfactory" performance rating was discontinued as of 2019.

<sup>25</sup> Section 2.0, [CMD 22-H2.1](#)

<sup>26</sup> Section 3.1, [CMD 22-H2](#)

<sup>27</sup> Formerly the Canadian Standards Association, the CSA Group makes its nuclear series standards freely viewable to members of the public on its website by means of a guest account.

<sup>28</sup> N286-12, *Management System Requirements for Nuclear Facilities*, CSA Group, 2012 (Reaffirmed in 2017)

*Equipment for CANDU Nuclear Power Plants.*<sup>29</sup> Regarding regulatory oversight and compliance verification, CNSC staff noted that inspection findings in areas such as the management of contractors were of negligible or low safety significance, and that NB Power's implementation of corrective actions was appropriate. CNSC staff informed the Commission that it plans to assess NB Power's 2021 Safety Culture assessment and the implementation of [REGDOC-2.1.2, Safety Culture](#)<sup>30</sup> during the proposed licence period.

37. During the current licence period NB Power was required to respond to the COVID-19 pandemic, which began in 2020. CNSC staff found that NB Power updated its business continuity processes, as documented in a pandemic response plan, to address and minimize impacts to the safe operation of the PLNGS. CNSC staff reported that NB Power continually updated station protocols in alignment with the New Brunswick Office of the Chief Medical Officer of Health. The Commission is satisfied that NB Power responded to the COVID-19 pandemic without impacting the safe operation of the PLNGS.
38. The Commission concludes that NB Power has appropriate organization and management structures in place to carry on the licensed activities at the PLNGS. The Commission bases its conclusion on the following:
  - The Commission agrees with CNSC staff's assessment that NB Power's management system meets regulatory requirements, including CSA N286-12.
  - The Commission finds that NB Power maintains a healthy safety culture at the PLNGS; this was also CNSC staff's assessment, and was the informed opinion of several intervenors with experience of the issue.
  - The Commission is satisfied that CNSC staff will verify the implementation of REGDOC-2.1.2 during the proposed licence period.

#### 4.2.2 Human Performance Management

39. Human performance management encompass activities that ensure that PLNGS staff are sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures, and tools in place to safely carry out their duties.
40. NB Power provided the Commission with information on its human performance program for the PLNGS.<sup>31</sup> NB Power detailed its programs for ensuring minimum shift complement, personnel training, certification and requalification, and fitness for duty. With respect to ensuring fitness for duty, NB Power highlighted its prevention, support, hours of work, and drug and alcohol programs. NB Power

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<sup>29</sup> N290.13-05, *Environmental Qualification of Equipment for CANDU Nuclear Power Plants*, CSA Group, 2005 (Reaffirmed in 2015)

<sup>30</sup> REGDOC-2.1.2, *Safety Culture*, CNSC, April 2018

<sup>31</sup> Section 3.0, [CMD 22-H2.1](#)



reported that it had implemented new shift scheduling in 2021 in accordance with [REGDOC-2.2.4, \*Fitness for Duty, Volume I: Managing Worker Fatigue\*](#)<sup>32</sup> and has committed to comply with the requirements of the recently-published [REGDOC-2.2.4, \*Fitness for Duty, Volume II: Managing Alcohol and Drug Use\*](#).<sup>33</sup>

41. CNSC staff submitted information on its assessment of NB Power's human performance management system.<sup>34</sup> CNSC staff found that NB Power maintains and implements human performance management programs at the PLNGS that meet CNSC requirements. CNSC staff reported that NB Power's training system continues to be based on a systematic approach to training (SAT) and is compliant with the requirements of [REGDOC-2.2.2, \*Personnel Training\*](#).<sup>35</sup> CNSC staff also reported that NB Power has implemented a personnel certification process, in accordance with [REGDOC-2.2.3, \*Personnel Certification, Volume III: Certification of Persons Working at Nuclear Power Plants\*](#),<sup>36</sup> that ensures workers assigned to positions with a direct impact on the safe operations of the PLNGS are fully qualified.
42. Regarding fitness for duty, the Commission asked about the implementation status of REGDOC-2.2.4, *Volume II*. NB Power stated that it has implemented portions of REGDOC-2.2.4, *Volume II* but that the implementation of random and pre-placement drug and alcohol testing has been put on hold. CNSC staff explained that the Federal Court of Canada ordered the implementation of such testing to be stayed pending final disposition of a judicial review application that was underway<sup>37</sup>. In its submission, CNSC staff noted that it would verify NB Power's implementation of REGDOC-2.2.4, *Volume I* and *Volume II* as well as [REGDOC-2.2.4, \*Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness\*](#),<sup>38</sup> which is discussed further in section 4.2.12 of this decision, during the proposed licence period. The Commission is satisfied that NB Power will implement any outstanding requirements of REGDOC 2.2.4, *Volume II* in a timely manner following final disposition by the Federal Court of Canada of the legal matter.
43. The Commission asked about the personnel training programs in place at the PLNGS. NB Power representatives detailed various programs, including safety culture training, control room operator training, and training for contractors working on the site. CNSC staff reported that improvements to NB Power's Control Room Operator in Training program are included in the *Training Excellence Plan*. In their presentations, Westinghouse Electric Canada ([CMD 22-H2.2](#)) and Lorneville

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<sup>32</sup> REGDOC-2.2.4, *Fitness for Duty, Volume I: Managing Worker Fatigue*, CNSC, March 2017

<sup>33</sup> REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, CNSC, January 2021

<sup>34</sup> Section 3.2, [CMD 22-H2](#)

<sup>35</sup> REGDOC-2.2.2, *Personnel Training*, CNSC, December 2016

<sup>36</sup> REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Persons Working at Nuclear Power Plants*, CNSC, September 2019

<sup>37</sup> Federal Court number T-1222-21

<sup>38</sup> REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness*, CNSC, September 2018

Mechanical Ltd. ([CMD 22-2.132](#)), highlighted the safety culture at the PLNGS and the high-quality of training their staff receive from NB Power in order to perform work on the PLNGS site. The Commission is satisfied that NB Power maintains an adequate personnel training program at the PLNGS.

44. The Commission concludes that NB Power has appropriate human performance management programs in place for the conduct of the licensed activities at the PLNGS. The Commission's conclusion is based on the following:
- The Commission agrees with CNSC staff's assessment that NB Power maintains training and certification programs in accordance with regulatory requirements, including REGDOC-2.2.2 and REGDOC 2.2.3.
  - The Commission is satisfied that the evidence presented by NB Power and CNSC staff has demonstrated that NB Power's employees are appropriately trained and qualified.
  - The Commission is satisfied that NB Power ensures employees remain fit for duty and that CNSC staff will verify the implementation of REGDOC-2.2.4, *Version I, II, and III* during the proposed licence period.

Regarding pre-placement drug and alcohol testing, the Commission directs CNSC staff to provide an update to the Commission on NB Power's implementation of these requirements following final disposition by the Federal Court of Canada.

#### *4.2.3 Operating Performance*

45. NB Power's operating performance at the PLNGS includes an overall review of the conduct of the licensed activities and the activities that enable effective performance, as well as improvement plans and significant future activities at the PLNGS.
46. NB Power provided the Commission with information on how it ensures licensed activities are conducted safely at the PLNGS.<sup>39</sup> This includes its operations program, which NB Power noted ensures that PLNGS facilities are operated in a manner consistent with regulatory requirements and incorporates the monitoring of performance indicators. NB Power reported that it ensures safety and operational effectiveness by maintaining standardized procedures, and that processes are in place to ensure these procedures remain up to date. NB Power also detailed its outage management performance and noted that during the current licence period it achieved 417 consecutive days online between outages.
47. CNSC staff submitted information on its assessment of NB Power's operating performance at the PLNGS.<sup>40</sup> CNSC staff found that NB Power continues to operate the PLNGS safely and in accordance with regulatory requirements. CNSC staff

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<sup>39</sup> Section 4.0, [CMD 22-H2.1](#)

<sup>40</sup> Section 3.3, [CMD 22-H2](#)

evaluated unplanned transients<sup>41</sup> at the PLNGS to ensure NB Power adheres to its operating processes and found that NB Power, in each case, followed approved procedures, investigated the root cause, and took appropriate corrective actions. Regarding NB Power's performance with respect to outage management, CNSC staff reported that NB Power safely completed work during planned and unplanned outages during the licence period.

48. Several interventions, including members of the Coalition for Responsible Energy Development in New Brunswick (CRED-NB), raised concerns about their confidence in NB Power's operating performance, noting issues and delays during the refurbishment project carried out between 2008 and 2012. The Commission asked for more information concerning NB Power's approach to the refurbishment project. An NB Power representative highlighted the technical complexity of the refurbishment project, including calandria tube replacement, and stated that NB Power prioritizes safety in its operations, which can sometimes affect a project's schedule. CNSC staff stated that, from a safety perspective, NB Power made the correct decisions during the refurbishment project. CNSC staff noted that learning from operational experience is a continuous process.
49. Asked if recent worldwide supply chain issues had affected outages at the PLNGS, an NB Power representative indicated that NB Power has anticipated the need for parts farther in advance of planned outages to ensure availability. The Commission is satisfied that NB Power has prioritized safety in its operation of the PLNGS.
50. To protect the safety of the public in the unlikely event of a beyond-design-basis event at the PLNGS, NB Power submitted that it maintains a robust severe accident management (SAM) and recovery program in accordance with [REGDOC-2.3.2, \*Severe Accident Management Programs for Nuclear Reactors\*](#).<sup>42</sup> NB Power detailed the various documents that support the transition from a design basis event to a beyond design basis event, including abnormal plant operating procedures (APOPs), emergency mitigating equipment guidelines, and SAM guidelines. NB Power noted that it will conduct work during the proposed licence period to better understand plant conditions during postulated accidents. CNSC staff reported that NB Power has improved its APOPs during the current licence period, including how it creates and validates the procedures and enhancements to the content. CNSC staff found that NB Power has implemented and continues to maintain a SAM program at the PLNGS that meets the requirements of REGDOC-2.3.2 and [REGDOC-2.10.1, \*Nuclear Emergency Preparedness and Response\*](#).<sup>43</sup> Emergency management is further discussed in section 4.2.10.
51. Regarding the tracking of events at the PLNGS, NB Power submitted that it meets the requirements for reporting to the CNSC and trending through its management system. NB Power noted that no significant events occurred at the PLNGS during

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<sup>41</sup> Unplanned transients include setbacks, stepbacks, and automatic reactor trips that result in a reactor shutdown

<sup>42</sup> REGDOC-2.3.2, *Severe Accident Management Programs for Nuclear Reactors*, CNSC, September 2015

<sup>43</sup> REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, CNSC, February 2016

the licence period, and that trending would permit it to proactively determine if decreases in performance were to occur. CNSC staff reported that NB Power continues to report events in accordance with [REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants](#).<sup>44</sup> CNSC staff found that, for all reportable events, NB Power followed up with appropriate corrective actions and analyses.

52. With respect to the safe operating envelope (SOE), CNSC staff submitted that NB Power implements and maintains a program for the SOE in accordance with CSA standard N290.15, *Requirements for the Safe Operating Envelope for Nuclear Power Plants*.<sup>45</sup> In his intervention ([CMD 22-H2.177](#)), Helmy Ragheb expressed concerns with NB Power's maintenance of the PLNGS SOE, highlighting a shutdown system surveillance test conducted in 2019 and noting that, in his opinion, it is possible that NB Power has unknowingly operated the PLNGS outside of the SOE. Asked how it corrects for changes to the SOE over time, an NB Power representative explained that design changes would trigger a revision to the SOE. CNSC staff stated that it performs annual compliance verification inspections on the SOE, reviews any unscheduled events, and that changes to the SOE must be reported to the CNSC. Regarding the event highlighted in the intervention, CNSC staff explained that the event was a misalignment of acceptance criteria between the test and the safety analysis. CNSC staff confirmed that SOE limits have never been exceeded. CNSC staff added that processes are in place to correct identified document discrepancies, and that these discrepancies do not imply an unsafe condition. The Commission is satisfied that NB Power adequately maintains the SOE for the PLNGS.

#### Periodic Safety Review

53. In accordance with [REGDOC-2.3.3, Periodic Safety Reviews](#),<sup>46</sup> NB Power submitted to the CNSC a Periodic Safety Review (PSR) covering a 10-year period from 2022 to 2032. This current PSR, referred to as PSR-2, is the second PSR following the refurbishment of the PLNGS. The purpose of PSR-2 is to demonstrate the continued safe operation of the PLNGS and to determine reasonable and practical improvements that ensure the implementation of continuous safety enhancements. CNSC staff submitted information to the Commission, found in section 2.6 of [CMD 22-H2](#), on its assessment of PSR-2. To address Commission questions raised during Part 1 of the hearing, CNSC staff provided additional information on the PSRs in section 4.1 of [CMD 22-H2.B](#). CNSC staff reported that PSR-2 does not identify major design changes to the PLNGS, and that identified areas for improvement are captured in the associated IIP.
54. CNSC staff reported that the IIP for PSR-2 is made up of 41 aggregate findings and 385 individual actions across 9 SCAs. NB Power submitted that no safety concerns requiring immediate action were identified in PSR-2. CNSC staff included NB

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<sup>44</sup> REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, CNSC, April 2016

<sup>45</sup> N290.15, *Requirements for the Safe Operating Envelope for Nuclear Power Plants*, CSA Group, 2019

<sup>46</sup> REGDOC-2.3.3, *Periodic Safety Reviews*, CNSC, April 2015

Power's completion status of IIP actions in its submission, noting that 300 actions had been completed. CNSC staff found that PSR-2 and the associated IIP identified no major concerns and noted that NB Power is required to complete an additional PSR prior to the end of the 10-year validity period of PSR-2.

55. CNSC staff included details throughout its submission on the status of specific actions of NB Power's IIP associated with each relevant SCA, including the following:
- Management system – relating to improving the configuration management process
  - Human performance management – relating to aligning with industry best practices for personnel training, personnel certification, and fitness for duty
  - Operating Performance – relating to enhancement plans for SAM
  - Safety analysis – relating to the deterministic safety analysis, PSA hazard analysis, severe accident analysis, and the management of safety issues
  - Physical design – relating to design governance and component upgrades
  - Fitness for service – relating to maintenance, aging management, and inspection and testing
  - Radiation protection – relating to the application of ALARA, worker dose control, and radiological hazard control, as well as a planned 2028 project to replace the PLNGS moderator<sup>47</sup> water
  - Environmental protection – relating to estimating dose to the public, effluent and emissions controls, environmental managements system, and environmental risk assessment
  - Emergency management and fire protection – relating to conventional and nuclear emergency preparedness and response
  - Waste management – relating to waste management practices and decommissioning plans
56. The Commission asked for more information regarding the availability of the IIP, and how changes to the IIP are reported. CNSC staff responded that the IIP documents are not confidential and are available upon request. CNSC staff explained that, with recent changes to REGDOC-2.3.3, CNSC staff approve the IIP and any changes to the IIP that are safety-neutral. CNSC staff noted that any changes that may impact safety would be brought to the Commission's attention through existing reporting mechanisms.
57. The Commission is satisfied that NB Power will continue to make progress towards the completion of PSR-2 IIP actions and that CNSC staff will verify NB Power's satisfactory completion of these actions. The Commission expects that CNSC staff will periodically report on the status of IIP actions through the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites*.

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<sup>47</sup> The moderator of a CANDU reactor is a volume of heavy water contained within the calandria that surrounds the fuel channels and is used to slow down, or "moderate", neutrons produced by the nuclear fuel.

### Conclusion on Operating Performance

58. Having considered the evidence provided for this hearing pertaining to the operating performance of NB Power at the PLNGS during the current licence period, the Commission concludes that NB Power remains qualified to carry out the activities under the proposed licence. Further:
- The Commission agrees with CNSC staff's assessments that NB Power has operated the PLNGS in accordance with regulatory requirements over the current licence period and that programs and procedures meet regulatory expectations, including REGDOC 2.3.2 and REGDOC 3.1.1.
  - The Commission is satisfied that the evidence provided by CNSC staff and NB Power demonstrates that NB Power meets the requirements of CSA N290.15 and maintains a suitable SOE program at the PLNGS.
  - The Commission is of the opinion that NB Power will continue to improve the safety of PLNGS operations through the completion of outstanding actions outlined in the PSR-2 IIP, and through subsequent PSRs conducted in accordance with REGDOC 2.3.3.

