



Point Lepreau Nuclear Generating Station 2022 Licence Renewal

Commission Hearing (Part 1)

January 26, 2022

CMD 22-H2.A



CNSC Staff Presentation



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Acknowledgement

The CNSC acknowledges that the Point Lepreau Nuclear Generating Station is located within the territory covered by the Peace and Friendship Treaties with the Maliseet, Peskotomuhkati and Mi'gmaq peoples.



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Errata to CNSC staff CMD 22-H2

- Various minor errors are listed in Annex A of this presentation
- Inaccuracies are administrative in nature and do not impact CNSCs staff's conclusions on safety performance at the sites
- Presentation reflects corrected information



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Presentation Outline

- Purpose of Hearing
- Review of Licence Application
- Regulatory Oversight
- Performance Assessment
- Consultation and Engagement
- Other Matters of Regulatory Interest
- Proposed Licence and Draft Licence Conditions Handbook
- Conclusions and Recommendations
- Annex A – Errata



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Purpose of Hearing

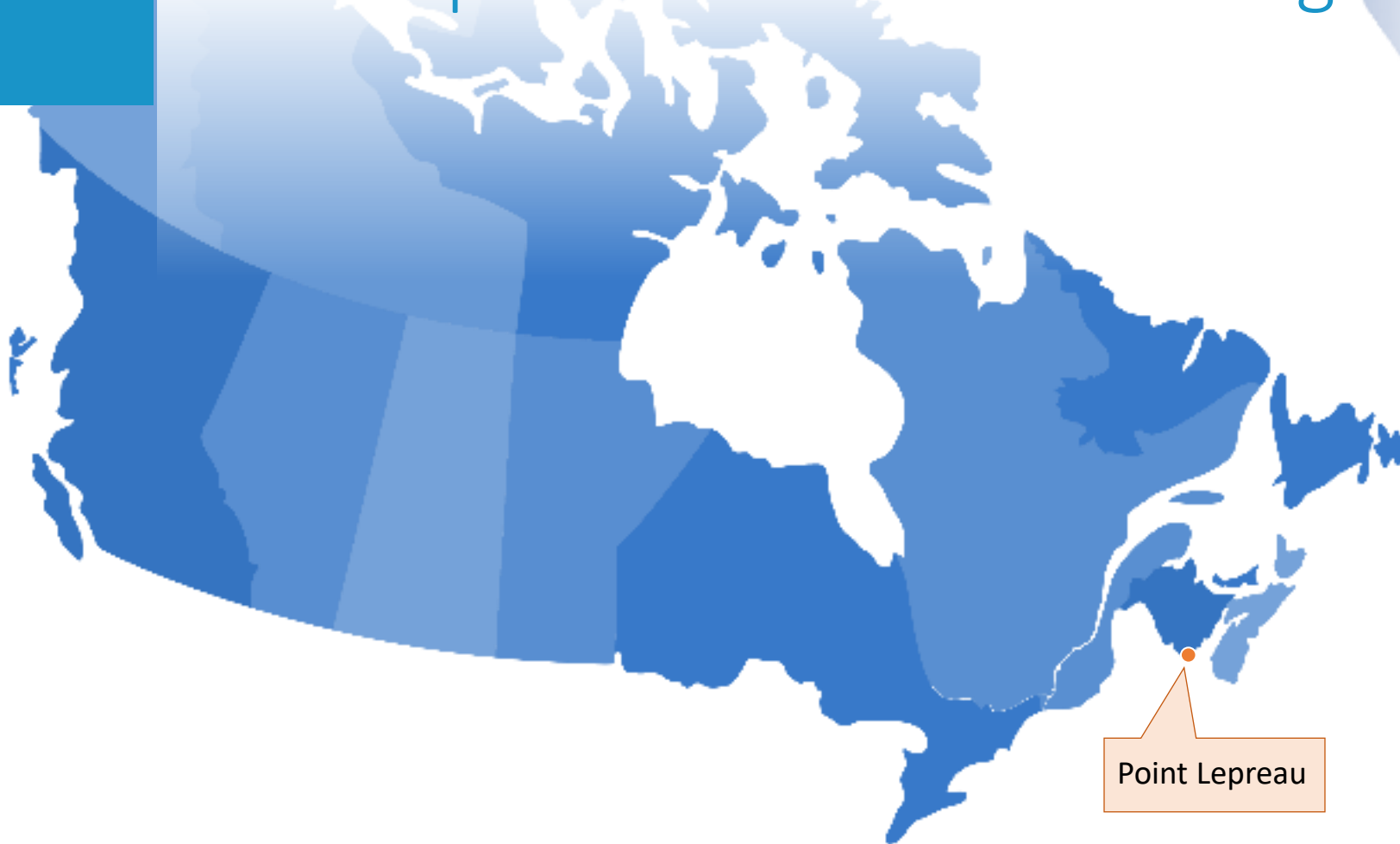
Presentation of CNSC staff conclusions and recommendations regarding NB Power's application for the renewal of the Point Lepreau Nuclear Generating Station Power Reactor Operating Licence:

- NB Power submitted an application for a licence renewal for 25 years



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Point Lepreau Nuclear Generating Station



Point Lepreau



Point Lepreau Nuclear Generating Station is located on the shores of the Bay of Fundy, 40 kilometres southwest of Saint John, New Brunswick.



