



UNPROTECTED/NON PROTÉGÉ

SUPPLEMENTAL/COMPLÉMENTAIRE

CMD: 22-M34C

Date signed/Signé le : [26 10 2022]

Reference CMD(s)/CMD(s) de référence : [22-M34]

Commission Request for Information

Demande d'information de la
Commission

***Regulatory Oversight
Report for Canadian
Nuclear Power
Generating Sites: 2021***

***Rapport de surveillance
réglementaire des sites
de centrales nucléaires
au Canada : 2021***

Public Meeting

Réunion publique

Scheduled for:

3 November 2022

Prévue pour :

3 novembre 2022

Submitted by:

CNSC Staff

Soumise par :

Le personnel de la CCSN

Summary

The purpose of this supplemental Commission Member Document (CMD) is to provide additional information to what is presented in CMD 22-M34, including:

- CNSC staff responses to key themes from interventions
- Updates on topics requested by the Commission and CNSC staff recommendations to close the requests
- Errata to CMD 22-M34

There are no decisions requested of the Commission. This CMD is for information only

Résumé

L'objectif de ce CMD supplémentaire est d'apporter des informations supplémentaires à ce qui est présente dans le CMD 22-M34, comprenant:

- Les réponses du personnel de la CCSN aux commentaires reçus à travers les interventions
- Les mises à jour demandées par la Commission et les recommandations du personnel de la CCSN pour clore les demandes
- Les errata au CMD 22-M34

Aucune mesure n'est requise de la Commission. Ce CMD est fourni à titre d'information seulement.

Signed/signé le

[26 10 2022]

Alexandre Viktorov, PhD

Director General

Directorate of Power Reactor Regulation

Directeur général

Direction de la réglementation des centrales nucléaires

Kavita Murthy

Director General

Directorate of Nuclear Cycle and Facilities Regulation

Directrice générale

Direction de la réglementation du cycle et des installations nucléaires

This page was intentionally left blank.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 OVERVIEW.....	2
2 RESPONSES TO INTERVENTIONS ON 2021 NPGS ROR.....	3
3 FOLLOW UP ON SPECIFIC REQUESTS FOR INFORMATION FROM THE COMMISSION	7
4 ERRATA	12
REFERENCES	13
GLOSSARY.....	14

EXECUTIVE SUMMARY

CMD 22-M34.B is a supplemental CMD to the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2021* (hereafter referred to as the 2021 NPGS ROR). This CMD provides CNSC staff responses to key themes identified from interventions received on the 2021 NPGS ROR. It also provides information requested by the Commission during previous Commission Proceedings. CNSC staff recommend that the Commission close seven of the action (sub)items. Finally, this CMD outlines some errata that were identified during review of the 2021 NPGS ROR that will be corrected prior to its posting. Referenced documents in this CMD are available to the public upon request.

1 OVERVIEW

The main purpose of this supplemental CMD is to:

- provide CNSC staff clarifications and/or responses to key themes identified from interventions on 2021 NPGS ROR
- describe how requests from the Commission for specific information have been addressed, and recommend closure by the Commission for 2 of the associated action items on CNSC staff; and
- identify errors in the 2021 NPGS ROR to be corrected before its posting

Documents referenced in this CMD are listed at the end of this CMD and are available to the public.

Note that the 2021 NPGS ROR is meant to be read in tandem with an online document containing information deemed static in nature and repeated yearly in the NPGS RORs. This document is called *General Description of Regulatory Framework for Nuclear Power Generating Sites* [2].

2 RESPONSES TO INTERVENTIONS ON 2021 NPGS ROR

The CNSC received 14 interventions from the public, Indigenous Nations and communities, and civil society organizations concerning the 2021 NPGS ROR. CNSC staff reviewed all of the interventions carefully. Clarifications and responses for key themes identified in the interventions, and within the scope of the 2021 NPGS ROR, are provided in the following table.