#### *4.2.4 Safety Analysis*

59. NB Power's safety analysis supports the overall safety case for the PLNGS. Safety analysis includes a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.
60. NB Power submitted information<sup>48</sup> on its various safety analyses for the PLNGS. NB Power detailed its deterministic safety analyses and a gap analysis it performed against the requirements of [REGDOC-2.4.1, \*Deterministic Safety Analysis\*](#).<sup>49</sup> NB Power reported that it has established a method of evaluating the significance of identified gaps. NB Power also detailed its probabilistic safety assessment (PSA) program, which it has recently updated in order to be compliant with [REGDOC-2.4.2, \*Probabilistic Safety Assessment \(PSA\) for Nuclear Power Plants\*](#).<sup>50</sup> NB Power submitted that, to support the PSA and in accordance with REGDOC-2.4.2, it performs severe accident analyses on several postulated BDB accidents.
61. CNSC staff provided information<sup>51</sup> to the Commission on its assessment of NB Power's safety analyses for the PLNGS. CNSC staff found that NB Power made improvements in this SCA over the current licence period and continues to maintain a high level of safety. In 2021, CNSC staff accepted NB Power's most recent

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<sup>48</sup> Section 5.0, [CMD 22-H2.1](#)

<sup>49</sup> REGDOC-2.4.1, *Deterministic Safety Analysis*, CNSC, May 2014

<sup>50</sup> REGDOC-2.4.2, *Probabilistic Safety Assessment (PSA) for Nuclear Power Plants*, CNSC, May 2022

<sup>51</sup> Section 3.4, [CMD 22-H2](#)

revision of PLNGS implementation plan for REGDOC-2.4.1. As part of this plan, NB Power submitted trip<sup>52</sup> coverage analyses for 4 classes of accidents, which CNSC staff found to be consistent with the requirements of REGDOC-2.4.1 and CSA standard N286.7-16, *Quality Assurance of Analytical, Scientific, and Design Computer Programs for Nuclear Power Plants*.<sup>53</sup> In 2018, CNSC staff accepted NB Power's updated PSA methodologies and found these methodologies met the requirements of REGDOC-2.4.2.

62. CNSC staff detailed its assessment of the site-specific hazard assessment conducted by NB Power for its characterization of the PLNGS site. CNSC staff found that there is no evidence of any safety-significant risk in the specific hazard assessment. Regarding tsunami flooding, CNSC staff noted that the PLNGS site is 13.7 m above sea level and that no modeled tsunami scenarios would produce water levels high enough, even at the highest tide level of 4 m, to reach the site.
63. In his intervention ([CMD 22-H2.177](#)), Helmy Ragheb raised concerns that NB Power had not completed a design basis earthquake deterministic safety analysis. Asked if such an analysis had been performed for the PLNGS, NB Power explained that a design basis earthquake analysis has been part of the safety report since the 1980s and that no significant gaps were identified following an event-specific gap assessment it performed against the requirements of REGDOC-2.4.1. CNSC staff explained that REGDOC-2.4.1 is primarily focused on new reactor construction, but that existing CANDU operators are applying this document to the extent practicable. CNSC staff confirmed that there is no safety gap in this regard. The Commission is satisfied that NB Power completed a design basis earthquake deterministic safety analysis as part of commissioning the PLNGS and that a subsequent gap analysis against the requirements of REGDOC-2.4.1 has not identified an impact to safety.
64. Regarding the concerns raised by several intervenors on the impacts of climate change on the PLNGS, including CRED-NB and the Canadian Environmental Law Association (CELA) ([CMD 22-H2.194](#)) and the Rural Action and Voices for the Environment (RAVEN) ([CMD 22-H2.197](#)), the Commission asked NB Power to address how the PLNGS safety analyses accounts for climate change. CNSC staff submitted information on the consideration of climate change in section 4.4 of [CMD 22-H2.B](#). CNSC staff explained that changes to the PLNGS over time, including climate change, are considered through the regular PSR and PSA updates, as well as gap analyses performed against updated regulatory requirements. An NB Power representative stated that NB Power conducts forward-looking hazard screening assessments, which assess the significance of individual and combinations of hazards to determine the risks to the PLNGS. NB Power noted that in its recent analysis, the risk to the PLNGS due to climate change was found to be low. A representative of Environment and Climate Change Canada (ECCC) explained that the PLNGS is sufficiently above sea level to accommodate scenarios including

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<sup>52</sup> A trip, or reactor trip, is a reduction in reactor power initiated by any of a reactor's safety circuits.

<sup>53</sup> N286.7-16, *Quality Assurance of Analytical, Scientific, and Design Computer Programs for Nuclear Power Plants*, CSA Group, 2016 (Reaffirmed 2021)

extreme sea level rises due to climate change combined with a postulated worst-case tsunami. Further details on the characterization of the PLNGS site are discussed in section 4.2.5.

65. The Commission concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the PLNGS and the activities under the proposed license. The Commission bases its conclusion on the following:
- The Commission agrees with CNSC staff's assessment that NB Power's safety analysis program for the PLNGS meets regulatory requirements, including those defined in REGDOC-2.4.1, REGDOC-2.4.2, and CSA N286.7.
  - The Commission is satisfied the evidence provided by NB Power and CNSC staff demonstrates that climate change, and other changes to the PLNGS over time, are accounted for through the routine updating of safety analyses.
  - The Commission is satisfied that any gaps identified against current regulatory requirements are not of safety significance, will be addressed in an appropriate manner, and will be verified by CNSC staff through regulatory oversight activities.

#### 4.2.5 Physical Design

66. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems. This includes the physical design of facilities at the PLNGS, as well as the activities to design systems, structures, and components to meet and maintain the design basis of the facility.
67. NB Power included information in its submission on how it manages the design of systems at the PLNGS.<sup>54</sup> NB Power reported that it maintains a design configuration process that complies with CSA standard N291-15, *Requirements for Safety-related Structures for CANDU Nuclear Power Plants*<sup>55</sup> and CSA standard N290.12-14, *Human Factors in Design for Nuclear Power Plants*.<sup>56</sup> NB Power provided details on the design of existing facilities and structures at the PLNGS and highlighted its defence in depth approach, which involves multiple redundant safety systems. NB Power also detailed its configuration and change control program, which includes a pressure boundary program in accordance with CSA standard N285.0-17, *General Requirements for Pressure-retaining Systems and Components in CANDU Nuclear Power Plants*.<sup>57</sup>

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<sup>54</sup> Section 6.0, [CMD 22-H2.1](#)

<sup>55</sup> N291-15, *Requirements for Safety-related Structures for CANDU Nuclear Power Plants*, CSA Group, 2015

<sup>56</sup> N290.12-14, *Human Factors in Design for Nuclear Power Plants*, CSA Group, 2014 (Reaffirmed in 2019)

<sup>57</sup> N285.0-17, *General Requirements for Pressure-retaining Systems and Components in CANDU Nuclear Power Plants*, CSA Group, 2017



68. CNSC staff provided information on its assessment of the design programs in place at the PLNGS<sup>58</sup> and found that NB Power meets regulatory requirements for the physical design SCA. CNSC staff reported that its findings from an inspection of human factors in design were of low safety significance. Regarding NB Power's pressure boundary program, CNSC staff confirmed that NB Power maintains a formal service agreement with an authorized inspection agency in accordance with CSA N285.0. CNSC staff also evaluated NB Power's programs to manage the design of components, systems, and structures at the PLNGS, noting that NB Power meets regulatory requirements.
69. The Passamaquoddy Recognition Group Inc. (PRGI) ([CMD 22-H2.244](#)) raised concerns about the suitability of condenser relief valves at the PLNGS. The Commission asked for more details relating to the assessment of such valves. An NB Power representative stated that there is no safety issue associated with the valves and that they are appropriately sized. CNSC staff confirmed that the valves have been examined thoroughly and that the current valves are adequate. CNSC staff also confirmed that there are no outstanding safety concerns related to the safety questions raised by the Canadian Coalition for Nuclear Responsibility (CCNR) ([CMD 22-H2.228](#)). CNSC staff noted that these questions were addressed to the Commission's satisfaction in a 2017 Commission meeting.<sup>59</sup>
70. Noting the concerns about the frequency of fuel defects raised by Northwatch in its intervention ([CMD 22-H2.220](#)), the Commission asked about the design of fuel-related systems at the PLNGS. CNSC staff responded that fuel defects are expected to occur occasionally and that systems exist to detect and address them. CNSC staff explained that small metal fragments in the heat transport system can become caught in fuel bundles, eventually causing fuel defects through wear, and that such fragments eventually settle out of the system. Asked about any risk to other reactor systems due to the metal fragments, an NB Power representative stated that the fragments are too small to cause damage to other systems or equipment, such as pumps. CNSC staff found that the rate of fuel failures at the PLNGS, approximately 3 per year, was not a concern to the safe operation of the station. CNSC staff noted that NB Power has committed to conduct a review to identify potential causes for fuel defects, focussing on sources of foreign material ingress. The Commission is satisfied that NB Power adequately manages fuel defects at the PLNGS.
71. The Commission asked about the seismic qualification program for the PLNGS. CNSC staff stated that NB Power does not have a formal seismic qualification program in place at the PLNGS and is required to develop a seismic qualification governance document for the PLNGS in accordance with CSA standard N289.1-18, *General Requirements for Seismic Design and Qualification of CANDU Nuclear Power Plants*.<sup>60</sup> An NB Power representative explained that the PLNGS uses a

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<sup>58</sup> Section 3.5, [CMD 22-H2](#)

<sup>59</sup> [Minutes of the Canadian Nuclear Safety Commission \(CNSC\) Meeting held on March 8, 2017](#)

<sup>60</sup> N289.1-18, *General Requirements for Seismic Design and Qualification of CANDU Nuclear Power Plants*, CSA Group, 2018

process-based governance system, which divides aspects of such a program across different process streams. The NB Power representative informed the Commission that NB Power is making progress to fully establish the program requirements of CSA N289.1-18 within its process-based management system. CNSC staff confirmed that there are no concerns regarding the existing seismic processes or the seismic qualification of structures, systems, and components at the PLNGS.

72. The Commission concludes that NB Power continues to implement and maintain an effective design program at the PLNGS. The Commission bases its conclusion on the following:
- The Commission is satisfied that the evidence provided by NB Power and CNSC staff sufficiently demonstrates that the design of the PLNGS continues to be adequate for the proposed licence period.
  - The Commission agrees with CNSC staff's assessment that NB Power has adequate resources in place to safely manage and implement design changes that are within the licensing basis.
  - The Commission agrees with CNSC staff's assessment that NB Power meets physical design related regulatory requirements, including CSA N291, CSA N290.12, and CSA N285.0.
  - The Commission is satisfied that NB Power has maintained adequate seismic qualification through its process governance system and that NB Power will develop a consolidated seismic qualification document, as part of continuous improvement, that meets CNSC staff expectations and the requirements of CSA N289.1-18.

#### 4.2.6 *Fitness for Service*

73. Fitness for service covers activities that are performed to ensure that systems, structures, and components at the PLNGS continue to effectively fulfill their intended purpose.
74. NB Power submitted information on its fitness for service programs at the PLNGS.<sup>61</sup> NB Power provided details on the programs it has in place to monitor the performance of structures, systems, and components and ensure sufficient reliability. NB Power highlighted efforts to reduce the maintenance backlog at the PLNGS during the current licence period and noted that it continues to improve reliability through projects to replace and upgrade equipment, such as the planned 2022 replacement of the high-pressure turbine. NB Power also detailed the various programs it has in place to ensure equipment at the PLNGS remains fit for service, including managing aging, controlling chemistry, and periodic inspections.

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<sup>61</sup> Section 7.0, [CMD 22-H2.1](#)

75. CNSC staff provided the Commission with information on its assessment of NB Power's fitness for service programs at the PLNGS.<sup>62</sup> CNSC staff submitted that NB Power's policies, processes, and procedures for its maintenance program meet the requirements set out in [REGDOC-2.6.2, Maintenance Programs for Nuclear Power Plants](#).<sup>63</sup> CNSC staff reported that NB Power's preventative maintenance completion ratio was 90% during the current licence period, which is better than the industry average. CNSC staff indicated that NB Power had maintained a low level of corrective maintenance backlog and critical preventative maintenance deferrals during the current licence period. While the critical deficient maintenance backlog continuously trended down, CNSC noted that it had remained above industry average. Following a compliance verification inspection in 2020, CNSC staff confirmed that NB Power maintains a reliability program that meets the requirements of [REGDOC-2.6.1, Reliability Programs for Nuclear Power Plants](#).<sup>64</sup>
76. CNSC staff submitted that the programs NB Power maintains to ensure the availability of required safety functions throughout the PLNGS meet regulatory requirements. CNSC staff reported that it performed an inspection of the aging management program at the PLNGS in 2018 and confirmed that it meets the specifications of [REGDOC-2.6.3, Aging Management](#).<sup>65</sup> CNSC staff found that fuel channel, steam generator, and feeder inspections performed during the current licence period were conducted in accordance with CSA standard N285.4-09, *Periodic Inspection of CANDU Nuclear Power Plant Components*. CNSC staff indicated that it determined NB Power's implementation plans for updated editions of CSA N285.4 are acceptable. CNSC staff confirmed that NB Power's periodic inspection program demonstrated that the likelihood of failure has not changed significantly since the plant was put into service.
77. The Commission asked for more information on the programs across the PLNGS site that ensure that equipment is reliable and fit for service. Representatives from NB Power described programs such as those for testing cables and insulation, the reactor building liner, and for computer control systems. An NB Power representative noted that the reactor control computer systems had been replaced during the refurbishment project. CNSC staff added that all changes at the PLNGS follow a robust engineering change control process.
78. Asked about the estimated lifetime of the [fuel channel pressure tubes](#), an NB Power representative answered that the pressure tubes have a design basis of 210,000 equivalent full power hours (EFPH)<sup>66</sup>. The representative explained that it is estimated that this lifetime will be reached after 30 years of operation following refurbishment, and that as of November 2021 the value was approximately 64,000 EFPH. The Commission asked about the current condition of the steam generators,

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<sup>62</sup> Section 3.6, [CMD 22-H2](#)

<sup>63</sup> REGDOC-2.6.2, *Maintenance Programs for Nuclear Power Plants*, CNSC, August 2017

<sup>64</sup> REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants*, CNSC, August 2017

<sup>65</sup> REGDOC-2.6.3, *Aging Management*, CNSC, March 2014

<sup>66</sup> EFPH is also equivalently referred to as "effective full power hours" in some sources.

as they were not replaced during refurbishment. CNSC staff explained that NB Power maintains good chemistry control and that inspections have demonstrated that the steam generators at the PLNGS are, and are expected to remain, fit for service. CNSC staff noted that NB Power has committed to incorporate anticipated aging effects into its steam generator management plan.

79. The Commission concludes that NB Power has appropriate programs in place to ensure that the systems, structures, and components at the PLNGS will remain fit for service throughout the proposed licence period. The basis for the Commission's conclusion is as follows:

- The Commission finds that the information provided regarding NB Power's performance demonstrates that NB Power has ensured the systems, structures, and components of the PLNGS have remained fit for service.
- The Commission is satisfied that NB Power has demonstrated improvements, including reduction of maintenance backlog, over the current licence period.
- The Commission is satisfied that NB Power has demonstrated, through its IIP actions, suitable plans to improve reliability and mitigate aging of systems, structures, and components at the PLNGS.
- The Commission agrees with CNSC staff's assessment that NB Power and meets the regulatory requirements set out in REGDOC-2.6.1, REGDOC-2.6.2, REGDOC-2.6.3, and applicable CSA standards, and maintains adequate programs for the continued safe operation of the PLNGS.

#### 4.2.7 Radiation Protection

80. In accordance with the *Radiation Protection Regulations*<sup>67</sup>, NB Power is required to maintain a radiation protection program at the PLNGS. This program must ensure that radiation doses to persons and contamination are monitored, controlled, and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration.

81. NB Power submitted information on its radiation protection program for the PLNGS.<sup>68</sup> NB Power provided details on how it manages individual and collective doses well below regulatory and administrative limits<sup>69</sup>, respecting the ALARA principle. NB Power also detailed how it controls radiological hazards at the PLNGS, including the use of alarming monitors and routine surveys of work areas. Regarding the improvements it made during the current licence period, NB Power highlighted a reduction in personnel contamination events and indicated it reduced

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<sup>67</sup> The requirements of [REGDOC-2.7.1, Radiation Protection](#) align with the *Radiation Protection Regulations*.

<sup>68</sup> Section 8.0, [CMD 22-H2.1](#)

<sup>69</sup> The nuclear energy worker (NEW) dose limit is 50 millisieverts (mSv) in one calendar year and 100 mSv in a 5-year dosimetry period. The non-NEW dose limit is the same as the public dose limit of 1 mSv in one calendar year.

the occurrence of unplanned dose rate alarms following an effort to align with industry best practices.

82. In its submission, CNSC staff included information on its assessment of the radiation protection program in place at the PLNGS.<sup>70</sup> CNSC staff reported that NB Power's radiation protection program ensures that contamination levels and doses are monitored, controlled, and maintained ALARA. CNSC staff noted that a 2019 inspection confirmed that NB Power's ALARA initiatives comply with regulatory requirements. CNSC staff found that NB Power ensures worker dose and radiological hazards are effectively eliminated or controlled by measures including administrative dose limits, monitoring, barriers, signage, and shielding. CNSC staff noted that NB Power maintains a CNSC-licensed dosimetry service at the PLNGS to monitor, assess, record, and report doses.
83. NB Power submitted data on the annual average and maximum effective doses<sup>71</sup> to workers, as well as collective doses, for the 2016-2020 time period. NB Power reported that no action levels were met or exceeded during the current licence period and that the maximum annual individual effective dose at the PLNGS ranged between 9.6 millisievert (mSv) and 13.3 mSv. Regarding the protection of the public, NB Power indicated that it continues to maintain an estimated dose to the public well below the regulatory limit. NB Power noted that during the current licence period, the annual estimated public dose due to PLNGS effluents remained less than 0.0014 mSv/year, which is well below the regulatory dose limit to members of the public of 1 mSv/year.
84. CNSC staff submitted a detailed assessment of the doses to workers at the PLNGS. CNSC staff confirmed that NB Power's radiation protection program has maintained doses below the regulatory limit for all nuclear energy workers (NEWs) and non-NEWs at the PLNGS. CNSC staff explained that variations in the annual collective doses during the licence period are due to the differences in work activities, such as the higher dose work performed during maintenance outages. CNSC staff found that 85% of all monitored workers received a radiation dose of less than 1 mSv in a single year. CNSC staff also confirmed that estimated doses to members of public were well below the regulatory limit during the current licence period.
85. The Commission asked for more information on the results of a 2020 inspection where CNSC staff found that 10% of monitored workers did not provide a bioassay<sup>72</sup> sample as per the required schedule. CNSC staff explained that this non-compliance is not significant from a safety perspective because no workers can access radiological areas if a scheduled bioassay is incomplete. CNSC staff added

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<sup>70</sup> Section 3.7, [CMD 22-H2](#)

<sup>71</sup> Effective dose, measured in sieverts (Sv), incorporates tissue weighting factors to give an indication on how exposure can affect overall health. The CNSC website contains further information on [radiation doses](#).