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Point Lepreau NGS Licence to Operate

- Renewed on July 1, 2017 and expires on June 30, 2022
- Consolidated licence for:
 - the Point Lepreau Nuclear Generating Station (Point Lepreau NGS)
 - the Solid Radioactive Waste Management Facility (SRWMF)
 - activities associated with nuclear substances, prescribed equipment, imports and exports
- The proposed licence:
 - has no new licence conditions
 - if approved would commence on July 1, 2022

The proposed licence would authorize the same activities as the current operating licence



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REVIEW OF LICENCE APPLICATION



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Licence Application Highlights

- CNSC staff confirmed that the application:
 - satisfied requirements and expectations outlined in REGDOC-1.1.3, *Licence Application Guide: Licence to Operate a Nuclear Power Plant*
 - was complete and contained sufficient supporting information
 - established an adequate licensing basis for continued operation
- CNSC staff note that:
 - the proposed renewal does not encompass any changes from current operations
 - NB Power requested a licence term of 25 years



NB Power's application meets REGDOC-1.1.3



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REGULATORY OVERSIGHT

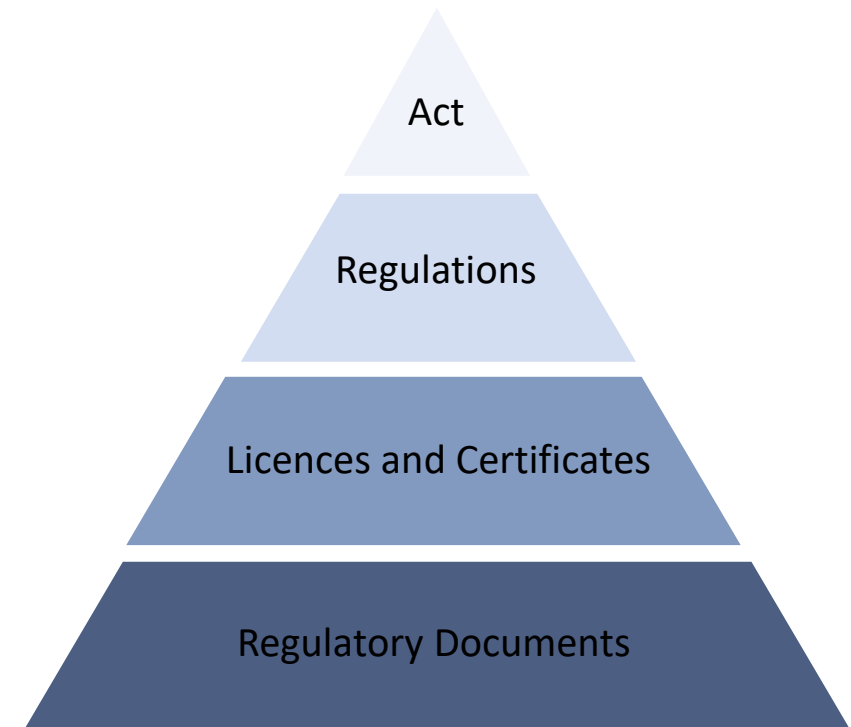


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Regulatory Framework

CNSC staff verify compliance with the following:

- *Nuclear Safety and Control Act (NSCA)* and associated Regulations
- Licence
- Licence Conditions Handbook (LCH)
- Regulatory Documents and CSA Group of Standards referenced in the LCH



The CNSC has a mature regulatory framework



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Safety and Control Area Framework

Management specific



Management systems



Human performance



Operating performance

Facility & Equipment



Safety analysis



Physical design



Fitness for service

Core Control & Processes



Radiation protection



Waste management



Environmental protection



Security



Health & safety



Safeguards & proliferation



Emergency management & fire protection



Packaging & transport



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Regulatory Oversight Activities

CNSC staff:

- assess NB Power’s programs and processes
- conduct compliance assessments and inspections of the Point Lepreau NGS and SRWMF
- spend approximately 2600 person days of effort performing regulatory oversight every year