Intervenor/Theme	CNSC Staff Response
<p>Canadian Environmental Law Association [CMD 22-M34.6] and Gordon Dalzell [CMD 22-M34.10] Theme: Derived Release Limits/Open Government Web Portal</p>	<p>In 2022, the National Pollutant Release Inventory (NPRI) added linkages from their facility pages to the CNSC webpages. For CNSC regulated facilities that report hazardous substances to the NPRI, there is a statement indicating that the facility is also regulated and licensed by the CNSC with a link to the CNSC website's facility specific webpage and the CNSC Open Government Portal. From the CNSC website's facility specific webpage, the user is able to obtain information related to the regulatory, safety and environmental aspects of the facility and its operations (such as the environmental risk assessment and annual reports with the release limits). From the CNSC Open Government Portal, users can access datasets on releases of radionuclides from major CNSC licensed facilities in downloadable formats similar to those of the NPRI.</p> <p>The CNSC encourages Canadians to visit the new facility web pages and the Open Information and Open Data products posted to the CNSC Open Government Portal. Feedback can be provided through either the CNSC Infoline or the comment section of the Open Governmental portal pages. This information will be used by the CNSC in our efforts to further expand on the quality and quantity of regulatory and environmental data readily available to the Canadian public.</p>
<p>Gordon Dalzell [CMD 22-M34.10] and Wolastoqey Nation in New Brunswick [CMD 22-M34.13] Theme: Minimum Shift Complement/Certified Operators</p>	<p>The <i>Minimum Shift Complement</i> (MSC) is the minimum number of qualified staff required on site at all times in order to ensure the safe operation of the nuclear facility, and to respond to all credible events and emergencies. The MSC includes certified operators, and non-certified personnel such as operators, maintainers, fuel handling operators, emergency response team, and chemistry technicians. The specific positions and numbers of the MSC are determined by the licensee through a systematic analysis and validation of the most resource intensive scenario and are specific to each station. NB Power's (NBP) MSC includes a Shift Supervisor and Control Room Operator who are certified by CNSC staff, Non-Certified power plant operators, maintainers and an</p>

Intervenor/Theme	CNSC Staff Response
	<p>Emergency Response Team (ERT).</p> <p>As described in section 2.2 page 12 of the 2021 NPGS ROR, the minimum complement for certified positions at Point Lepreau Nuclear Generating Station (PLNGS) is 6 Control Room Operators (CRO), 6 Shift Supervisors (SS) and (1) Senior Health Physicist (SHP).</p> <p>In CMD22-M34 Section 2.2 Table 3: Number of available certifications per Nuclear Power Plant (NPP) and certified positions for 2021, the numbers presented for PLNGS were : 10 CROs, 9 SSs and 2 SHP.</p> <p>NB Power met the licence requirements for certified staff in 2021 and CNSC staff have no concerns with the number of certified staff at PLNGS. CNSC staff performed the following compliance activities in 2021 to verify that NB Power maintained sufficient certified staff and the MSC:</p> <ul style="list-style-type: none"> • Mandatory regulatory reporting (quarterly reports on certified staff) – revealed no outstanding concerns • Inspections (Type 2, field inspection, desktop inspections) – revealed no non-compliant findings related to MSC of certified staff • Reportable event reviews – no significant events on the topic of MSC of certified staff communicated to CNSC staff • Daily surveillance from site office inspectors – no significant observations were made through daily surveillance <p>NBP has been operating under its business continuity plan during the COVID-19 Pandemic, and there were no occurrences that may suggest problems related to the number of qualified/certified Staff, during the period of 2020 up to now.</p> <p>Furthermore, PLNGS has a succession plan that CNSC staff monitors. In 2022 so far, the <u>CNSC certified 10 additional CROs at PLNGS</u>. Also, according to the “Certified Personnel Training and Examination schedules for 2022-2023” and its “succession plan”, NBP has 4 candidates that started the SSIT Supplemental course <i>i.e.</i> the training program to become a SS., CNSC should receive the requests for SS certification of the successful candidates from NBP, by the end of 2023.</p>