<sup>72</sup> Bioassay is a general term referring to any procedure used to determine the nature, activity, location, or retention of radionuclides in a body. For example, urine analysis to measure tritium uptake by the body.

that NB Power's dose calculation method allows for an extended period between samples and that the basis for this method is included in [REGDOC-2.7.2, Dosimetry, Volume I: Ascertaining Occupational Dose](#).<sup>73</sup> An NB Power representative stated that NB Power has made improvements so that currently fewer than 5% of bioassay samples are submitted beyond the required schedule. The Commission is satisfied with the information provided regarding this non-compliance.

86. CNSC staff reported that NB Power has committed to completing radiation protection-related enhancements, including an assessment of tritium dose reductions for the moderator system and the prevention of airborne tritium within some areas of the service building. CNSC staff also reported that NB Power has committed to replace tritiated moderator water in 2028. Asked how it would carry out the moderator water replacement, an NB Power representative explained that this work would occur during a single future outage.
87. Several intervenors, including the PRGI ([CMD 22-H2.244](#)) and members of CRED-NB, raised concerns regarding the tritium content of the PLNGS moderator system. The Commission noted that tritium levels at the PLNGS are higher than at other Canadian CANDU NPPs and asked for more information on this issue. An NB Power representative stated that the source term<sup>74</sup> for tritium in the PLNGS moderator is significantly higher than at other CANDU stations. The representative explained that NB Power's planned work to replace the moderator water would reduce doses to workers and members of the public, and that NB Power would proactively maintain a reduced tritium content in the moderator system afterwards. The representative noted that removed water would be safely and securely stored in drums at the SRWMF. The Commission is satisfied with the information provided regarding moderator system tritium content. Concerns raised that relate to the environmental impacts of tritium are discussed in section 4.2.9 of this *Record of Decision*.
88. The Commission concludes that NB Power has an adequate radiation protection program in place to protect the health and safety of persons and the environment from radiation hazards associated with the PLNGS. The Commission bases its conclusion on the following:
- The Commission finds that NB Power has demonstrated that effective measures and programs are in place at the PLNGS to continue to control radiation hazards and doses to workers.
  - The Commission is satisfied that individual and collective dose information confirms that NB Power has kept doses to workers well below regulatory limits during the current licence period.

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<sup>73</sup> REGDOC-2.7.2, *Dosimetry, Volume I: Ascertaining Occupational Dose*, CNSC, July 2021

<sup>74</sup> A source term is the amount and isotopic composition of material released (or postulated to be released) from a nuclear facility.

- The Commission is satisfied that the estimated dose to the public demonstrates that NB Power adequately controls radiological doses to the public well below regulatory limits.
- The Commission agrees with CNSC staff's assessment that NB Power's radiation protection program meets regulatory requirements, including the *Radiation Protection Regulations*.
- The Commission agrees with CNSC staff that NB Power has suitably applied the ALARA principle at the PLNGS during the current licence period.
- The Commission finds that NB Power has proposed adequate plans for the reduction of the PLNGS tritium source term through its IIP actions.

The Commission expects NB Power to proceed with the planned 2028 moderator water replacement to lower the tritium hazard at the PLNGS and to proactively maintain a reduced tritium content in the moderator system thereafter. The Commission directs CNSC staff to include relevant progress updates on the moderator replacement project through the *Status Report on Power Reactors*. The Commission further expects NB Power and CNSC staff to provide further details of tritium hazard reduction projects at the public proceeding to be held at the midpoint of the licence period.

#### 4.2.8 Conventional Health and Safety

89. The conventional health and safety program covers the management of workplace safety hazards. The conventional health and safety program is mandated by provincial statutes for all employers and employees to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with applicable labour codes and conventional safety training. WorkSafeNB is the provincial authority which oversees the New Brunswick (NB) [Occupational Health and Safety Act](#)<sup>75</sup> (OHSA).
90. NB Power provided the Commission with information on its conventional health and safety program at the PLNGS.<sup>76</sup> NB Power reported that it fully complies with the OHSA and detailed the responsibilities of management and employees in ensuring that work is performed safely at the PLNGS. NB Power and the IBEW ([CMD 22-H2.209](#)) each submitted that both parties are committed to working together to prevent accidents and injuries at the PLNGS. NB Power highlighted that it believes that no work is of such urgency or importance that it cannot be performed safely. NB Power also provided information on continuous improvement initiatives, including self assessments and gap analyses.

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<sup>75</sup> S.N.B. 1983, c. O-0.2

<sup>76</sup> Section 9.0, [CMD 22-H2.1](#)

91. CNSC staff submitted information on its assessment of NB Power's conventional health and safety program at the PLNGS<sup>77</sup> and found that it meets regulatory requirements. CNSC staff included details regarding NB Power's satisfactory performance with respect to accident frequency and severity rates. CNSC staff reported that, during the current licence period, its inspections confirmed that NB Power continues to protect the safety of persons at the PLNGS.
92. The Commission concludes that NB Power's conventional health and safety program at the PLNGS satisfies regulatory requirements. The Commission is satisfied that NB Power's performance during the current licence period provides a reasonable basis for the Commission's conclusion that the health and safety of persons will continue to be adequately protected throughout the proposed licence period. The Commission bases this conclusion on the following:
- The Commission is satisfied that worker injury statistics demonstrate that NB Power has measures in place to adequately protect the safety of workers at the PLNGS.
  - The Commission notes the commitment of NB Power and the IBEW to continue to ensure worker safety at the PLNGS.
  - The Commission agrees with CNSC staff's assessment that NB Power maintains a conventional health and safety program at the PLNGS that meets CNSC regulatory requirements.

#### 4.2.9 *Environmental Protection*

93. Environmental protection programs are intended to identify, control, and monitor all releases of radioactive and hazardous substances and aim to minimize the effects on the environment which may result from the licensed activities. These programs include effluent and emission control, environmental monitoring, and environmental risk assessment.
94. NB Power provided the Commission with information on its environmental protection related programs at the PLNGS.<sup>78</sup> NB Power detailed its Environmental Management System (EMS), which is designed to meet the requirements of [REGDOC-2.9.1, \*Environmental Protection: Environmental Principles, Assessments and Protection Measures\*](#).<sup>79</sup> NB Power reported that its EMS has been certified as compliant with International Standards Organization (ISO) standard 14001:2015, *Environmental management systems – Requirements with Guidance for Use*.<sup>80</sup> NB Power's EMS contains provisions to control the release of radioactive and hazardous substances into the environment, reduce the generation of wastes, and prevent adverse environmental effects.

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<sup>77</sup> Section 3.8, [CMD 22-H2](#)

<sup>78</sup> Section 10.0, [CMD 22-H2.1](#)

<sup>79</sup> REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, CNSC, September 2020

<sup>80</sup> 14001:2015, *Environmental management systems – Requirements with Guidance for Use*, ISO, 2015



95. CNSC staff included information on its assessment of NB Power's environmental protection in its submission.<sup>81</sup> CNSC staff found that NB Power implements and maintains an environmental protection program at the PLNGS that meets regulatory requirements. Further details about CNSC staff's assessment are included in the [Environmental Protection Review Report: Point Lepreau Nuclear Generating Station](#) (EPRR), which CNSC staff indicated is updated every 5 years. CNSC staff confirmed that NB Power's EMS meets the requirements of REGDOC-2.9.1 and is registered to ISO 14001, noting that registering with the ISO is not a CNSC requirement. CNSC staff reported that the NB Power EMS identifies all activities that could impact the environment, develops assessment or improvement programs for such activities, and assesses environmental risks.
96. Regarding the implementation of updated standards, CNSC staff submitted that, during the current licence period, NB Power implemented the following CSA standards associated with environmental protection:
- CSA N288.4-10, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>82</sup>
  - CSA N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>83</sup>
  - CSA N288.6-12, *Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>84</sup>
  - CSA N288.1-14, *Guidelines for Calculating DRLs for Radioactive Material in Airborne and Liquid Effluents for Normal Operation for Nuclear Facilities*<sup>85</sup>
  - CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>86</sup>

CNSC staff reported that NB Power is currently working to implement CSA standard N288.2-19, *Guidelines for Calculating the Radiological Consequences to the Public of a Release of Airborne Radioactive Material for Nuclear Reactor Accidents*<sup>87</sup> and to update the PLNGS management system to reflect the latest versions of CSA N288.1 and CSA standard N290.16-16, *Requirements for Beyond*

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<sup>81</sup> Section 3.9, [CMD 22-H2](#)

<sup>82</sup> N288.4-10, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2010 (Reaffirmed in 2015)

<sup>83</sup> N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2011 (Reaffirmed in 2021)

<sup>84</sup> N288.6-12, *Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2012 (Reaffirmed in 2017)

<sup>85</sup> N288.1-14, *Guidelines for Calculating DRLs for Radioactive Material in Airborne and Liquid Effluents for Normal Operation for Nuclear Facilities*, CSA Group, 2014 (Reaffirmed in 2019)

<sup>86</sup> N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2015 (Reaffirmed in 2020)

<sup>87</sup> N288.2-19, *Guidelines for Calculating the Radiological Consequences to the Public of a Release of Airborne Radioactive Material for Nuclear Reactor Accidents*, CSA Group, 2019

*Design Basis Accidents*.<sup>88</sup> CNSC staff also noted that NB Power has submitted a satisfactory implementation plan for the most recent version of REGDOC-2.9.1.

#### Effluent and Emission Control (Releases)

97. NB Power submitted the following information pertaining to the effluent control program in place at the PLNGS:
- The NB Department of Environment issues the PLNGS an *Approval to Operate*, which deals with releases to water through various effluent streams.
  - NB Power categorizes and tracks spills, and reports non-compliances to the relevant authority.
  - Systems are in place to route radioactive liquid wastes to storage tanks for assessment prior to possible release, as well as monitor and control all discharges.
  - Filtered ventilation controls gaseous releases prior to discharge through the exhaust stack and some areas use the vapour recovery system to reduce tritium content.
  - NB Power monitors and samples airborne releases to verify that they do not exceed the PLNGS operational targets, which are more restrictive than regulatory limits.
98. CNSC staff informed the Commission that, in accordance with the *Class I Nuclear Facilities Regulations*, NB Power has implemented and maintained an effluent and emissions monitoring program at the PLNGS. The limits for releases of radionuclides are the calculated derived release limits<sup>89</sup> (DRLs). CNSC staff reported that NB Power updated its DRLs at the PLNGS in 2018, in accordance with CSA N288.1-14. CNSC staff submitted details of the releases of various radionuclides to atmosphere and surface water during the current licence period, noting that all releases were well below the applicable DRL. CNSC staff also reported that non-radiological releases from the PLNGS, tracked under the [Canadian Environmental Protection Act, 1999](#),<sup>90</sup> remained below applicable limits and did not pose any unreasonable risk to the environment or to the health and safety of persons.
99. Noting data included in appendix 2 of the intervention provided by the PRGI ([CMD 22-H2.244](#)), the Commission asked NB Power to explain why tritium releases from the PLNGS have been increasing over time and are relatively elevated compared to other Canadian NPPs. An NB Power representative explained that the larger tritium source term in the moderator system at the PLNGS results in an elevated release

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<sup>88</sup> N290.16-16, *Requirements for Beyond Design Basis Accidents*, CSA Group, 2016 (Reaffirmed in 2021)

<sup>89</sup> The DRL is the release rate that would cause an individual of the most highly exposed group to receive a dose equal to the regulatory annual dose limit due to release of a given radionuclide to air or surface water during normal operation of a nuclear facility over the period of a calendar year.

<sup>90</sup> S.C. 1999, c. 33

when maintenance work is performed on the moderator system. The representative added that releases, while elevated compared to other stations, remain well below regulatory limits and that the planned 2028 moderator water replacement project will reduce tritium releases to the environment going forward. The Commission is satisfied that NB Power has planned measures to reduce tritium releases to the environment.

100. CNSC staff noted that [REGDOC-2.9.2, Controlling Releases to the Environment](#), which is currently in development and anticipated to be published during the licence period, will set out the CNSC's requirements and guidance for controlling releases to the environment. This includes applying the concept of best available technology and techniques economically achievable (BATEA) and the establishment of licensed release limits and actions levels. CNSC staff further stated that this REGDOC would be implemented at the PLNGS following publication.

#### Fisheries Act Authorization

101. NB Power also provided information on the pending [Fisheries Act](#)<sup>91</sup> authorization (FAA) currently being considered by Fisheries and Oceans Canada (DFO), which was initiated in 2017. NB Power explained that the FAA pertains to a fish population offsetting strategy.<sup>92</sup> NB Power has proposed the removal of a barrier that would result in a significant and ongoing improvement to the marine environment in order to offset the deaths of fish that occur because of the operations of the PLNGS. During the hearing, an NB Power representative stated that fish losses due to impingement and entrainment<sup>93</sup> at the PLNGS were less than 0.1% of the landed catches from commercial fisheries.
102. The Commission asked for more information on the status of the FAA and the offsetting plan. CNSC staff explained that the FAA is a separate process from CNSC licensing activity, but that the CNSC has a memorandum of understanding with DFO outlining areas of cooperation. A DFO representative stated that DFO is nearing the completion of its process. The DFO representative explained that DFO is working with NB Power to find an appropriate offsetting plan and noted that the proposed removal of the Milltown Dam<sup>94</sup> could be appropriate. Asked about mitigation beyond offsetting, an NB Power representative stated that the current design of the water intake at the PLNGS includes mitigation features and noted that NB Power is considering additional improvements.

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<sup>91</sup> R.S.C., 1985, c. F-14

<sup>92</sup> An offsetting strategy is the counterbalancing, with measurable benefits for fish and fish habitat, of impacts to a fish population that result from the operations of a facility.

<sup>93</sup> Entrainment is the unwanted passage of fish through a water intake and impingement is capture of fish against a barrier due to water intake velocities.

<sup>94</sup> The Milltown Dam is not related to CNSC licensing. More information can be found on [NB Power's website](#).

Environmental Assessment and Monitoring

103. NB Power submitted information on its radiation and environment monitoring program, which assesses the radiological impact of the PLNGS and SRWMF on the environment and the public. NB Power reported that the estimated dose to critical groups in the public averaged 0.00092 mSv from airborne releases and 0.00006 mSv from liquid releases during the current licence period.
104. CNSC staff informed the Commission that NB Power maintains an up-to-date environmental monitoring program at the PLNGS that meets regulatory requirements. Based on the details provided in the EPRR, CNSC staff found that operation of the PLNGS had no impacts on the environment and the public during the current licence period. CNSC staff reported that NB Power monitors air released from the exhaust stack, as well as the ambient air from locations in and around the PLNGS, for a variety of radiological and non-radiological contaminants. CNSC staff also detailed the various water monitoring programs in place around the PLNGS, including surface water monitoring, well water monitoring, sea water collection, and precipitation monitoring.
105. The Fundy North Fishermen's Association (FNFA) and Fundy Weir Fisherman's Association Inc. (FWFA) ([CMD 22-H2.151](#)) and the Saint John Naturalists' Club Inc. ([CMD 22-H2.112](#)) provided interventions that considered the environment in the vicinity of the PLNGS. Asked about any notable impacts to fishing, a representative of the FNFA and FWFA stated that while there have been changes to the ecosystem over the years, there have been no identified links to the PLNGS. Asked about its partnership with the efforts of the Saint John Naturalists' Club regarding bird migration and monarch butterfly habitat, an NB Power representative explained that NB Power maintains roads and provides access to the site for club members, has protocols to not disturb certain plants, and has planted milkweed at the PLNGS. A representative of the Saint Johns Naturalists' Club explained that the site is a critical migration route for sea birds, with the geography funnelling the birds past the point in the spring, but that birds do not nest at the site.
106. CNSC staff conducted [independent environmental monitoring program](#) (IEMP) work around the PLNGS in 2017 and 2020/21. CNSC staff noted that while a campaign had been planned to occur in 2020, delays due to COVID-19 resulted in some samples being collected in 2021. CNSC staff reported that the IEMP results<sup>95</sup> indicate that the environment and people in the vicinity of the PLNGS remain protected. Asked about data trending and food sampling, CNSC staff explained that the IEMP returns to the same sampling locations as often as possible, and that it is building a database of samples for trending. CNSC staff added that it has started to harvest more food directly from the environment, such as lobster and clams, and that it tests for organically bound tritium.

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<sup>95</sup> Data from the IEMP is available on the [CNSC website](#), and section 4.0 of the EPRR includes details on the IEMP at the PLNGS.