Compliance Activities	2017	2018	2019	2020	2021
Field Inspections	31	83	82	67	65
Type II Inspections	20	17	17	14	14

Additional details can be found in the Regulatory Oversight Reports posted on the [CNSC website](#)



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Reporting to the Commission

CNSC staff routinely report to the Commission through:

- Regulatory Oversight Reports for Nuclear Power Generating Sites
- Status Reports on Power Reactors
- Event Initial Reports (EIR)



CNSC staff have multiple ways for routinely reporting to the Commission



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PERFORMANCE ASSESSMENT



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Safety and Control Area (SCA) Performance

Safety and Control Area	2017	2018	2019	2020
Management System	SA	SA	SA	SA
Human Performance Management	SA	SA	SA	SA
Operating Performance	SA	SA	SA	SA
Safety Analysis	FS	FS	SA	SA
Physical Design	SA	SA	SA	SA
Fitness for Service	SA	SA	SA	SA
Radiation Protection	SA	SA	SA	SA
Conventional Health and Safety	FS	FS	SA	SA
Environmental Protection	SA	SA	SA	SA
Emergency Management and Fire Protection	SA	SA	SA	SA
Waste Management	SA	SA	SA	SA
Security	SA	SA	SA	SA
Safeguards and Non-Proliferation	SA	SA	SA	SA
Packaging and Transport	SA	SA	SA	SA

FS = Fully Satisfactory

SA = Satisfactory

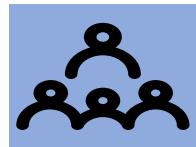
BE = Below Expectations

UA = Unacceptable



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Regulatory Highlights of NB Power’s Performance



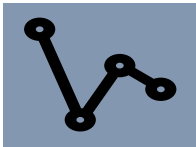
Management systems



Human performance



Operating performance



Safety analysis



Fitness for service



Radiation protection



Environmental protection



Emergency management & fire protection



Waste management



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Management System

CNSC staff confirmed that NB Power:

- maintains a management system in accordance with CSA N286-12, *Management system requirements for nuclear facilities*
- adequately assesses the effectiveness of their management system
- updated their governance document for safety culture
- updated their business continuity process to include measures to prevent and mitigate the spread of COVID-19



Management system was updated to meet modern requirements in CSA N286-12



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Human Performance Management

CNSC staff confirmed that NB Power:

- maintains human performance management processes
- maintains minimum staff complement
- implements training based on the Systematic Approach to Training in accordance with REGDOC-2.2.2, *Personnel Training*
- maintains a sufficient number of qualified personnel for certified positions



NB Power is implementing REGDOC 2.2.4, Fitness for Duty, Volume II: Managing Alcohol and Drug Use



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Operating Performance (1/3)

CNSC staff confirmed that NB Power:

- maintains operating performance processes
- maintains a safe operating envelope in accordance with CSA N290.15, *Requirements for the safe operating envelope for nuclear power plants*
- executed planned maintenance outages safely in accordance with approved processes
- reported events as per REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*
- completed a periodic safety review as per REGDOC-2.3.3, *Periodic Safety Reviews*

NB Power has a clearly defined safe operating envelope



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Operating Performance (2/3) Periodic Safety Review

- Purpose of a Periodic Safety Review (PSR):
 - comprehensive evaluation of the design, condition and operation of an NPP
 - determine reasonable and practical improvements to enhance safety until the next PSR
 - repeated on 10-year cycle
- As per REGDOC-2.3.3 CNSC staff accept the licensee's PSR and Integrated Implementation Plan
- CNSC staff will report on the implementation of the IIP to the Commission during the ROR

Four phases of conducting a PSR



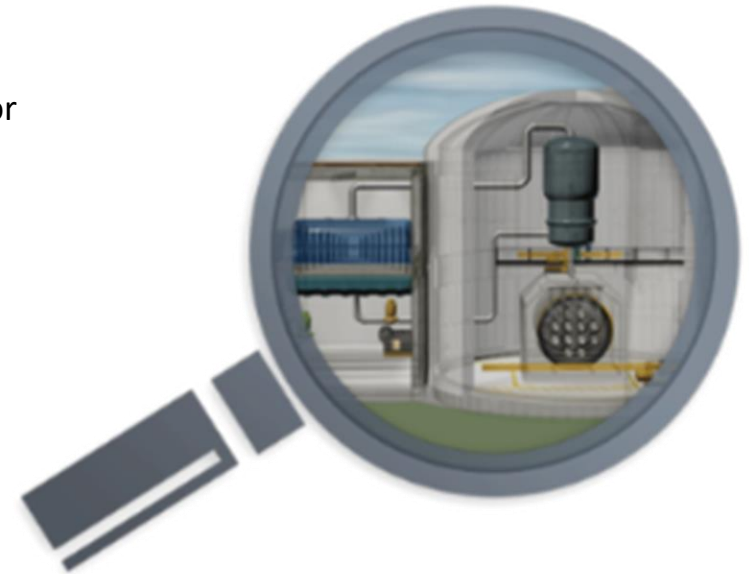
PSR is a comprehensive assessment to determine plant improvements



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Operating Performance (3/3) Periodic Safety Review

- CNSC staff confirmed that NB Power:
 - assessed the plant's state against modern codes and standards in 15 safety factor areas
 - developed a global assessment report
 - prepared an integrated implementation plan (IIP) with actions to address 41 aggregate findings
 - outlined timelines for completing the IIP actions
- CNSC staff accepted the IIP on June 30, 2021.
- CNSC staff concurrence is required for any IIP deviations



CNSC staff conclude that NB Power commits to implementing safety enhancements



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Safety Analysis

CNSC staff confirmed that NB Power:

- maintains a safety analysis program
- completed safety analyses and updated the safety report in accordance with REGDOC-2.4.1, Deterministic Safety Analysis:
 - Trip coverage safety analyses demonstrate that safety margins remain appropriate, considering aging effects.
- updated probabilistic safety assessment methodologies in accordance with REGDOC-2.4.2, *Probabilistic Safety Assessment (PSA) for Nuclear Power Plants*

NB Power submitted updated Deterministic and Probabilistic Safety Analyses

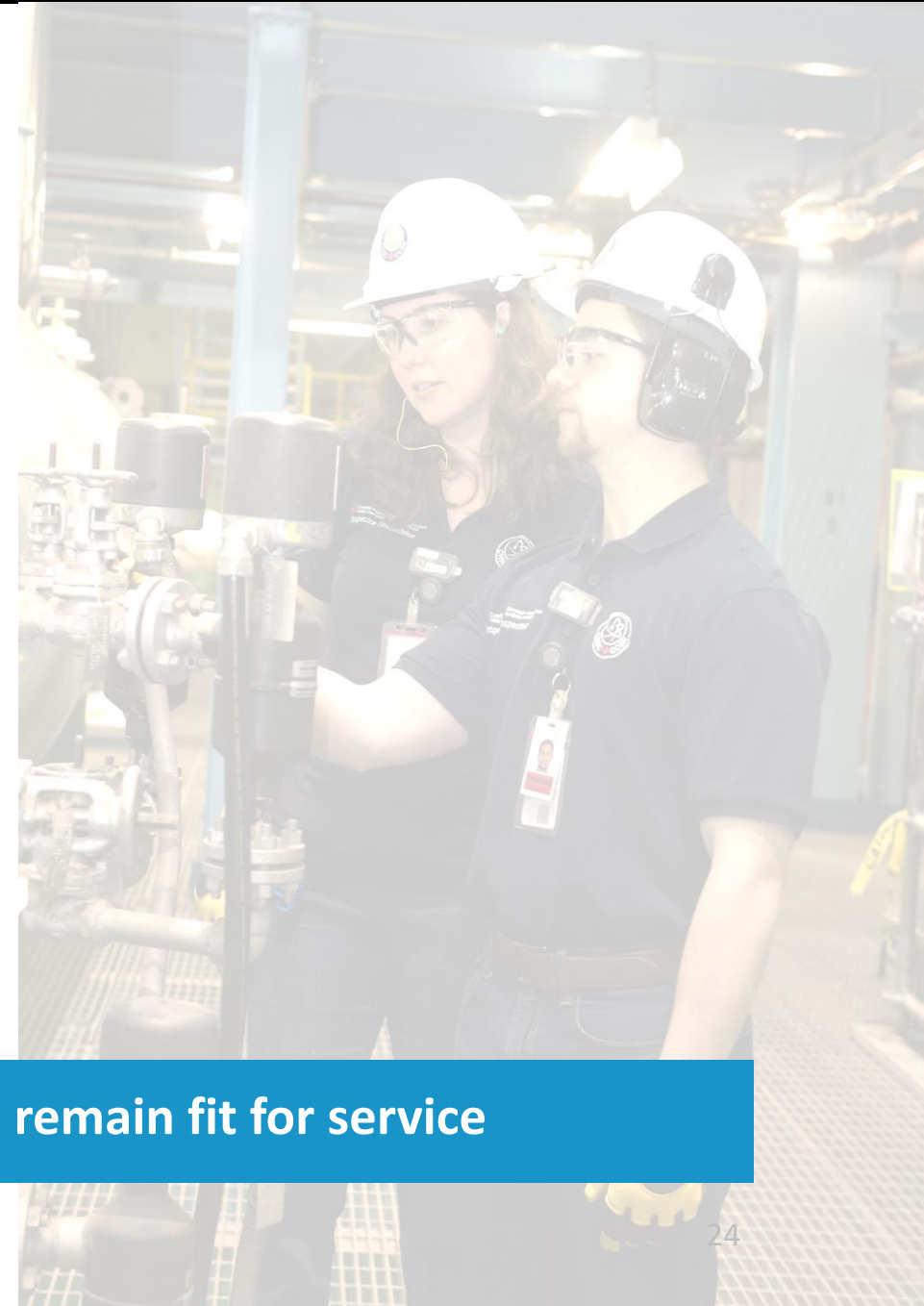


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Fitness for Service

CNSC staff confirmed that NB Power:

- maintains a fitness for service program
- implements a lifecycle management plan as per REGDOC-2.6.3, *Aging Management*
- inspected reactor components in accordance with CSA N285.4, *Periodic inspection of CANDU nuclear power plant components*
- is operating pressure tubes within its design life



Major reactor components at Point Lepreau NGS remain fit for service



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Radiation Protection

CNSC staff confirmed that NB Power:

- maintains a radiation protection program that is effective in protecting workers
- did not exceed annual regulatory dose limits of 50 milli-Sievert or radiation protection related action levels

Dose statistic (milli-Sievert)	2017	2018	2019	2020
Average effective dose	0.8	1.3	0.8	1.5
Maximum effective dose	11.3	13.3	10.3	9.6
Number of workers monitored	2,323	2,502	2,383	2,246

NB Power maintains a radiation protection program that ensures no exceedance of regulatory dose limits



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Environmental Protection (1/3)

CNSC staff confirmed that NB Power:

- maintains an environmental protection program