107. Indigenous Nations and communities, including the Mi'gmawe'l Tplu'taqnn Inc. (MTI) ([CMD 22-H2.234](#)), raised concerns about the lack of inclusion of Indigenous Knowledge (IK) and meaningful participation in monitoring practices at the PLNGS. The Commission asked how NB Power incorporates IK into the various monitoring programs in place at the PLNGS. CNSC staff responded that NB Power monitors species of cultural importance to Indigenous Nations and communities. An NB Power representative highlighted the recent inclusion of sweetgrass in its monitoring inventory and the hiring of field monitors from local Indigenous Nations and communities. The NB Power representative also stated that NB Power considers the abundance of a resource when developing a monitoring strategy to avoid impacting the resource. CNSC staff added that it is looking at sampling and analysing different parts of animals, based on discussions with Indigenous Nations and communities, to improve the IEMP.
108. The Commission asked for more information concerning monitoring results for tritium. CNSC staff stated that the monitored tritium levels in the environment and groundwater wells do not represent a risk to the health and safety of persons or the environment, noting that the maximum offsite value within 3 km of the PLNGS in the last 10 years was 48 becquerels per litre (Bq/L), which is well below the Health Canada guideline of 7,000 Bq/L<sup>96</sup>. An NB Power representative added that airborne tritium is the largest contributor to potential public dose, and that NB Power routinely monitors and controls all releases well below regulatory limits. The Commission is satisfied that tritium releases from the PLNGS are not a concern with respect to the health and safety of persons or the environment.

#### Environmental Risk Assessment

109. NB Power submitted information on its updated environmental risk assessment (ERA), which was conducted in 2020. This study is comprised of three primary components: site characterization, human health risk assessment, and ecological risk assessment. NB Power reported that the results of the updated ERA were consistent with previous ERAs. In support of the updated ERA, NB Power also conducted a study of the thermal plume associated with the cooling water discharge. The study investigated water temperature variations in the environment due to the release of warmer water from the PLNGS and found that the overall thermal plume was typically 1 degree Celsius above ambient conditions.
110. CNSC staff provided the Commission with information pertaining to NB Power's updated ERA and included further details in section 2.3.3 of the EPRR. CNSC staff explained that the ERA identified, quantified, and characterized the risk posed by contaminants and physical stressors in the environment on human and other biological receptors. CNSC staff reported that NB Power updated its ERA in 2020 in accordance with CSA N288.6-12. CNSC staff agreed with the conclusions of the ERA that the overall risk to the environment and human health from the PLNGS is

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<sup>96</sup> As per the Health Canada [Guidelines for Canadian Drinking Water Quality](#).

acceptably low. CNSC staff found NB Power's recommendations acceptable and that the 2020 ERA met all regulatory requirements.

111. Noting concerns raised by several intervenors, including the PRGI ([CMD 22-H2.244](#)) and members of CRED-NB, on possible impacts to the environment and human health, the Commission asked for more information on relevant studies conducted for the PLNGS. Regarding tritium, CNSC staff explained that scientific studies have shown that the areas in the vicinity of the PLNGS are safe for human health, including for families with young children. On the topic of human health in general, CNSC staff noted that information on health studies is included in section 5.0 of its EPRR. CNSC staff detailed its review of studies conducted by the NB Health Council, which showed that local cancer rates are in line with the general Canadian population. CNSC staff highlighted a study which found no clusters of childhood leukemia or other cancers around the three Ontario NPPs. CNSC staff also detailed studies on NEWs, which demonstrated no increased risk of cancer mortality. A representative of NB Health confirmed that there is no increased risk or rate of issues in maternal outcomes in the vicinity of the PLNGS. The Commission is satisfied that impacts to the health of persons and the environment have been adequately studied.
112. The Commission asked about studies of the aquatic environment, including those conducted in relation to the pending FAA. An NB Power representative noted that as part of the FAA, NB Power conducted studies of the thermal plume, as well as fish impingement and entrainment. The NB Power representative added that these studies are also included in the ERA. The NB Power representative explained that these studies focus on the current state of the aquatic environment and consider cumulative effects. Regarding the thermal plume study, the NB Power representative noted that the study was conducted over 128 days .

#### Conclusion on Environmental Protection

113. The Commission concludes that NB Power will provide adequate protection to the health and safety of persons and the environment throughout the proposed licence period. The Commission bases its conclusion on the following:
- The Commission is satisfied that information provided by NB Power demonstrates that an adequate EMS is in place at the PLNGS.
  - The Commission agrees with CNSC staff's assessment that NB Power's environmental protection programs meet regulatory requirements, including REGDOC-2.9.1 and relevant CSA standards.
  - The Commission agrees with CNSC staff's assessment that the DRLs for the PLNGS have been calculated in accordance with regulatory requirements.
  - The Commission is satisfied that effluent and monitoring data provided by NB Power and CNSC staff demonstrate releases to the environment have remained well below regulatory limits and that NB Power has adequate measures in place at the PLNGS to protect the health and safety of persons and the environment.

- The Commission agrees with CNSC staff's assessment that the releases of tritium to the environment are well below regulatory limits and do not pose any unreasonable risk to the health and safety of persons or the environment.
- The Commission finds that scientific health studies have demonstrated no increased risks to the health and safety of persons or the environment in the vicinity of the PLNGS, and agrees with the conclusion of NB Power's ERA, that the overall risk to the environment and human health from the PLNGS is acceptably low.
- The Commission is satisfied that there is a separate regulatory process in place with DFO pertaining to the pending FAA.
- The Commission is satisfied that information provided by NB Power in relation to this hearing demonstrates that the aquatic environment in the vicinity of the PLNGS is adequately protected.

114. While the Commission is of the opinion that current releases of tritium at the PLNGS do not pose an unreasonable risk to the health and safety of persons or the environment, the Commission expects NB Power to proceed with work to reduce the tritium source term as discussed in section 4.2.7 of this *Record of Decision*. The Commission recognises the need to include Indigenous Nations and communities in monitoring programs relevant to their traditional and territorial lands and way of life. The Commission expects that CNSC staff and NB Power will continue to improve their relevant monitoring programs with the inclusion of IK and, where appropriate, the direct participation of Indigenous Nations and communities, and will expect to hear updates on progress in these areas.

#### *4.2.10 Emergency Management and Fire Protection*

115. Emergency management and fire protection programs cover the measures for preparedness and response capabilities implemented by NB Power in the event of emergencies and non-routine conditions at the PLNGS. These measures include nuclear emergency management, conventional emergency response, and fire protection and response.

116. NB Power provided information on its emergency management and fire protection programs in its submission.<sup>97</sup> NB Power reported that its emergency preparedness program uses an all-hazards approach and is designed to meet the requirements of [REGDOC-2.10.1, Nuclear Emergency Preparedness and Response](#),<sup>98</sup> REGDOC-2.3.2, and CSA standard N1600, *General Requirements for Nuclear Emergency Management Programs*.<sup>99</sup> NB Power noted that it maintains emergency facilities and equipment on-site and off-site in a constant state of readiness. NB Power also reported that it maintains a fire protection program that is compliant with CSA standard N293-12, *Fire Protection for Nuclear Power Plants*. NB Power

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<sup>97</sup> Section 11.0, [CMD 22-H2.1](#)

<sup>98</sup> REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, CNSC, 2014

<sup>99</sup> N1600, *General Requirements for Nuclear Emergency Management Programs*. CSA Group, 2021

highlighted that the fire protection structures, systems, and components were largely replaced prior to 2017 and that upgrade work continued during the current licence period, including new diesel-driven fire pumps. NB Power has also committed to updating its conventional emergency preparedness and response program, and maintenance and testing program for emergency mitigating equipment, during the proposed licence period.

117. Regarding preparedness and response, NB Power submitted information on its emergency response team (ERT) and emergency response organization (ERO). NB Power detailed the *Point Lepreau Nuclear Off-site Emergency Response Plan*, which is managed by the NB Emergency Measures Organization (EMO). NB Power reported that in 2021, it transitioned from a 5- to 6-crew ERT schedule that provides an additional 72 hours of training per year. NB Power noted that it maintains mutual aid agreements with local fire departments, including the Musquash Volunteer Fire Department and the Saint John Fire Department. NB Power highlighted improvements it made during the current licence period, including an updated evacuation time estimate study and the transition into the new off-site emergency operations centre. NB Power explained that it maintains an extensive drill and exercise program to validate emergency plans and procedures and to provide the ERO with an opportunity to improve and sustain its capability.
118. CNSC staff submitted information on its assessment of the emergency and fire protection programs at the PLNGS.<sup>100</sup> CNSC staff reported that NB Power maintains an emergency preparedness program in accordance with REGDOC-2.10.1 and a fire protection program in accordance with CSA N293-12. CNSC staff provided information concerning its compliance verification activities during the licence period. CNSC staff noted only findings of negligible safety significance from inspections it conducted during the full-scale exercises that occurred in 2018 and 2021. Inspections pertaining to fire protection identified non-compliances of low safety significance, including drill frequency and scope, and inconsistencies with fire response program documentation. Other inspections, including a 2021 fire protection inspection, identified findings of low and negligible safety significance pertaining to maintenance. CNSC staff also detailed a 2021 event involving a primary heat transport pump motor fire, noting that NB Power's self-assessment process identified number of opportunities for improvement.
119. Regarding continuous improvement, the Commission asked for information on the lessons learned from full-scale nuclear emergency exercises conducted at the PLNGS. An NB EMO representative explained that the 2021 full-scale exercise provided several learning opportunities, noting that it involved a cyber security event and organizations who had never participated in a nuclear exercise. An NB Power representative noted that the larger number of participating organizations highlighted lessons relating to communications and interoperability. CNSC staff noted lessons regarding the use of virtual technology and remote work in the response to an event.

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<sup>100</sup> Section 3.10, [CMD 22-H2](#)



120. In its intervention, the NB EMO ([CMD 22-H2.230](#) and [CMD 22-H2.230A](#)) provided information on its relationship with NB Power with respect to the PLNGS and the structure of its nuclear emergency program. Asked about activation times, an NB EMO representative explained that full activation of its provincial operations centre takes less than an hour and that the warden service and mass notification systems would inform residents. Regarding lessons learned from the COVID-19 pandemic, an NB EMO representative noted the importance of communications and public awareness. Asked how it ensures the public is aware of what to do in a nuclear emergency, an NB EMO representative highlighted the role of community liaison officers, which includes Indigenous Nations and communities, and the emergency guides it includes with an informational calendar that it provides to local residents. The Commission suggested that empirical data from surveys would be useful to demonstrate the awareness of members of the public.
121. Interventions, including those by CRED-NB and CELA ([CMD 22-H2.194](#)) and PEACE-NB ([CMD 22-H2.139](#)), raised concerns regarding potassium iodide (KI) pill distribution, emergency planning zone (EPZ) size, and evacuation times. Asked about KI pill availability, an NB EMO representative explained that KI is distributed within 20 km and stockpiled, and available upon request, at several locations within 50 km of the PLNGS. Regarding EPZ sizes, an NB EMO representative explained that the PLNGS EPZ distances are derived from the technical planning basis specific to the PLNGS and are named in alignment with CSA N1600. An NB Power representative added that the larger EPZ distances referenced by the intervenors are maximum suggestions from the International Atomic Energy Agency (IAEA), which are based on a different reactor technology and are intended to be augmented by a detailed planning basis. Asked about evacuations, an NB EMO representative explained the process to evacuate the EPZs, including details on population sizes and evacuation time estimates. The NB EMO representative added that it maintains a database of confidential personal information to identify persons within 20 km of the PLNGS that may require assistance during an emergency. The Commission is satisfied that appropriate emergency planning is in place for the PLNGS.
122. In its intervention, the NB health emergency operations centre (HEOC) of the NB Department of Health ([CMD 22-H2.217](#)) provided information on nuclear emergency response from a health perspective. Asked about participation in drills, an NB HEOC representative explained that the NB HEOC participates in drills at the PLNGS, with a focus on monitoring and field decontamination. An NB EMO representative detailed available off-site equipment and noted that the goal is to evacuate before a contamination event occurs. The NB EMO representative added that NB EMO has a close relationship with the NB HEOC and would exchange liaison officers during an event. Asked about the training of medical personnel in dealing with a contaminated patient, an NB HEOC representative stated that the focus of the training is to ensure that critical injuries are not deferred due to contamination and includes information on monitoring and protective equipment. An NB Power representative added that a hazardous materials team is stationed in St John.

123. The Commission asked for more information on severe accident emergency response at the PLNGS. An NB Power representative explained the function of various reactor safety systems that could be used to cool the reactor in a severe accident. The NB Power representative stated that off-site response to the PLNGS would typically be less than 30 minutes and noted the information provided in the intervention of the Musquash Volunteer Fire Department ([CMD 22-H2.212](#)). CNSC staff explained that SAM guidelines have various strategies which are chosen depending on the accident situation, and that emergency mitigating equipment can be deployed in under 5 hours. Asked about past nuclear accidents worldwide, CNSC staff explained that since the inception of the International Nuclear and Radiological Event Scale (INES)<sup>101</sup> in 1990, 4 events level 3 or higher have occurred, including Fukushima.<sup>102</sup> Asked about a hypothesized caesium (Cs)-137 source term noted by the CCNR in its intervention ([CMD 22-H2.228](#)), CNSC staff explained that the value referenced in the intervention was specific to light water reactors and that differences in the CANDU design would result in a lower inventory of Cs-137.
124. The Commission concludes that NB Power has adequate emergency management and fire protection programs in place at the PLNGS to protect the health and safety of persons and the environment. The Commission bases its conclusion the following:
- The Commission is satisfied that information provided by NB Power and the NB EMO demonstrates that adequate response plans have been, and will continue to be, maintained for the protection of persons in the vicinity of the PLNGS.
  - The Commission agrees with CNSC staff's assessment that NB Power maintains emergency management and fire protection programs, as well as mutual aid agreements, in accordance with regulatory requirements, including REGDOC-2.10.1 and CSA N1600.
  - The Commission is satisfied that recent full-scale exercises have demonstrated NB Power's readiness to respond to an unlikely nuclear emergency or severe accident.
  - The Commission is satisfied that information provided by NB Power and CNSC staff demonstrates that the EPZs for the PLNGS have been sized based on an adequate technical planning basis and in accordance with applicable standards and requirements.

#### *4.2.11 Waste Management*

125. Waste management covers waste-related programs that form part of a facility's operations up to the point where the waste is removed from the licensed site for storage, treatment, or disposal at another licensed location. Waste management includes waste minimization, segregation, characterization, and storage programs. A

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<sup>101</sup> The INES is a scale from 0 to 7 where 3 is considered a "serious incident".

<sup>102</sup> Information on Canada's response to the 2011 Fukushima event can be found on the [CNSC website](#).

discussion on decommissioning, including cost estimates and financial guarantees, can be found in section 4.4.2 of this *Record of Decision*.

126. In its submission, NB Power included information on the SRWMF and the waste management program in place at the PLNGS.<sup>103</sup> NB Power explained that the SRWMF is made up of 3 “phases”; Phase I is used to store operational waste, Phase II for the dry storage of spent fuel, and Phase III for refurbishment related waste. NB Power reported that it characterizes waste as either inactive or radioactive, and further classifies radioactive waste as either low-level, intermediate-level, or high-level waste.<sup>104</sup> NB Power detailed its waste minimization program, which includes screening and volume reduction practices. NB Power highlighted an approximately 80-90% reduction in the volume of waste currently stored in Phase I of the SRWMF. NB Power also detailed the volume of waste in storage at the SRWMF, the volume of low- and intermediate-level waste generated quarterly, and hazardous or mixed waste<sup>105</sup> management.
127. CNSC staff provided the Commission with information on its assessment of NB Power’s waste management program.<sup>106</sup> CNSC staff confirmed that NB Power maintains a nuclear waste management program at the PLNGS that meets CNSC requirements to minimize, control, and properly dispose of radioactive waste. Through waste management specific inspections, CNSC staff verified that NB Power meets the requirements of CSA standard N292.3-14, *Management of Low and Intermediate-Level Radioactive Waste*.<sup>107</sup> CNSC staff reported that NB Power has committed to conducting gap analyses and implementing the recently published [REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste](#),<sup>108</sup> [REGDOC-2.11.2, Decommissioning](#)<sup>109</sup>, and [REGDOC-3.3.1, Financial guarantees for decommissioning of nuclear facilities and termination of licensed activities](#).<sup>110</sup>
128. The Commission asked the Nuclear Waste Management Organization (NWMO) and Natural Resources Canada (NRCAN) about ongoing initiatives with respect to Canada’s nuclear waste framework. A representative from NRCAN provided information on NRCAN’s waste policy review and an NWMO representative detailed the NWMO’s draft strategy recommendations, both of which are expected to be finalized later in 2022. NB Power representatives noted NB Power’s ongoing engagement with both initiatives and expressed that neither would represent an issue for NB Power’s waste management strategy. The NB Power representatives

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<sup>103</sup> Section 12.0, [CMD 22-H2.1](#)

<sup>104</sup> Low-level is < 2 mSv/h, intermediate level is 2 to 125 mSv/h, and high-level is > 125 mSv/h.

<sup>105</sup> Hazardous refers to non-radiological hazards in general, such as chemical. Mixed waste is waste having both radiological and other hazardous properties.