- submitted an updated environmental risk assessment
 - risk to the environment and human health is low to negligible.
- maintains an effluent and emissions monitoring program
- minimizes potential risks from radiological and hazardous releases to the environment

NB Power's monitoring activities ensure the health and safety of persons and the environment is controlled and protected



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Environmental Protection (2/3)

Environmental Protection Review Report

CNSC staff environmental protection review considers:

- data around Point Lepreau NGS to monitor for radionuclides from various pathways (water, air, soil, vegetation, food samples including aquatic food)
- data from regional health studies



The environment and human health continue to be adequately protected



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Environmental Protection (3/3) CNSC Independent Environmental Monitoring Program

- Sampling campaigns conducted in 2020 and 2021:
 - site-specific plan developed with Indigenous communities
 - samples of air, water, soil, sediment, vegetation, and foodstuffs collected in publicly accessible areas
 - testing focused on radiological contaminants
- All results were below available guidelines or CNSC reference levels.
- Results are available through a public-friendly dashboard on the CNSC website.



[CNSC IEMP website](#)



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Emergency Management and Fire Protection

CNSC staff confirmed that NB Power:

- maintains an emergency management as per REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*
- maintains appropriate equipment for emergency response
- maintains an emergency response plan
- conducts drills and exercises including full scale exercises
- Synergy Challenge 2021 addressed EPREV Mission to Canada finding



**Synergy
Challenge**
2021

NB Power commissioned a new off-site emergency operations centre



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Waste Management (1/2)

CNSC staff confirmed that NB Power:

- maintains a waste management program
- minimizes, segregates and characterizes radioactive wastes
- maintains records for the inventory of radioactive waste and radioactive waste transfers
- submitted a revised Preliminary Decommissioning Plan (PDP) which met regulatory requirements of Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities* and CSA N294-09, *Decommissioning of facilities containing nuclear substances*

NB Power PDP met the requirements of Regulatory Guide G-219



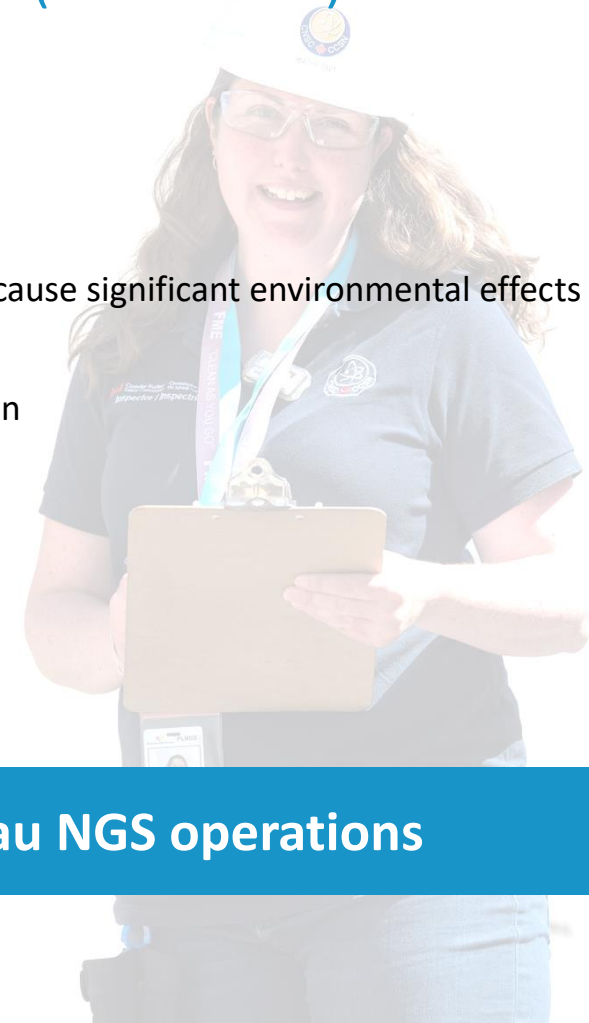
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Waste Management (2/2)

Solid Radioactive Waste Management Facility (SRWMF)

CNSC staff confirmed that the SRWMF:

- quarterly reports are submitted by NB Power as per the LCH
- Phase II extension will provide storage capacity for the proposed licence term
 - in 2003, the Commission issued its decision that the proposed project was not likely to cause significant environmental effects and authorized the Phase II extension
 - Commission approval is required prior to the start of operations at the Phase II Extension



SRWMF safely stores radioactive waste from Point Lepreau NGS operations



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Performance Assessment Summary for current licensing period

CNSC staff confirmed that:

- NB Power implements and maintains effective programs or processes in all SCAs
- NB Power is effectively managing the impact of COVID-19
- NB Power maintained a sufficient number of qualified staff
- radiation doses and radiological releases are well below regulatory limits
- safety analyses were updated and considered ageing effects
- major components, structures and systems remain fit for service
- NB Power's PSR commits to continue implementing safety enhancements

CNSC robust regulatory oversight confirmed that NB Power meets regulatory requirements



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CONSULTATION AND ENGAGEMENT



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Indigenous Consultation and Engagement (1/2)

CNSC staff reached out to Indigenous Nations, Communities and representative organizations that may have an interest in the proposed Point Lepreau renewal:

Six **Maliseet communities** in New Brunswick
represented by the **Wolastoqey Nation** in New Brunswick (WNNB)

Nine **Mi'gmaq communities** in New Brunswick
represented by **Mi'gmawe'l Tplu'taqnn (MTI)**, **Elsipogtog First Nation** is also represented by **Kopit Lodge**.

Peskotomuhkati Nation

Sipekne'katik First Nation in Nova Scotia

Kwilmu'kw Maw-klusuaqn (KMK),
who represents the **Mi'kmaq** at the provincial level in Nova Scotia



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Indigenous Consultation and Engagement (2/2)

- Letters of notification of the licence renewal application sent in July 2021, followed by phone calls in August 2021:
 - Commission proceeding involvement
 - Participant Funding Program (PFP)
- CNSC staff frequently meet with members of WNNB, MTI and Peskotomuhkati Nations and Communities to discuss regulatory matters

CNSC staff conclude that the licence renewal will not cause new adverse impacts to any Indigenous and/or treaty rights



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Public Engagement

- The CNSC awarded \$176,741.98 to 7 recipients through the Participant Funding Program
- Notice of Public Hearing was posted on the CNSC website, distributed to subscribers, and advertised in print and digital media
- CNSC staff conducted outreach activities in local communities near Point Lepreau NGS
- CNSC staff held a public webinar to communicate information regarding the Point Lepreau NGS licence renewal application and public hearing

CNSC staff keep the public informed through our continuous public outreach



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OTHER MATTERS OF REGULATORY INTEREST



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Financial Guarantees

- NB Power is required to maintain financial guarantees for decommissioning activities described in the preliminary decommissioning plan for Point Lepreau NGS
- NB Power reports annually on the status of its financial guarantee
- Every 5 years, NB Power is required to revise the financial guarantee to ensure that it remains adequate to meet the decommissioning needs according to the PDP
- CNSC staff assessed the NB Power's 2020 financial guarantee proposal for the 5-year review period and determined that it meets the criteria of CNSC regulatory Guide G-206
 - NB Power's financial guarantee requirement was \$714.5 million
 - NB Power's financial guarantee had a market value of \$755 million