<sup>106</sup> Section 3.11, [CMD 22-H2](#)

<sup>107</sup> N292.3-14, *Management of Low and Intermediate-Level Radioactive Waste*, CSA Group, 2014

<sup>108</sup> REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*, CNSC, January 2021

<sup>109</sup> REGDOC-2.11.2, *Decommissioning*, CNSC, January 2021 (supersedes CNSC Regulatory Guide G-219)

<sup>110</sup> REGDOC-3.3.1, *Financial guarantees for decommissioning of nuclear facilities and termination of licensed activities*, CNSC, January 2021

explained that NB Power has a plan to indefinitely store all levels of waste at the PLNGS site, independent of the NWMO's ongoing work.

129. Regarding concerns raised by several interventions, including by members of CRED-NB, that there is insufficient oversight of waste at the PLNGS, the Commission asked about the surveillance of the waste facilities at the PLNGS. An NB Power representative explained that NB Power conducts routine walkdowns and annual integrity checks, including air monitoring. CNSC staff stated that, in addition to routine waste management inspections over the licence period, it visually inspects fuel canisters quarterly with a specialist. The Commission is satisfied that NB Power adequately maintains its waste storage areas and that CNSC staff verify compliance through routine inspections.
130. The Commission concludes that NB Power has sufficient measures in place to safely manage waste at the PLNGS. The Commission bases this conclusion on the following:
- The Commission is satisfied that information submitted by NB Power demonstrates that waste is adequately minimized at the PLNGS.
  - The Commission finds that information provided by NB Power regarding its waste management programs shows that measures are in place to adequately manage conventional, hazardous, and radiological waste at the PLNGS.
  - The Commission agrees with CNSC staff's assessment that the waste management program in place at the PLNGS meets regulatory requirements.
  - The Commission is satisfied that information provided by NB Power and CNSC staff demonstrates that NB Power is committed to implementing updated regulatory documents, including REGDOC-2.11.1 and REGDOC-2.11.2.

#### 4.2.12 Security

131. The Security program at the PLNGS includes measures to comply with the applicable provisions of the GNSCR and the *Nuclear Security Regulations* (NSR).<sup>111</sup>
132. NB Power submitted information to the Commission about the nuclear security program in place at the PLNGS.<sup>112</sup> NB Power detailed the facilities and equipment installed at the PLNGS. NB Power reported that processes are in place to prevent the loss, illegal use, possession, or removal of nuclear substances, prescribed equipment, or prescribed information and to ensure the PLNGS is protected against the design basis threat.<sup>113</sup> NB Power indicated that it validates security measures

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<sup>111</sup> The CNSC is currently in the process of modernizing the NSR, including updates related to cyber security.

<sup>112</sup> Section 13.0, [CMD 22-H2.1](#)

<sup>113</sup> As per the *Nuclear Security Regulations*, the design basis threat is the characteristics of a potential adversary in respect of which countermeasures are incorporated into the design and evaluation of a physical protection system.

through the conduct of regular drills and exercises. Regarding cyber security, NB Power explained that it has a cyber security program in accordance with CSA standard N290.7-14, *Cyber Security for Nuclear Power Plants and Small Reactor Facilities*.<sup>114</sup> NB Power also highlighted improvements made to its security program during the current licence period, including a new memorandum of understanding with the Royal Canadian Mounted Police (RCMP) and adding a 6<sup>th</sup> nuclear response team (NRT) to meet the requirements of REGDOC-2.2.4, *Volume II* and allow for more training time.

133. CNSC staff provided the Commission with information on its assessment of NB Power's security program in place at the PLNGS in its submission.<sup>115</sup> CNSC staff found that NB Power's security program meets the requirements of the NSR, [REGDOC-2.12.1, High-Security Facilities, Volume I: Nuclear Response Force](#),<sup>116</sup> and [REGDOC-2.12.1, High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices](#),<sup>117</sup> as well as the fitness for duty requirements of REGDOC-2.2.4, *Volume II* and REGDOC-2.2.4, *Volume III*. CNSC staff reported that NB Power continued to hold major security exercises every 2 years as required by the NSR. CNSC staff also detailed NB Power's proposed improvements related to the security program at the PLNGS, including additional security measures at the SRWMF. CNSC staff noted that the recent publication of the 2021 update to CSA N290.7 will require NB Power to perform a gap analysis between NB Power's current cyber security program and the requirements in the updated standard.
134. An intervenor and member of NB Power's NRT, Geoff McCabe ([CMD 22-H2.223](#)), provided information on the World Institute of Nuclear Security program and details on the operations of the NRT at the PLNGS. In response to Commission questions, Mr. McCabe and another NB Power representative provided additional information on:
- security exercises conducted at the PLNGS, including monthly exercises and the larger CNSC-driven force-on-force exercises conducted every two years;
  - PLNGS site familiarization for off-site agencies, including participation in joint exercises;
  - the tactical response team of the local RCMP division; and
  - cyber security not being within the operating envelope of the NRT.
135. The Commission asked for more information on cyber security programs at the PLNGS, noting concerns raised by various interventions including CRED-NB and CELA ([CMD 22-H2.194](#)) that cyber security is insufficiently considered for the PLNGS. An NB Power representative noted that a cyber security program has been

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<sup>114</sup> N290.7-14, *Cyber Security for Nuclear Power Plants and Small Reactor Facilities*, CSA Group, 2014 (Reaffirmed in 2021)

<sup>115</sup> Section 3.12, [CMD 22-H2](#)

<sup>116</sup> REGDOC-2.12.1, *High-Security Facilities, Volume I: Nuclear Response Force*, CNSC, September 2018 (contains prescribed information and is not publicly available)

<sup>117</sup> REGDOC-2.12.1, *High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices*, CNSC, April 2018 (contains prescribed information and is not publicly available)

in place at the PLNGS since 2009 and that NB Power was an active participant in the development of CSA N290.7-14 and the 2021 update to it. The NB Power representative added that it performed a gap assessment against CSA N290.7-14 and made several program and process improvements. Regarding the isolation of computer systems, an NB Power representative explained that safety systems and control computers are completely separate with restricted access. The Commission is satisfied that NB Power has made adequate provision for cyber security at the PLNGS.

136. The Commission concludes that NB Power has adequate programs and measures in place to provide for the physical and cyber security of the PLNGS during the proposed licence period. The Commission bases this conclusion on the following:
- The Commission finds that the information provided by CNSC staff and NB Power demonstrates that adequate measures are in place at the PLNGS to ensure the security of nuclear substances, prescribed equipment, and prescribed information from threats defined by the design basis threat.
  - The Commission is satisfied that the information provided by NB Power and confirmed by CNSC staff demonstrates that cyber security is adequately addressed at the PLNGS, in accordance with CSA N290.7.
  - The Commission agrees with CNSC staff's assessment that NB Power's security program meets regulatory requirements, including REGDOC-2.12.1, *Volume I* and *Volume II*.

#### 4.2.13 Safeguards and Non-Proliferation

137. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the [Treaty on the Non-Proliferation of Nuclear Weapons](#) (NPT).<sup>118</sup> Pursuant to the NPT, Canada has entered into a [Comprehensive Safeguards Agreement](#)<sup>119</sup> and an [Additional Protocol](#)<sup>120</sup> (safeguards agreements) with the IAEA. The objective of these safeguards agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activity in this country. The import and export of controlled nuclear substances, equipment, and information requires separate licensing from NB Power's PROL for the PLNGS.
138. NB Power provided the Commission with information pertaining to its safeguards program in place at the PLNGS.<sup>121</sup> NB Power indicated that its safeguards program adheres to [REGDOC-2.13.1, Safeguards and Nuclear Material Accountancy](#).<sup>122</sup> NB

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<sup>118</sup> INFCIRC/140

<sup>119</sup> INFCIRC/164

<sup>120</sup> INFCIRC/164/Add.1

<sup>121</sup> Section 14.0, [CMD 22-H2.1](#)

<sup>122</sup> REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*, CNSC, February 2018

Power detailed the various aspects of its safeguards program, including providing support and information to the IAEA, maintaining systems of accounting for nuclear fuel, and generating required reports. NB Power also detailed various inspections conducted around the PLNGS site by the IAEA, noting that the IAEA found that the PLNGS had met its obligations.

139. CNSC staff submitted information on its assessment of NB Power's safeguards program.<sup>123</sup> CNSC staff reported NB Power had fully implemented REGDOC 2.13.1, which was published during the licence period. CNSC staff also found that NB Power granted timely access and provided adequate assistance to the IAEA for safeguards activities at the PLNGS.
140. An intervenor and NB Power safeguards official, Joseph M. Valardo ([CMD 22-H2.144](#)), provided information on the operations of the safeguards program in place at the PLNGS. Mr. Valardo highlighted the measures in place to ensure compliance with international treaties and the safety of employees, the public, and the environment.
141. Several intervenors, including Leap4wards ([CMD 22-H2.5](#)) and members of CRED-NB, raised proliferation concerns with possible future repurposing of spent fuel as a source of plutonium. The Commission emphasizes that NB Power is not authorized to reprocess nuclear fuel under the current licence and that this is not a matter for this renewal application, as no such application has been brought forward. Authorization for such activity would be subject to a separate Commission hearing process should such an application come before the Commission.
142. The Commission concludes that NB Power has adequate programs in place to provide for the implementation of measures in the area of safeguards and non-proliferation at the PLNGS. The Commission bases this conclusion on the following:
  - The Commission is satisfied that the information submitted by NB Power and CNSC staff demonstrates that NB Power has provided for the implementation of measures that are necessary for maintaining national security and for implementing international agreements to which Canada has agreed.
  - The Commission agrees with CNSC staff's assessment that NB Power's safeguards and non-proliferation program meets regulatory requirements, including REGDOC 2.13.1.

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<sup>123</sup> Section 3.13, [CMD 22-H2](#)

#### 4.2.14 Packaging and Transport

143. Packaging and transport covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. NB Power must adhere to the [Packaging and Transport of Nuclear Substances Regulations, 2015](#)<sup>124</sup> (PTNSR) and Transport Canada's [Transportation of Dangerous Goods Regulations](#)<sup>125</sup> (TDG Regulations) for all shipments.
144. NB Power submitted information on its packaging and transportation program.<sup>126</sup> NB Power reported that it regularly contracts the transportation of radiological materials to qualified vendors who are licensed, trained, and experienced in these activities. NB Power indicated that all shipments of radioactive waste require the approval of the senior health physicist and that designated staff are trained and qualified in transport packaging. NB Power noted that it procures certified packaging for radioactive shipments when required and does not maintain or apply for certification of packaging.
145. CNSC staff provided the Commission with information on its assessment of NB Power's packaging and transport program.<sup>127</sup> CNSC staff found that NB Power ensures that all shipments leaving the PLNGS site are compliant with the PTNSR and TDG Regulations. CNSC staff indicated that the TDG Regulations were amended in 2021 and that NB Power is required to review its packaging and transport program to ensure continued compliance. CNSC staff reported that NB Power provides training to personnel involved in the handling, offering for transport, and transport of dangerous goods at the PLNGS site, and issues training certificates in accordance with the TDG Regulations. CNSC staff noted that it performed 3 packaging and transport inspections at the PLNGS during the current licence period which identified 1 low safety significant non-compliance that NB Power took immediate actions to address.
146. The Commission concludes that NB Power has adequate programs and measures in place at the PLNGS regarding packaging and transport. The Commission bases this conclusion on the following:
- The Commission is satisfied that the information provided by CNSC staff and NB Power demonstrates that NB Power has suitable programs in place to safely package and transport nuclear substances and radiation devices to and from the PLNGS.
  - The Commission agrees with CNSC staff's assessment that NB Power meets all regulatory requirements for packaging and transport, including the PTNSR and TDG Regulations.

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<sup>124</sup> SOR/2015-145

<sup>125</sup> SOR/2001-286

<sup>126</sup> Section 15.0, [CMD 22-H2.1](#)

<sup>127</sup> Section 3.14, [CMD 22-H2](#)



#### 4.2.15 Conclusions on Safety and Control Areas

147. Based on the evidence provided for this hearing, the Commission is satisfied that NB Power has adequate programs and measures in place with respect to the 14 SCAs to ensure that the health and safety of workers, the public, and the environment will be protected over the licence term. The Commission is further satisfied that NB Power has measures in place to provide for the maintenance of national security and to implement international obligations to which Canada has agreed. The Commission is satisfied that CNSC staff will continue to provide regulatory oversight through ongoing compliance verification activities, including inspections.

### 4.3 Indigenous Engagement and Consultation

148. The Commission considered the information provided by CNSC staff and NB Power regarding Indigenous consultation and engagement activities in respect of this application. Indigenous consultation refers to the common law duty to consult with Indigenous Nations and communities pursuant to section 35 of the [Constitution Act, 1982](#).<sup>128</sup>
149. The common law duty to consult with Indigenous Nations and communities is engaged when the Crown contemplates action that may adversely affect established or potential Aboriginal and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Indigenous Nations and communities. The CNSC ensures that its licensing decisions under the NSCA uphold the honour of the Crown and consider Indigenous Nations and communities' potential or established Indigenous and/or treaty rights pursuant to section 35 of the [Constitution Act, 1982](#).<sup>129</sup>
150. The duty to consult is engaged wherever the Crown has "knowledge, real or constructive, of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it".<sup>130</sup> Licensing decisions of the Commission, where Indigenous interests may be adversely impacted, can engage the duty to consult, and the Commission must be satisfied that it has met the duty prior to making the relevant licensing decision.
151. CNSC staff reported that NB Power's PROL renewal for the PLNGS does not include any new activities that could cause new impacts on the environment or changes in the ongoing licensed activities at the PLNGS site, and therefore, will not cause any new adverse impacts to any potential or established Indigenous and/or treaty rights. In its intervention ([CMD 22-H2.244](#)), the Passamaquoddy Recognition

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<sup>128</sup> Schedule B to the Canada Act 1982 (UK), 1982, c 11

<sup>129</sup> Schedule B to the Canada Act 1982 (U.K.), 1982, c 11

<sup>130</sup> *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73 at para 35

Group Inc. (PRGI) explained that the continued production and storage of nuclear waste at the PLNGS site creates a new infringement of the rights of Indigenous Nations and communities. Kopit Lodge (KL) and Elsipogtog First Nation (EFN) noted, in its intervention ([CMD 22-H2.145](#)), the absence of suitable consultation at the time the PLNGS was constructed. In its intervention ([CMD 22-H2.234](#)), Mi'gmawe'l Tplu'taqnn Incorporated (MTI) provided the Commission with information relating to a "Relationship and Consultation Agreement" it entered with NB Power in 2018, following concerns MTI raised at the 2017 PLNGS hearing on consultation and the impact the PLNGS may have on Mi'gmaq rights.

152. The Commission respects and acknowledges the perspectives and concerns shared by the Passamaquoddy Recognition Group Inc. (PRGI), Kopit Lodge (KL) and Elsipogtog First Nation (EFN), Mi'gmawe'l Tplu'taqnn Incorporated (MTI), and other members of Indigenous Nations and communities in their respective presentations and written submissions during this hearing. The Commission values the relationship it has established with Indigenous Nations and communities and is committed to reconciliation. The Commission also recognizes the importance of a dialogue that incorporates historical, ongoing, and future operations of the PLNGS in advancing reconciliation.

#### *4.3.1 Indigenous Engagement by CNSC Staff*

153. CNSC staff provided the Commission with information about the Indigenous Nations and communities that were identified as having a potential interest in the PLNGS licence renewal and about the engagement activities that were carried out with the identified groups.<sup>131</sup> These groups include six Maliseet communities in NB represented by the Wolastoqey Nation of New Brunswick (WNNB), nine Mi'gmaq communities in NB represented by MTI<sup>132</sup>, the Peskotomuhkati Nation represented by the PRGI, and the Sipekne'katik First Nation in Nova Scotia. CNSC staff reported that these groups have expressed an interest in being informed of CNSC licensing activities occurring in the proximity of their traditional and/or treaty territories.
154. CNSC staff informed the Commission that, following the 2017 PLNGS licence renewal, it has continued to meet with MTI, the WNNB, and the PRGI at least twice annually to facilitate regular engagement. CNSC staff indicated that these meetings and interactions would continue throughout the proposed licence period. CNSC staff reported that it and the WNNB are working to draft a Terms of Reference (TOR) for long-term meaningful engagement and noted that it remains willing to establish TOR with any community.

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<sup>131</sup> Section 4.1, [CMD 22-H2](#)

<sup>132</sup> EFN is a member of MTI, but continue to consult through their consultation delegation, KL, and was not represented by MTI during this hearing.

155. CNSC staff also submitted details on its specific engagement with Indigenous Nations and communities pertaining to the PLNGS licence renewal, including letters of notification sent in July 2021, follow-up phone calls to answer any questions, and engagement sessions held in October 2021. CNSC staff highlighted specific concerns raised during these sessions about a possible future SMR development, which CNSC staff clarified was not part of this current application.
156. The Commission is satisfied with CNSC staff's efforts to engage with Indigenous Nations and communities who may have interest in the PLNGS, as described. The efforts made by CNSC staff in this regard are key to the important work of the Commission toward reconciliation and relationship-building with Canada's Indigenous Nations and communities. In accordance with its reconciliation efforts, the Commission would like to see CNSC staff adopt TOR with interested Indigenous Nations and communities wherever possible.