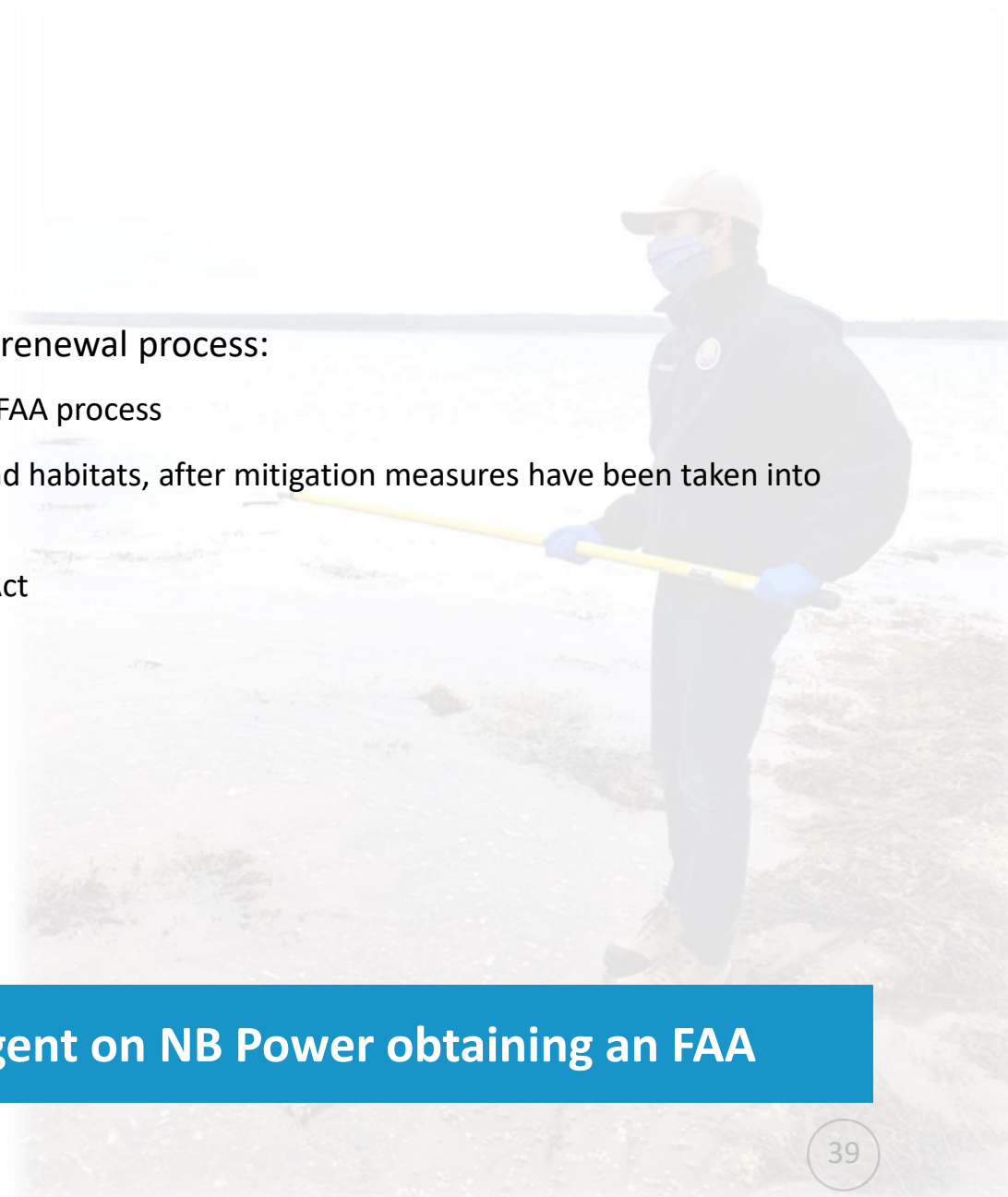
The proposed FG is adequate for the future decommissioning of the Point Lepreau NGS



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Fisheries Act Authorization

- Fisheries Act Authorization (FAA) is separate from the CNSC licence renewal process:
 - CNSC staff supports Fisheries and Oceans Canada (DFO) during the FAA process
 - FAA results in offset projects for any residual harm caused to fish and habitats, after mitigation measures have been taken into consideration
 - NB Power requires an FAA in accordance with Section 35(1) of the Act
- NB Power applied for an FAA to DFO:
 - the application was deemed complete by DFO
 - a well-established approval process is in place and ongoing



A renewal of the operating licence is not contingent on NB Power obtaining an FAA



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Licensee Public Information Program

- The Public Information and Disclosure Program (PIDP) ensures information related to health, safety, security of persons and environment are communicated to the public
- CNSC staff reviewed NB Power's PIDP and confirmed that it meets the requirements of REGDOC-3.2.1, *Public Information and Disclosure*:
 - it sets clear goals and objectives in information dissemination
 - it ensures public availability of information
 - it provides information on facility operations, health and safety, and environmental monitoring

NB Power's Public Information and Disclosure Program meets regulatory requirements



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PROPOSED LICENCE AND DRAFT LCH



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Proposed Licence and Draft Licence Conditions Handbook

- Proposed Power Reactor Operating Licence (PROL):
 - describes the licensed activities
 - sets the licence duration
 - contains standard licence conditions (LCs)
- Draft Licence Conditions Handbook (LCH):
 - describes compliance verification criteria (CVC) for each LC
 - identifies CNSC regulatory documents and standards
 - provides guidance



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LCH Regulatory Documents

LCH proposes 25 Regulatory Documents as compliance verification criteria:

- 4 new
- 6 updated
- 15 unchanged

Improved regulatory requirements

New/Updated Regulatory Documents

New:	REGDOC-2.1.1 Management System
New:	REGDOC-2.2.3 Personnel certification, Vol. III
New:	REGDOC-2.2.4 Fitness for Duty, Vol. III – Drug and Alcohol
New:	REGDOC-2.12.1 High-Security Facilities, Vol. II
Updated:	REGDOC-3.2.1 Public Information and Disclosure
Updated:	REGDOC-2.2.2 Personal Training
Updated:	REGDOC-2.2.4 Fitness for Duty, Vol. II
Updated:	REGDOC-2.9.1 Environmental Protection
Updated:	REGDOC-2.12.1 High-Security Facilities, Vol. I
Updated:	REGDOC-2.12.3 Security of Nuclear Substances



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LCH CSA Standards

LCH proposes 26 CSA standards as compliance verification criteria:

- 13 updated
- 13 unchanged

Improved codes and standards

New/Updated CSA Standards

Updated: N286.12, Management System

Updated: N285.0, Pressure Retaining Systems

Updated: N285.6, Material Standards

Updated: N285.4, Periodic Inspection

Updated: N285.5, Containment Inspection

Updated: N285.7, Plant Systems Inspection

Updated: N285.8, Pressure Tube Evaluation

Updated: N286.7, Quality Assurance

Updated: N287.7, Concrete Containment

Updated: N290.13, Environmental Qualification

Updated: N290.15, Safe Operating Envelope

Updated: N292.0, Radioactive Waste & Irradiated Fuel

Updated: N294, Decommissioning



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Proposed Licence Term

CNSC staff recommend a licence period of 20 years based on the following:

- NB Power programs and processes establish an adequate licensing basis
- demonstrated stable safety performance during the previous licensing period
- PSR that did not identify any major gaps and is required every 10 years
- NB Power is required to implement the safety enhancements outlined in the accepted IIP
- refurbishment, completed in 2012, extended the plant life by up to 30 years
- pressure tubes will be fit for operation during the proposed licence duration of 20 years

NB Power must seek Commission approval for any change to licensed activities



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CONCLUSIONS AND RECOMMENDATIONS



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Conclusions

With respect to subsection 24(4) of the NSCA, CNSC staff find that:



NB Power is qualified to carry out the activities authorized by the licence



NB Power has adequate provisions 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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Recommendations

CNSC staff recommend that the Commission:

- accept CNSC staff conclusions and recommendations presented in CMD 22-H2
- exercise its authority under the NSCA to renew the licence to authorize NB Power to continue to operate the Point Lepreau NGS until June 30, 2042
- accept NB Power's Financial Guarantee
- delegate the authority to CNSC staff for a “person authorized by the Commission” as indicated in two proposed licence conditions:
 - Licence Condition 3.2 – Restart after a serious process failure
 - Licence Condition 15.2 – Commence the operation of the SRWMF Phase II extension

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Annex A - Errata to CNSC staff CMD 22-H2

- Page 2 – Executive Summary; Page 6 – Section 1.4; and Page 119 – Section 6
 - indicates the Commission accepts decommissioning plans, whereas CNSC staff accept the decommissioning plans and associated cost estimate as the foundation of the financial guarantee
 - the financial guarantee requires acceptance by the Commission
- Page 12 - Section 2.7
 - indicates Section 26 of the NSCA instead of Section 24
- Page 31 - Section 3.2.2
 - indicates three non-compliances, there is only one non-compliance
- Page 97 - Section 3.11.2
 - states 2040 instead of 2047
- Page 113 – Section 5.2.1
 - Additional reference - Decommissioning Financial Guarantee, e-Doc 6335690 (Protected)