#### *4.3.2 Indigenous Engagement by NB Power*

157. NB Power submitted information on its engagement with Indigenous Nations and communities.<sup>133</sup> NB Power noted the importance of increasing awareness of Indigenous culture within its organization and detailed how it maintains positive relationships with Indigenous Nations and communities in NB, including through regular meetings, capacity funding, and education. NB Power highlighted capacity funding agreements with MTI and the WNNB, which provide funding to support positions within the nation's organization and to host and attend engagement and information sessions. NB Power informed the Commission that it has facilitated procurement information sessions for the Mi'gmaq Nation on how to become involved in tendering opportunities.
158. CNSC staff submitted information on its assessment of NB Power's Indigenous engagement and found that NB Power maintains an on-going dialogue with Indigenous Nations and communities with an interest in the PLNGS. CNSC staff noted that, during the COVID-19 pandemic, NB Power maintained this dialogue using virtual meetings. Regarding the incorporation of Indigenous knowledge (IK) in PLNGS activities, CNSC staff confirmed that NB Power continues to implement several activities supporting IK and establishing more awareness and sensitivity among workers. CNSC staff highlighted NB Power's employment of members of Indigenous Nations and communities as field monitors in all field-related monitoring activities at the PLNGS site.
159. Respecting Indigenous employment statistics, an NB Power representative stated that 2.5% of NB Power employees are Indigenous, and that NB Power's goal is to reach 4% to be in line with NB demographics by 2028. Regarding procurement, an NB Power representative explained that it must follow NB government procurement rules as a crown corporation but provides an Indigenous inclusion clause were

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<sup>133</sup> Section 16.4, [CMD 22-H2.1](#)

possible. Asked about opportunities for advancement, an NB Power representative shared their personal career development story and highlighted the opportunities provided by NB Power and its executive management.

160. The Commission acknowledges NB Power's efforts with respect to engaging with Indigenous Nations and communities with an interest in the PLNGS. The Commission is satisfied that NB Power has continued to make progress in building stronger relationships with Indigenous Nations and communities, such as through cultural awareness programs for its staff, the hiring of Indigenous field monitors and other employment equity programs, ensuring procurement opportunities, and the conduct of regular meetings and information sessions. The Commission encourages NB Power to continue this relationship building in order to further reconciliation.

#### *4.3.3 Interventions by Indigenous Nations and Communities, and Individuals*

161. In its intervention ([CMD 22-H2.145](#)), KL and EFN detailed concerns relating to the relicensing of the PLNGS and provided the Commission with comments and recommendations across a variety of topic areas. KL and EFN noted the historical impacts of the PLNGS, including a lack of consultation at the time of construction and the loss of access to a large portion of its territory. KL and EFN reported that, in 2019, it signed a memorandum of understanding with Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) for the recognition of Aboriginal Title, Rights, and Treaty Rights for lands and waters that may be impacted by the PLNGS. KL and EFN also raised concerns relating to environmental protection, radiation protection, waste management, emergency management, and future SMR development. KL and EFN expressed its interest in establishing a long-term relationship agreement with NB Power.
162. Asked about the requests included in the KL and EFN intervention, CNSC staff explained that it began meeting with KL, the representative organization of the EFN, in February 2022. CNSC staff noted that it reviewed the requests and intends to discuss them, as well as a possible TOR, at its next meeting with KL later in 2022. Asked if it has a process to resolve grievances that occurred in the past, an NB Power representative explained that there is no current formal process, but that NB Power is committed to working with KL and EFN and exploring the establishment of a formal agreement.
163. The Commission asked if DFO had engaged with the KL regarding the FAA. A DFO representative explained that it has reached out to KL but not had direct meetings. An NB Power representative added that it had previously provided information on the FAA to KL and recently held a meeting with them to revisit the FAA process.
164. MTI's intervention ([CMD 22-H2.234](#)) raised concerns relating to the lack of inclusion of IK into the activities of the PLNGS. MTI also provided the Commission with a copy of its relationship and consultation agreement with NB

Power. MTI noted that NB Power expressed its willingness to conduct an IK study following the 2017 PLNGS hearing but that such a study had not yet been conducted. MTI's intervention outlined a process for conducting an IK study and explained that its expectation is that Mi'gmaq IK should be used in all natural resource management and environmental decision-making, particularly any decisions that may impact Mi'gmaq rights. MTI informed the Commission that it remains open to working with NB Power to incorporate an IK study into environmental monitoring activities for the PLNGS. Asked about the objectives of an IK study, an MTI representative stated that the final report would contain recommendations on mitigation and accommodation measures, including types of monitoring activities. The MTI representative noted that the Bay of Fundy and the aquatic environment are a primary concern to MTI and are a potential focus of recommendations.

165. The Commission asked for more information concerning the IK study related to the operations of the PLNGS. An NB Power representative stated that the IK study is a priority for NB Power and that it has an agreement in place with MTI to work on completing the IK study. The representative explained that the agreement allows both parties to learn and come to a common understanding of what aspects need further evaluation. CNSC staff noted that it was aware of this agreement and has had multiple discussions with MTI and NB Power about how CNSC staff could also support the gathering of IK. CNSC staff stated that whenever an IK study is conducted, the knowledge and information is owned by the Indigenous Nations and communities. CNSC staff recognized the value of IK studies and noted that, once NB Power and MTI make progress on the IK study, CNSC staff would discuss how to integrate it in the CNSC regulatory framework. The Commission is satisfied that NB Power is making efforts to conduct an IK study and expects NB Power to continue working with MTI to incorporate IK in the practices of the PLNGS.
166. The PRGI ([CMD 22-H2.244](#) and [CMD 22-H2.244A](#)) explained that the Peskotomuhkat are the original inhabitants of the area in the vicinity of the PLNGS. The PRGI submitted information on the application of IK and the risks of taking actions that contravene the public's increasing support of Indigenous rights and noted the importance of building a consequential collaborative relationship. The PRGI raised concerns relating to several SCAs and other matters of regulatory interest in its intervention, which are discussed in section 4.2 and 4.4 of this *Record of Decision*. Licence length is a primary concern of the PRGI and is discussed in section 4.5 of this *Record of Decision*.
167. The Commission asked about efforts made to address concerns raised by the PRGI in its intervention, including regarding emissions, health effects, the marine environment, and waste. CNSC staff explained that since the 2017 PLNGS hearing, CNSC staff has been continuing engagement with the PRGI and been made aware of many of their concerns. CNSC staff stated that it wants to ensure that the values of the PRGI are being considered as part of the regulatory oversight of the PLNGS and that PRGI community members have access to information to understand the

activities of the PLNGS. CNSC staff noted that it had started work to find a common ground and address the PRGI concerns. An NB Power representative indicated that NB Power meets with the PRGI regularly to discuss topics of interest and how they can work together. The Commission is satisfied that CNSC staff and NB Power have each made efforts to address the PRGI's concerns and expects CNSC staff and NB Power to continue work in this regard.

168. In response to Commission questions about the inclusion of IK in the regulatory process, CNSC staff explained that IK belongs to the knowledge holders and the communities. CNSC staff noted that it does not want to assume how IK could be best brought into CNSC activities and detailed the ongoing process of hearing different perspectives for ways to improve. A PRGI representative noted that IK is specific to a territory and that it should only be used to protect the territory and the people. The representative added that the processes of the CNSC are not Indigenous processes and noted that IK resides in stories, not books.
169. In its intervention ([CMD 22-H2.197](#)), the RAVEN project highlighted the need for Indigenous Nations and communities to not only be engaged with but be part of shaping the future on energy matters and climate change initiatives in their homelands. To address how the historical concerns of Indigenous Nations and communities are being reconciled in the ongoing operations of the PLNGS, an NB Power representative explained that its approach to reconciliation is aligned with the calls to action of the Truth and Reconciliation Commission and noted that respect is built through education and understanding. The NB Power representative highlighted NB Power's cultural education program and consultation and capacity agreements with local Indigenous Nations and communities. CNSC staff reiterated its commitment to improve its relationships with Indigenous Nations and communities. CNSC staff explained that it is working to incorporate Indigenous voices directly into its processes, such as the IEMP. The Commission recognizes the importance of including the voices of Indigenous Nations and communities in the regulatory process, making the continued efforts of CNSC staff in this regard crucial, in the view of the Commission. The Commission also encourages NB Power to continue its good faith efforts in this regard.
170. Asked about a formal agreement with the PRGI, CNSC staff explained that it had approached the PRGI to develop a TOR following the 2017 PLNGS hearing. CNSC staff noted that while the PRGI had not indicated an interest in formalizing the relationship in such a way, CNSC staff continue to meet with the PRGI twice annually. A representative for the PRGI stressed that "reconciliation doesn't belong on paper"<sup>134</sup> and that the PRGI is cautious about involving money in its relationships. Another PRGI representative expressed that money cannot replace what has been lost, and that the PRGI wants a meaningful conversation about lost land, resources, and livelihoods.

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<sup>134</sup> [Transcript of May 10, 2022 Public Hearing](#), page 101

171. The Commission greatly appreciates the participation of the PRGI, MTI, KN and EFN, and other members of Indigenous Nations and communities in this hearing process. The Commission notes that continued dialogue between NB Power, the CNSC, and Indigenous Nations and Communities is essential in furthering reconciliation and recognizes that reconciliation also requires meaningful, concrete actions. For the CNSC, the NSCA outlines the regulatory mandate in relation to which it can take steps toward reconciliation in its licensing and regulatory oversight.

#### *4.3.4 Conclusion on Indigenous Engagement and Consultation*

172. The Commission concludes that its responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and the duty to consult respecting Indigenous interests has been satisfied. The renewal of NB Power's PROL for the PLNGS does not include any new activities that could cause new impacts on the environment or changes in the ongoing licensed activities at the PLNGS site, and therefore, will not cause any new adverse impacts to any potential or established Indigenous and/or treaty rights.
173. Nonetheless, the Commission recognizes the importance to engage with Indigenous Nations and communities meaningfully and acknowledges the efforts of NB Power and CNSC staff to engage with Indigenous Nations and communities with respect to the PLNGS. The Commission notes NB Power's commitment to conduct an IK study and urges NB Power to pursue this IK study in a timely manner. The Commission encourages the continued participation of Indigenous Nations and communities in environmental monitoring programs associated with the PLNGS and directs CNSC staff to identify priorities for such participation in the CNSC's IEMP.
174. The Commission recognizes that work to advance reconciliation takes time. It is the Commission's opinion that it is imperative that this work advance now so that Indigenous Nations and communities have a clear understanding of the future of the PLNGS site and have a meaningful role in future decisions regarding the site. The Commission directs CNSC staff to report to the Commission annually on CNSC staff's and NB Power's progress in advancing reconciliation, as part of the *Regulatory Oversight Report*.
175. The Commission notes that some concerns raised by Indigenous Nations and communities do not fall within the mandate of the CNSC as defined by the NSCA, such as concerns related to the FAA being considered by DFO. The Commission expects NB Power and CNSC staff to coordinate with the necessary Provincial and Federal agencies as required, to bring awareness to issues identified by Indigenous Nations and communities.

176. In respect of ongoing engagement efforts with Indigenous Nations and communities, the Commission heard the clear intention of the licensee in this regard, and so expects that NB Power will:

- Work directly with Indigenous Nations and communities that express interest in the PLNGS to identify, and where possible plan for the resolution of, issues arising from historical, ongoing, and future operations of the PLNGS, including those respecting low, intermediate, and high-level waste at the Point Lepreau site.
- Make best efforts to establish relationship agreements with interested Indigenous Nations and communities for the discussion of issues and concerns linked to ongoing and future operations of the PLNGS, recognizing that many of these concerns are rooted in historical activities at the PLNGS.
- Meaningfully incorporate IK, in a manner that respects the protocols set out by the appropriate Indigenous Nations and communities, in PLNGS practices.
- Make available, subject to confidentiality considerations, information, data, studies, and documentation regarding the historical, ongoing, and future operations at the PLNGS and make every effort to ensure that such confidentiality considerations do not unnecessarily frustrate the resolution of issues.

177. In furtherance of the CNSC's responsibilities as a Crown agent, the Commission also directs CNSC staff to work on the following, within the regulatory mandate of the NSCA:

- Work directly with Indigenous Nations and communities that express interest in the PLNGS to identify, and where possible plan for the resolution of, issues arising from ongoing and future operations of the PLNGS, including those respecting low, intermediate, and high-level waste at the Point Lepreau site.
- Make best efforts to formally establish relationship agreements with interested Indigenous Nations and communities for the discussion of issues and concerns linked to ongoing and future operations of the PLNGS, recognizing that many of these concerns are rooted in historical activities at the PLNGS.
- Meaningfully incorporate IK, in a manner that respects the protocols set out by the appropriate Indigenous Nations and communities, in CNSC regulatory processes.
- Make available, subject to confidentiality considerations, information, data, studies, and documentation regarding the historical, ongoing, and future operations at the PLNGS and make every effort to ensure that such confidentiality considerations do not unnecessarily frustrate the resolution of issues.



178. The Commission expects that NB Power and CNSC staff will provide an update at the midpoint of the licence on the progress of the items listed above, including incorporation of IK in PLNGS practises, the formalization of engagement agreements with Indigenous Nations and communities, and the advancement of reconciliation. This update shall be presented at a public proceeding where Indigenous Nations and communities have the opportunity to participate.

#### **4.4 Other Matters of Regulatory Importance**

##### *4.4.1 Public Engagement*

179. A public information and disclosure program (PIDP) is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities, as detailed in [REGDOC-3.2.1, \*Public Information and Disclosure\*](#).<sup>135</sup> NB Power provided the Commission with information on its PIDP in its submission.<sup>136</sup> NB Power described the various aspects of its program, including the identification of target audiences, public and media opinion monitoring, public information, and internal communications. NB Power highlighted public meetings, site tours, public speaking engagements, annual reports, and other mechanisms in place to ensure the public is informed of the activities of the PLNGS. In response to the COVID-19 pandemic, NB Power held virtual meetings with the public. In her intervention, Heather Chase ([CMD 22-H2.143](#)) provided the Commission with information on her experience as a member of the PLNGS Community Liaison Committee.
180. CNSC staff included information in its submission on its assessment of NB Power's PIDP.<sup>137</sup> CNSC staff found that NB Power meets the requirements of REGDOC-3.2.1 and disseminates appropriate and timely health and safety information to the public through various mediums. CNSC staff highlighted the need for continuously reviewing and updating the PIDP to adapt communications programming to suit the needs of multiple audiences. CNSC staff noted NB Power's improvements to its PIDP, including an increased online presence in response to the evolution of social media during the current licence period.
181. Narrative Research ([CMD 22-H2.142](#) and [CMD 22-H2.142A](#)), in its intervention, provided the Commission with details of its recent public opinion polling pertaining to the PLNGS. Narrative Research indicated that 78% of residents believe it is important that the PLNGS be operational and 95% of residents find it important to be closely informed about the PLNGS. Asked about the scope of the survey, a Narrative Research representative explained that the survey covered the entire province and balances the age, language, and gender of respondents. The representative noted that the inclusion of Indigenous Nation and community members was verified to be in alignment with NB demographics. Asked about

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<sup>135</sup> REGDOC-3.2.1, *Public Information and Disclosure*, CNSC, May 2018

<sup>136</sup> Section 16.8, [CMD 22-H2.1](#)

<sup>137</sup> Section 5.4, [CMD 22-H2](#)

funding, the representative stated that NB Power funded the survey. Regarding trending, the representative noted that the results are generally stable over time and that “neutral” respondents tend to become “agree” when provided with more information.

182. Interventions, including the IBEW ([CMD 22-H2.209](#)), highlighted the importance of engagement with the CNSC. Asked about the availability of CNSC staff at the CNSC’s PLNGS site office, CNSC staff stated that it has routine meetings with IBEW members and is always available to discuss concerns. The Commission encourages CNSC staff to continue engaging with members of the IBEW, as appropriate.
183. Several interventions, including from CRED-NB and CELA ([CMD 22-H2.194](#)) and Northwatch ([CMD 22-H2.220](#)), raised concerns with the lack of availability of reference documentation related to this hearing. Asked about this, an NB Power representative described NB Power’s process for handling requests for documents, noting that some documents are proprietary to other organizations. CNSC staff also detailed its processes for making documents available and noted that anything not confidential is available upon request, usually within 24 hours. A CELA representative stated that the process can be time-consuming and expressed frustration with redactions that affect the usefulness of documents. The Commission acknowledges the concerns regarding the timeliness and availability of referenced documentation.
184. The Commission agrees with CNSC staff’s assessment that NB Power’s PLNGS PIDP meets regulatory requirements and expectations, including REGDOC-3.2.1. Based on the information provided for this hearing by NB Power, CNSC staff, and intervenors, the Commission is satisfied that that NB Power will continue to communicate to the public information about the health, safety, and security of persons and the environment and other issues related to the PLNGS over the proposed licence period.
185. The Commission is not satisfied with the current availability of documentation for members of the public intervening in public hearings of the Commission. It is the expectation of the Commission that documents pertaining to a matter before the Commission be made readily available to members of the public. The Commission directs CNSC staff to implement a process to ensure the openness and transparency of information pertaining to matters before the Commission, including documents referenced in CNSC staff submissions. The Commission notes that, as per section 12 of the Rules, it is the Commission that determines whether documents or information submitted in relation to a matter before it are treated as confidential. Where the Commission has assessed documents or information to be confidential, the Commission expects suitable alternatives, such as a public summary or controlled access, to be readily available instead.

#### 4.4.2 Decommissioning Plans and Financial Guarantee

186. The Commission requires that NB Power have operational plans for the decommissioning and long-term management of waste produced during the lifespan of the PLNGS. In order to ensure that adequate resources are available for safe and secure future decommissioning of the PLNGS site, the Commission requires that an adequate financial guarantee for realization of the planned activities is in place and maintained in a form acceptable to the Commission throughout the licence period. The management of waste during the operational life of the PLNGS is discussed in section 4.2.11 of this *Record of Decision*.
187. NB Power reported that it had updated its preliminary decommissioning plan (PDP) in June 2020, including the associated decommissioning cost estimate and proposed financial guarantee (FG).<sup>138</sup> NB Power explained that it ensures that the decommissioning strategy is a technically feasible approach that protects health, safety, security, and the environment. CNSC staff confirmed that NB Power's PDP for the PLNGS meets regulatory requirements,<sup>139</sup> including CSA standard N294-09, *Decommissioning of Facilities Containing Nuclear Substances*,<sup>140</sup> and noted that NB Power was in the process of conducting a gap analysis for the future implementation of REGDOC-2.11.2. CNSC staff reported that an updated PDP is required every 5 years, with the next PDP to be submitted by NB Power in 2025. Any resulting updates to the FG would be submitted to the Commission for acceptance.
188. Regarding the FG, CNSC staff provided information in section 5.2 of [CMD 22-H2](#) on its assessment of NB Power's FG for the PLNGS. CNSC staff explained that NB Power maintains a consolidated FG as per the *Financial Security and Access Agreement* between the CNSC and NB Power. The FG fund is made up of three parts:
- the NB Power Decommissioning Fund for PLNGS and SRWMF decommissioning;
  - the NB Power Used Fuel Management Fund for used fuel management; and
  - the NB Power Nuclear Fuel Waste Act Trust for the management of used fuel established pursuant to the [Nuclear Fuel Waste Act](#).<sup>141</sup>

CNSC staff reported that due to the market volatility caused by the COVID-19 pandemic, it requested that NB Power provide quarterly reports on the present market value of the FG from April 2020 until September 2021. CNSC staff assessed NB Power's 5-year update of its PDP and associated FG submitted in June 2020 and found it acceptable, noting that in March 2020 the total value of NB Power's FG was \$755.0 million against a funding requirement of \$714.5 million.

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<sup>138</sup> Section 12.4, [CMD 22-H2.1](#)

<sup>139</sup> Section 3.11, [CMD 22-H2](#)

<sup>140</sup> N294-09, *Decommissioning of Facilities Containing Nuclear Substances*, CSA Group, 2009 (Reaffirmed in 2019)

<sup>141</sup> S.C. 2002, c. 23

189. The Commission asked about the decommissioning and cost estimates of different levels of nuclear and radiological waste. CNSC staff explained that the PDP and associated cost estimate include the disposal cost for low-level wastes, intermediate-level wastes, and high-level wastes; the funding requirements for high-level wastes are set out in the *Nuclear Fuel Waste Act*. Asked about the end-state of the PLNGS after decommissioning, CNSC staff stated that the site would be released from regulatory control and that the cost estimate includes funding for restoration activities.
190. Several interventions, including the PRGI ([CMD 22-H2.244](#)) and Northwatch ([CMD 22-H2.220](#)), raised concerns with assumptions in the PDP and expressed the opinion that NB Power's FG is insufficient. Asked by the Commission about cost estimate methodology, CNSC staff explained that the methodology is set out in regulatory requirements and based on international experience, with built in contingency. Regarding a Nuclear Energy Agency report referred to by the PRGI in [CMD 22-H2.244A](#) that shows much higher costs than NB Power's FG amount, CNSC staff explained that the report was not intended as a cost comparison and that the reactor site noted in the report is quite different from the PLNGS. Regarding the assumption in the PDP of an available deep geological repository (DGR) for fuel waste in the future, an NB Power representative stated that NB Power could store fuel waste at the site indefinitely if necessary. CNSC staff explained that assumptions in the PDP are based on the most realistic information available, are re-evaluated every 5 years, and include the cost of transportation. Asked about a situation where a DGR is never available, CNSC staff explained that it would be the responsibility of the NWMO to determine an alternative.
191. The Commission is satisfied that the required 5-year update cycle of NB Power's PDP and associated cost estimate ensures that they remain realistic and based on up-to-date information. The Commission agrees with CNSC staff's assessment that the PDP meets regulatory requirements and that the associated cost estimate is credible. Therefore, the Commission concludes that the PDP and related cost estimate for the PLNGS are acceptable for the purpose of the current licence renewal. The Commission finds the FG amount of \$755.0 million and the *Financial Security and Access Agreement* to be appropriate for the safe and secure future decommissioning of the PLNGS.

#### 4.4.3 Cost Recovery

192. Paragraph 24(2)(c) of the NSCA requires that a licence application be accompanied by the prescribed fee, as set out by the [Canadian Nuclear Safety Commission Cost Recovery Fees Regulations](#)<sup>142</sup> (CRFR) and based on the activities to be licensed.

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<sup>142</sup> SOR/2003-212.

193. NB Power indicated in section 16.5 of its submission ([CMD 22-H2.1](#)) that it is in good standing with cost recovery fee payments. CNSC staff confirmed in section 5.1 of [CMD 22-H2](#) that NB Power is in good standing with respect to CRFR requirements for the PLNGS. CNSC staff noted that for this licence renewal application, NB Power is subject to subsection 5(2) of the CRFR, which relates to quarterly invoices.
194. Based on the information submitted by NB Power and CNSC staff, the Commission is satisfied that NB Power has satisfied the requirements of the NSCA for the purpose of this licence renewal.

#### *4.4.4 Nuclear Liability Insurance*

195. As a designated nuclear installation, as set out in the Schedule of the [Nuclear Liability and Compensation Regulations](#),<sup>143</sup> NB Power is required to maintain nuclear liability insurance for the PLNGS in accordance with the [Nuclear Liability and Compensation Act](#)<sup>144</sup> (NLCA). CNSC staff reported that NB Power maintained this insurance throughout the current licence period. While this statutory requirement is administered not by the CNSC but by Natural Resources Canada, the nuclear regulator maintains awareness of NLCA compliance, where its licensees are designated nuclear installations.
196. Based on the information provided on the record for this hearing, the Commission is satisfied that NB Power continues to satisfy the requirements for the maintenance of nuclear liability insurance under the NLCA.

### **4.5 Licence Length and Conditions**

197. The Commission considered NB Power's application to renew its operating licence for the PLNGS for a period of 25 years. NB Power's current licence, PROL 17.01/2022, expires on June 30, 2022.

#### *4.5.1 Licence Length*

198. NB Power applied for the renewal of its licence for a 25-year term. In its presentation ([CMD 22-H2.1B](#)), NB Power explained that its request for a 25-year licence is intended to cover the remaining operating life of the PLNGS. NB Power further explained that a 25-year licence length was based on international best practises, reflects advancements in the regulatory framework, and is supported by the reliable safety performance of the Canadian nuclear industry.

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<sup>143</sup> SOR/2016-88

<sup>144</sup> S.C. 2015, c. 4, s. 120.

199. CNSC staff recommended that the licence be renewed for a period of 20 years, until June 30, 2042, submitting that NB Power is qualified to carry on the licensed activities authorized by the licence. In section 2 of its supplemental submission ([CMD 22-H2.B](#)), CNSC staff provided information to support its recommendation for a 20-year licence, including international benchmarking. CNSC staff explained that minimal changes to the operations of the PLNGS are anticipated in the next 20 years and that such a licence length aligns with the 30-year operating life extension of the refurbishment project, which was completed in 2012. CNSC staff noted that the CNSC has a robust regulatory program that maintains effective oversight of NB Power's compliance and safety performance independent of the licence length.
200. Several interventions, including members of CRED-NB, the PRGI, and the Canadian Nuclear Workers' Council (CNWC), raised concerns regarding the proposed licence length. These concerns included the perception of diminished public engagement, reduced oversight and accountability of the licensee, and a loss of opportunities to engage directly with the Commission through the CNSC's licensing process. In its intervention, the PRGI ([CMD 22-H2.244](#) and [CMD 22-H2.244A](#)) suggested a 3-year licence based on the importance of regularly revisiting and renewing relationships as per Wabanaki law.<sup>145</sup> The MTI intervention ([CMD 22-H2.234](#)) noted that a 5- or 10-year licence would promote open discussion between NB Power and community stakeholders. The CNWC indicated in its intervention ([CMD 22-H2.179](#)) that a longer licence would negatively impact accountability and public engagement, highlighting the importance of Commission involvement. Asked about the importance of the hearing process, a CNWC representative noted that an upcoming Commission hearing often initiates engagement.
201. Asked about the requested licence length, an NB Power representative highlighted the stability advantage of a 25-year licence over a shorter licence. Regarding oversight during a longer licence period, an NB Power representative informed the Commission that NB Power is committed to prioritising safety, ensuring openness and transparency, and continuous engagement with members of the public and Indigenous Nations and communities, regardless of the length of a licence. In response to questions about the benefit of a longer licence, CNSC staff stated that a longer licence allows for additional time to dedicate to more in-depth topical discussions involving the Commission.
202. In [CMD 22-H2.B](#), CNSC staff reported that it carries out varied engagement activities that are not tied to the licence period.<sup>146</sup> Such activities are further discussed in Sections 4.3 and 4.4.1 of this *Record of Decision*. CNSC staff highlighted various opportunities for members of the public, Indigenous Nations and communities, licensees, and CNSC staff to engage directly with the Commission, including the regular RORs. In addition, CNSC staff noted that it provides frequent

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<sup>145</sup> The Peskotomuhkati, Wolastoqewiyik, Wolastoqiyik, Mi'gmaq, and Penobscot, are known collectively as the Wabanaki.

<sup>146</sup> Section 3, [CMD 22-H2.B](#)

status reports on power reactors and reports on applicable events at Commission meetings, and that the Commission has the discretion to request an update on any subject and allow for interventions. In his intervention, Paul Thomson, former president of the Canadian Nuclear Society ([CMD 22-H2.161](#)), reiterated the CNSC's engagement opportunities and highlighted the improved accessibility of the hybrid virtual and in-person Commission proceedings. Regarding other engagement with members of the public and Indigenous Nations and communities, CNSC staff highlighted the IEMP, which is not linked to the licence period. CNSC staff noted the importance of finding opportunities to evolve its engagement activities separately from the licensing process.

203. The Commission asked how a proposed 20- or 25-year licence would promote reconciliation. CNSC staff expressed that the licence length would not have a specific bearing on the path towards reconciliation. CNSC staff stated that it is committed to reconciliation and recognizes that substantial work remains to be done. CNSC staff noted that the CNSC will be involved throughout the lifecycle of the PLNGS and that work to advance reconciliation will continue regardless of the licensing status. A PRGI representative noted that the PRGI was not part of the decision-making process that led to the request for a 25-year licence and stated that such a licence term would represent losing the voice of a generation in the discussion.
204. The Commission is of the opinion that an ongoing dialogue involving licensees, CNSC staff, the Commission, and Indigenous Nations and communities is essential to further reconciliation and to build and maintain trust. The Commission is of the opinion that public trust is based on the real efforts of the CNSC and its licensees, as well as the public's perception of these efforts. The Commission notes the importance of maintaining public trust. To date, there seems to have been an increased level of public interest in Commission proceedings that involve a licensing decision. For example, this hearing received 243 interventions and the 2017 PLNGS hearing received 95, compared to a maximum of 9 interventions for any *Nuclear Power Generating Site ROR* presented from 2018-2021. The hearing process certainly contributes to engagement and building trust because it allows for members of the public and Indigenous Nations and communities to voice their perspectives and concerns directly to the decision maker. The Commission is committed to sustaining dialogue with members of the public, Indigenous Nations and communities, and Commission Members.
205. The Commission recognizes that NB Power maintains mature programs and has demonstrated adequate performance, which it expects will continue regardless of licence length. However, the Commission is not persuaded that a 20- or 25-year licence term is appropriate or that there are compelling reasons for the Commission to exercise its discretion in favour of a licence term of that length at this time. It is the opinion of the Commission that a licence length of 10 years is appropriate for this licence at this time. This aligns with the 10-year PSR interval and provides an adequate degree of stability.

206. In light of the comments raised by intervenors and its own engagement efforts, the Commission is of the opinion that providing opportunities for intervenors to voice their views and for the Commission to hear them is necessary to sustain a dialogue with members of the public and Indigenous Nations and communities. It is the Commission's view that a public proceeding at the mid point of the 10-year licence can provide such an opportunity.
207. The Commission finds that a 10-year licence, with a comprehensive update to the Commission occurring in 2027, is appropriate. The Commission directs that this update be part of a public proceeding conducted in the community in proximity to the PLNGS and directs CNSC staff to provide an opportunity for participation, both orally and in writing, to members of the public and Indigenous Nations and communities. The focus of this update shall be engagement with the public and Indigenous nations and communities, and for such individuals or groups to have their views heard by the Commission, including those related to the future of the PLNGS site. This update shall also consider the performance of NB Power during the licence term and provide a status update on other matters of regulatory importance. The Commission notes that CNSC staff oversight of licensed activities is independent of the length of a licence and is based on a robust regulatory framework. The Commission also notes that, as per subsection 43(3) of the NSCA, it may at any time, on its own initiative, redetermine any decision or order made by it.

#### 4.5.2 *Licence Conditions*

208. NB Power applied for the renewal of its existing PROL without changes to the activities it is authorized to carry out. NB Power did not raise concerns regarding current licence conditions and committed to engage with the CNSC on any revisions to the licence conditions handbook during the proposed licence period.
209. CNSC staff's submission ([CMD 22-H2](#)) includes a proposed draft licence in a format that incorporates the CNSC's standardized licence conditions applicable to the PLNGS. CNSC staff proposed the following minor changes to the existing licence conditions:
- the removal of licence condition 3.4, that required NB Power to conduct a periodic safety review; this requirement has been expressed differently as part of the licence conditions handbook;
  - the removal of details regarding the types of isotopes from licence condition 16.1, that requires NB Power to implement and maintain a program for nuclear substances and prescribed equipment, as this information has been moved to the licence conditions handbook; and
  - other minor modifications to the licence conditions to improve clarity and for consistency with the most recent standardized licence conditions.



210. The Commission accepts the licence conditions as recommended by CNSC staff. The Commission finds that the proposed changes to the licence conditions are appropriate, minor, and do not impact the licensed activities or the way that these licensed activities must be carried out. The Commission notes that the issued licence is not the version included in CNSC staff's submission, as the issued licence is for a period of 10 years.

#### 4.5.3 *Delegation of Authority*

211. In order to provide adequate regulatory oversight of changes that are administrative in nature, and which require neither a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate authority for approval or consent for the following licence conditions containing the phrase "a person authorized by the Commission,":

- LC 3.2 - The licensee shall not restart a reactor after a serious process failure without the prior written approval of the Commission, or the prior written consent of a person authorized by the Commission.
- LC 15.2 - The licensee shall obtain written approval of the Commission, or consent of a person authorized by the Commission prior to the start of operations at the Phase II Extension of the SRWMF

CNSC staff recommended that the Commission delegate authority to the following CNSC staff:

- Director, Gentilly-2/Point Lepreau Regulatory Program Division;
- Director General, Directorate of Power Reactor Regulation; and
- Executive Vice-President and Chief Regulatory Operations Officer.

212. In its intervention, Northwatch ([CMD 22-H2.220](#)) suggested that delegated authorities with respect to licence conditions 3.2 and 15.2 were not appropriate and that such matters should be left to the Commission. In its submission, CNSC staff highlighted the various mechanisms for providing information to the Commission, including the status report on power reactors and event initial reports. The Commission notes that the recommended delegation of authority in the proposed licence does not differ from that of the current licence. The Commission's approval would be required for any changes to the licence or for any operational changes that are not within the licensing basis.

213. The Commission delegates its authority for the purposes of licence conditions 3.2 and 15.2, as recommended. The Commission is satisfied that this approach is reasonable and appropriate.

#### 4.5.4 Conclusion on Licence Length and Conditions

214. The Commission concludes that a 10-year licence, with comprehensive update to the Commission in 5 years, is appropriate. The Commission accepts the licence conditions as recommended by CNSC staff. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority, and notes that it can bring any matter to the Commission as required.

### 5.0 CONCLUSION

215. The Commission has considered NB Power's application to renew its power reactor operating licence for the PLNGS for a period of 25 years. The Commission has also considered the submissions of NB Power, CNSC staff, and intervenors. Based on its consideration of the evidence on the record for this hearing, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the power reactor operating licence issued to NB Power for a period of 10 years. In doing so, the Commission also accepts the updated financial guarantee and delegates its authority as outlined in sections 4.4.2 and 4.5.3 of this *Record of Decision*, respectively. The renewed licence, PROL 17.00/2032 is valid from July 1, 2022, until June 30, 2032.
216. Regarding licence length, the Commission acknowledges the strong public interest in this hearing and the importance of providing regular opportunities for members of the public and Indigenous Nations and communities to bring their perspectives directly to the decision maker. The Commission finds that a 10-year licence, with a comprehensive update at the mid-point of the licence term focused on engagement, is appropriate at this time.

Velshi,  
Rumina

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Reason: I am the author of this document  
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October 5, 2022

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Rumina Velshi  
President,  
Canadian Nuclear Safety Commission

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Date

**Appendix A – Intervenors**

| <b>Intervenors – Oral Presentations</b>   | <b>Document Number</b>          |
|---|---------------------------------|
| Westinghouse Electric Canada, represented by P. Zulow   | CMD 22-H2.2                     |
| Margaret R. MacDonald   | CMD 22-H2.3                     |
| Leap4wards, represented by D. Thompson  | CMD 22-H2.5                     |
| Saint John Naturalists’ Club Inc., represented by J. Wilson   | CMD 22-H2.112<br>CMD 22-H2.112A |
| Helen Ward-Wakelin  | CMD 22-H2.114                   |
| Town of St. George, represented by J. Detorakis   | CMD 22-H2.121<br>CMD 22-H2.121A |
| Atlantica Centre for Energy, , represented by M. Robichaud  | CMD 22-H2.125                   |
| Lorneville Mechanical Ltd, represented by D. McGraw   | CMD 22-H2.132                   |
| PEACE-NB, represented by C. Rouse and S. Murphy   | CMD 22-H2.139<br>CMD 22-H2.139A |
| Narrative Research, represented by C. Wright  | CMD 22-H2.142<br>CMD 22-H2.142A |
| Heather Chase   | CMD 22-H2.143                   |
| Joseph M. Valardo   | CMD 22-H2.144                   |
| Keith Miller  | CMD 22-H2.147                   |
| Canadian Nuclear Association, represented by J. Gorman and S. Coupland  | CMD 22-H2.148                   |
| Bruce Power, represented by M. Burton   | CMD 22-H2.149                   |
| Organization of Canadian Nuclear Industries, represented by B. Fehrenbach                                       | CMD 22-H2.150                   |
| The Fundy North Fishermen’s Association and Fundy Weir Fisherman’s Association Inc., represented by L. Mitchell | CMD 22-H2.151<br>CMD 22-H2.151A |
| Leah Belding  | CMD 22-H2.156                   |
| Paul Thompson   | CMD 22-H2.161<br>CMD 22-H2.161A |
| Jennifer Hannigan   | CMD 22-H2.171<br>CMD 22-H2.171A |
| Canadian Nuclear Society, represented by K. Vermal and C. Hunt  | CMD 22-H2.175                   |
| Helmy Ragheb  | CMD 22-H2.177<br>CMD 22-H2.177A |
| Canadian Nuclear Worker’s Council, represented by R. Walker   | CMD 22-H2.179                   |
| Generation Atomic, represented by C. Scarborough and E. Meyer   | CMD 22-H2.183                   |
| Kelly Newman  | CMD 22-H2.186                   |
| CANDU Owners Group, represented by L. Lemieux   | CMD 22-H2.188                   |

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|---|---|
| Coalition for Responsible Energy Development in New Brunswick (CRED-NB) and the Canadian Environmental Law Association (CELA), represented by K. Blaise, G. Wylie and M.V. Ramana | CMD 22-H2.194<br>CMD 22-H2.194A                   |
| Rural Action and Voices for the Environment, represented by S. O'Donnell  | CMD 22-H2.197                                     |
| Ann McAllister  | CMD 22-H2.198<br>CMD 22-H2.198A                   |
| The International Brotherhood of Electrical Workers (IBEW), Local 37, represented by C. Richard and M. Goddard  | CMD 22-H2.209                                     |
| Musquash Volunteer Fire-Rescue Department, represented by W. Pollock  | CMD 22-H2.212                                     |
| Saint John Region Chamber of Commerce, represented by D. Duplisea   | CMD 22-H2.213                                     |
| Sunny Corner Enterprises Inc., represented by E. Lloyd  | CMD 22-H2.214                                     |
| Fundy Bay Senior Citizen's Club Inc, represented by B. Boutin   | CMD 22-H2.215                                     |
| NB Health Emergency Operations Center, represented by C. Galvin   | CMD 22-H2.217<br>CMD 22-H2.217A                   |
| Center for Nuclear Energy Research, represented by W. Cook  | CMD 22-H2.218                                     |
| Northwatch, represented by B. Lloyd   | CMD 22-H2.220<br>CMD 22-H2.220A                   |
| Geoff McCabe  | CMD 22-H2.223                                     |
| Canadian Coalition for Nuclear Responsibility, represented by G. Edwards  | CMD 22-H2.228<br>CMD 22-H2.228A                   |
| NB Emergency Measures Organization, represented by G. MacCallum and R. Shepard  | CMD 22-H2.230<br>CMD 22-H2.230A<br>CMD 22-H2.230B |
| Mi'gmawe'l Tplu'taqnn Incorporated, represented by Z. Roberts, D. Simon and M. Isaac  | CMD 22-H2.234                                     |
| Brilliant Energy Institute at Ontario Tech University, represented by J. Hoonweg  | CMD 22-H2.240                                     |
| Passamaquoddy Recognition Group Inc., represented by H. Sapier, J. Simpson, K. Reeder, Chief Akagi and G. Edwards   | CMD 22-H2.244<br>CMD 22-H2.244A                   |

| <b>Intervenors – Written Submissions</b> | <b>Document Number</b> |
|--|------------------------|
| Alantra Leasing                          | CMD 22-H2.4            |
| Mark Wilson                              | CMD 22-H2.6            |
| The Town of Saint Andrews                | CMD 22-H2.7            |
| Jean Desrosiers                          | CMD 22-H2.8            |
| Kathleen Henderson                       | CMD 22-H2.9            |
| Michael Greene                           | CMD 22-H2.10           |
| Aur a Cormier                            | CMD 22-H2.11           |
| Ryan Hillier                             | CMD 22-H2.12           |
| Elaine Hughes                            | CMD 22-H2.13           |
| MaryAnne MacKeigan                       | CMD 22-H2.14           |
| Amy Floyd                                | CMD 22-H2.15           |
| Heather Reed                             | CMD 22-H2.16           |

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|----------------------------------|--------------|
| Sandi McKessock                  | CMD 22-H2.17 |
| Dawn Mockler                     | CMD 22-H2.18 |
| Thomas G. McAlister              | CMD 22-H2.19 |
| Celina King                      | CMD 22-H2.20 |
| Heather Cronk                    | CMD 22-H2.21 |
| Raven Cameron                    | CMD 22-H2.22 |
| EOS Eco-Energy Inc.              | CMD 22-H2.23 |
| Jason Robichaud                  | CMD 22-H2.24 |
| Marion Taylor                    | CMD 22-H2.25 |
| Rita Crosbie                     | CMD 22-H2.26 |
| Victoria Marcott                 | CMD 22-H2.27 |
| Mary Hatt                        | CMD 22-H2.28 |
| Kelly Fitzpatrick                | CMD 22-H2.29 |
| Charlon Dorey                    | CMD 22-H2.30 |
| Allison MacKenzie                | CMD 22-H2.31 |
| Evelyn Gigantes                  | CMD 22-H2.32 |
| Lauren Brady                     | CMD 22-H2.33 |
| Crysta-Lea Lane                  | CMD 22-H2.34 |
| Steven Dennis                    | CMD 22-H2.35 |
| Cathie McElman                   | CMD 22-H2.36 |
| Paige Wilson                     | CMD 22-H2.37 |
| Julia Hansen                     | CMD 22-H2.38 |
| Maritime Electric                | CMD 22-H2.39 |
| Noelle Mitton                    | CMD 22-H2.40 |
| Stephen Mahler                   | CMD 22-H2.41 |
| Alexandra DeCarlo-Graves         | CMD 22-H2.42 |
| David Cannon                     | CMD 22-H2.43 |
| Lauren Clark                     | CMD 22-H2.44 |
| Page Murphy                      | CMD 22-H2.45 |
| Mindy Swinemar                   | CMD 22-H2.46 |
| Karen Heinemann                  | CMD 22-H2.47 |
| Melissa Estrada                  | CMD 22-H2.48 |
| Anne-Marie Séguin                | CMD 22-H2.49 |
| Sarah Boyer and the Boyer family | CMD 22-H2.50 |
| Helen Chenell                    | CMD 22-H2.51 |
| Valerie Sherrard                 | CMD 22-H2.52 |
| Roma De Robertis                 | CMD 22-H2.53 |
| LED Roadway Lighting Ltd         | CMD 22-H2.54 |
| Emma Donovan                     | CMD 22-H2.55 |
| Hayley Clarke                    | CMD 22-H2.56 |
| Sandra Fowler                    | CMD 22-H2.57 |
| Brittany Carmichael              | CMD 22-H2.58 |
| Vaughn Barnett                   | CMD 22-H2.59 |
| Benjamin Fortier                 | CMD 22-H2.60 |
| Jena Hudson                      | CMD 22-H2.61 |

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| Annika Nicholson   | CMD 22-H2.62  |
| Paul Bragdon   | CMD 22-H2.63  |
| Alex Good  | CMD 22-H2.64  |
| Maïna Béland-Rahm  | CMD 22-H2.65  |
| Terry Forsyth  | CMD 22-H2.66  |
| Marley Nickerson   | CMD 22-H2.67  |
| Annabelle Fournier   | CMD 22-H2.68  |
| Rural Community of Campobello Island                                     | CMD 22-H2.69  |
| René Legacy, Member of the Legislative Assembly, Bathurst West-Beresford | CMD 22-H2.70  |
| Dennis Eickmeier   | CMD 22-H2.71  |
| Maureen Fowler   | CMD 22-H2.72  |
| Julie Cormier  | CMD 22-H2.73  |
| Council of Canadians Fredericton Chapter                                 | CMD 22-H2.74  |
| Vivian Unger   | CMD 22-H2.75  |
| The Town of Grand Bay-Westfield  | CMD 22-H2.76  |
| Misti Campbell   | CMD 22-H2.77  |
| Helen Forsey   | CMD 22-H2.78  |
| Linda Dornan   | CMD 22-H2.79  |
| Ross McKean  | CMD 22-H2.80  |
| Olivia Chisholm  | CMD 22-H2.81  |
| Josh Shaddick  | CMD 22-H2.82  |
| Ed MacAulay  | CMD 22-H2.83  |
| William A. MacCallum   | CMD 22-H2.84. |
| Pat Poole  | CMD 22-H2.85  |
| Danielle Saulnier  | CMD 22-H2.86  |
| Craig Robinson   | CMD 22-H2.87  |
| the Town of Riverview  | CMD 22-H2.88  |
| Elizabeth Lee  | CMD 22-H2.89  |
| Geraldine Vautour  | CMD 22-H2.90  |
| Daniel Becker  | CMD 22-H2.91  |
| Becky Johnson  | CMD 22-H2.92  |
| Gail Delano  | CMD 22-H2.93  |
| Krista M. Bietz-Bielecki   | CMD 22-H2.94  |
| Robyn Guptill  | CMD 22-H2.95  |
| Joan Green   | CMD 22-H2.96  |
| Karen Daley  | CMD 22-H2.97  |
| Faye Arbou   | CMD 22-H2.98  |
| John Williamson, MP, New Brunswick Southwest                             | CMD 22-H2.99  |
| Village of Belledune   | CMD 22-H2.100 |
| Penny Kollar   | CMD 22-H2.101 |
| Mike Farrell   | CMD 22-H2.102 |
| Christian Boudreau   | CMD 22-H2.103 |
| The Council of Canadians, Avalon Chapter                                 | CMD 22-H2.104 |
| David J. Beaudin   | CMD 22-H2.105 |

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| Paula Tippet                                  | CMD 22-H2.107 |
| Mark Collrin                                  | CMD 22-H2.108 |
| the Canadians for Nuclear Energy              | CMD 22-H2.109 |
| Mark LeBlanc                                  | CMD 22-H2.110 |
| Lanaye Dempsey                                | CMD 22-H2.111 |
| Donald Arseneault                             | CMD 22-H2.113 |
| Karla D. Robinson                             | CMD 22-H2.115 |
| Daniel Serre                                  | CMD 22-H2.116 |
| Lawrence Furlotte                             | CMD 22-H2.117 |
| Justin Legacy                                 | CMD 22-H2.118 |
| Helen Carter                                  | CMD 22-H2.119 |
| the Town of Quispamsis                        | CMD 22-H2.120 |
| Roberto Montebelli                            | CMD 22-H2.122 |
| Christopher Corey                             | CMD 22-H2.123 |
| Robert Thompson                               | CMD 22-H2.124 |
| Denise Maillet                                | CMD 22-H2.126 |
| Priscilla Trecartin                           | CMD 22-H2.127 |
| Deborah E. Velux                              | CMD 22-H2.128 |
| Sustainable Energy Group Carleton County      | CMD 22-H2.129 |
| Aline Michaud                                 | CMD 22-H2.130 |
| Tatiana Dedam                                 | CMD 22-H2.131 |
| Aarika Allen                                  | CMD 22-H2.133 |
| Tanya MacBean                                 | CMD 22-H2.134 |
| Robyn Connell                                 | CMD 22-H2.135 |
| ARC Clean Energy Canada Inc.                  | CMD 22-H2.136 |
| Kinectrics Inc.                               | CMD 22-H2.137 |
| Global First Power                            | CMD 22-H2.138 |
| Kelly M. Piers                                | CMD 22-H2.140 |
| Kayla McGarity                                | CMD 22-H2.141 |
| Kopit Lodge & Elsipogtog First Nation         | CMD 22-H2.145 |
| Ontario Power Generation                      | CMD 22-H2.146 |
| The Construction Association of New Brunswick | CMD 22-H2.152 |
| Rose Doucet                                   | CMD 22-H2.153 |
| Moltex Energy                                 | CMD 22-H2.154 |
| Cathy Leonard                                 | CMD 22-H2.155 |
| Phillip Belanger                              | CMD 22-H2.157 |
| The Conseil économique du Nouveau-Brunswick   | CMD 22-H2.158 |
| The Comité des 12                             | CMD 22-H2.159 |
| Mary Milander                                 | CMD 22-H2.160 |
| Nancy Strabac and Fred Hudson                 | CMD 22-H2.162 |
| Lutz E. Becker                                | CMD 22-H2.163 |
| Kathryn Opyc                                  | CMD 22-H2.164 |
| Helen Soucoup                                 | CMD 22-H2.165 |
| Megan Kellestine                              | CMD 22-H2.166 |

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| Lynne Kennett-Read  | CMD 22-H2.167 |
| Tony Reddin and Marion Copleston  | CMD 22-H2.168 |
| Jessica Buckley   | CMD 22-H2.169 |
| Tom McLean  | CMD 22-H2.170 |
| Linda Melanson  | CMD 22-H2.172 |
| Lise Ethier   | CMD 22-H2.173 |
| The Association of Professional Engineers and Geoscientists of New Brunswick                  | CMD 22-H2.174 |
| Imaginons la péninsule acadienne autrement  | CMD 22-H2.176 |
| Mary Ellen Stevenson  | CMD 22-H2.178 |
| Women in Nuclear Canada   | CMD 22-H2.180 |
| Carol A. Ring   | CMD 22-H2.181 |
| Dave Shannon  | CMD 22-H2.182 |
| Jess H. Brewer  | CMD 22-H2.184 |
| Beth McCann   | CMD 22-H2.185 |
| Nancy Covington   | CMD 22-H2.187 |
| The North American Young Generation in Nuclear, Durham  | CMD 22-H2.189 |
| Cooke Aquaculture Inc.  | CMD 22-H2.190 |
| Anne Lindsey  | CMD 22-H2.191 |
| Erik LeBrun   | CMD 22-H2.192 |
| Gordon McDowell   | CMD 22-H2.193 |
| BWXT Canada Ltd   | CMD 22-H2.195 |
| Mike Holland, Minister of Natural Resources and Energy Development<br>New Brunswick           | CMD 22-H2.196 |
| The Canadian Manufacturers & Exporters  | CMD 22-H2.199 |
| Andrea Anderson-Mason, Member of the Legislative Assembly,<br>Fundy-The Isles-Saint John West | CMD 22-H2.200 |
| Susan Curtis  | CMD 22-H2.201 |
| Larry Lack and Lee Ann Ward   | CMD 22-H2.202 |
| Daniel Beaudry  | CMD 22-H2.203 |
| Ron Mawhinney   | CMD 22-H2.204 |
| Zachary Simon   | CMD 22-H2.205 |
| Renée Turcotte  | CMD 22-H2.206 |
| Kim Leffley   | CMD 22-H2.207 |
| Town of Dalhousie   | CMD 22-H2.208 |
| Steven Myers, Minister of Environment, Energy and Climate Action,<br>Prince Edward Island     | CMD 22-H2.210 |
| Douglas Carmody   | CMD 22-H2.211 |
| HAWK Marketing Service  | CMD 22-H2.216 |
| The Nuclear Transparency Project  | CMD 22-H2.219 |
| Lyman Crawford  | CMD 22-H2.221 |
| Gordon W. Dalzell   | CMD 22-H2.222 |
| Kathy Bockus, Member of the Legislative Assembly, Saint Croix                                 | CMD 22-H2.224 |
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| Fundy Shores School   | CMD 22-H2.226 |



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| South Ridge Maple Co. Ltd.  | CMD 22-H2.229 |
| North Shore Micmac District Council                                 | CMD 22-H2.231 |
| The Local Service District  | CMD 22-H2.232 |
| Richard Bradgon, MP, Tobique-Mactaquac                              | CMD 22-H2.233 |
| Dave Wilson   | CMD 22-H2.235 |
| Mawiw Council Inc.  | CMD 22-H2.236 |
| City of Saint John  | CMD 22-H2.237 |
| Canadian Nuclear Laboratories                                       | CMD 22-H2.238 |
| The Town of Shediac   | CMD 22-H2.239 |
| Lester and Helen Hyslop   | CMD 22-H2.241 |
| Holly Breau   | CMD 22-H2.242 |
| The University Network of Excellence in Nuclear Engineering (UNENE) | CMD 22-H2.243 |