Intervenor/Theme	CNSC Staff Response		
	PLNGS Certified Position	2021 NPGS ROR Table 3 page 12	Current as of Sept. 26, 2022
	Control Room Operator	10	20
	Shift Supervisor	9	8**
	Senior Health Physicist	2	2
	Ratio (Total certified/minimum)	21/13 = 1,62	30/13 = 2,31
	<p>** The total number of SS was reduced by one because of personnel changes.</p> <p>As a rule of thumb, the ratio between actual and minimum number of certified staff is roughly 2 throughout the industry. These ratios (of actual number of certified staff vs minimum number certified staff) can vary with the HR requirements (vacations, illness, training), the nature of the site, special operational requirements, retirement and hiring of new personnel. The CNSC regulates the minimum number of certified staff which is a requirement for all NPPs. CNSC does not regulate the ratios. Due to the differences among sites (e.g. multiple units vs single units) it may prove difficult to compare the ratios as this could be an unreliable metric.</p> <p>CNSC staff confirm that NB Power has implemented a change to move from a five-crew to a six-crew shift schedule as part of the implementation of REGDOC-2.2.4, Fitness for Duty: Managing Worker Fatigue. This new schedule results in the impacted departments having a larger pool of employees available to support the minimum complement.</p> <p>NB Power must report MSC violations to the CNSC in accordance with REGDOC-3.1.1, Reporting Requirements for Nuclear Power Plants. Over the licensing period (2017-2021), NB Power reported between one and three MSC violations annually. All were of short duration, and in all cases, NB Power implemented the appropriate compensatory measures until replacement staff arrived, including entering quiet mode in which non-essential activities such as reactor fueling were postponed. At no time was the safety of PLNGS</p>		

Intervenor/Theme	CNSC Staff Response
	compromised.
<p>Dr. Helmy Ragheb [CMD 22-M34.2]</p> <p>Theme: Safe Operating Envelope</p>	<p>The Safe Operating Envelope (SOE) requirements are outlined in CSA N290.15, which defines the SOE as:</p> <p>“The set of limits and conditions within which the nuclear power plant must be operated to ensure compliance with the deterministic safety analysis of design basis accidents upon which nuclear power plant operation is licensed and which can be monitored by or on behalf of the operator and controlled by the operator or on behalf of the operator when authorized by the operator.”</p> <p>To comply with the requirements of the standard, the licensees produce and maintain a hierarchy of documents under their own SOE program.</p> <p>CNSC staff verify the licensee’s compliance with the requirements of the standard through multiple activities. Over a five-year cycle, CNSC staff perform four SOE field inspections and one SOE comprehensive type II inspection. Additionally, the licensee is required to notify the regulator of any changes or updates to the SOE program documentation. Further, unscheduled events related to the SOE are reported to the CNSC under the requirements of REGDOC-3.1.1. These event reports are thoroughly reviewed and assessed by CNSC staff.</p> <p>CNSC staff are satisfied with the SOE program implementation and the actions taken by the licensees to address SOE-related findings.</p>

3 FOLLOW UP ON SPECIFIC REQUESTS FOR INFORMATION FROM THE COMMISSION

The Commission requests specific information to be presented in future NPGS ROR's. The following table describes how specific requests for information from the Commission have been addressed. Where appropriate, the table indicates the requests for which CNSC staff find that the action is complete and recommend closure of the request.

Action	CNSC staff response
<p>[RIB 23134]*</p> <p>Provide an update on asbestos phase-out</p>	<p>An update on the asbestos management plans for each of the NPGS is provided in section 2.15 of the 2021 ROR.</p> <p>CNSC staff recommend that this request be closed.</p>
<p>[RIB 22116]</p> <p>Provide updates on matters related to emergency management and emergency preparedness at PNGS</p> <ul style="list-style-type: none"> (i) 2017 PNERP (ii) The PNGS implementation plan (iii) Results from the PNERP technical study (iv) The province of Ontario's unified transport management plan (v) OPG's review and revision of the PNGS PIDP in regard to emergency preparedness and the provision of information to populations beyond the DPZ. 	<p>The Commission had previously closed items (i), (ii), and (iv)</p> <p>The 2021 NPGS ROR described:</p> <ul style="list-style-type: none"> (iii) Updates regarding web link to PNERP technical study in section 2.10 (v) In lieu of provincial coordination, Durham Region Emergency Management and the City of Toronto Office of Emergency Management, developed a 5-year public education plan focused on public education and awareness related to nuclear emergency preparedness, funded by Ontario Power Generation, to fulfill the PNERP obligations within the nuclear emergency management program and public alerting requirements. <p>In collaboration with the City of Toronto Office of Emergency Management, Durham Emergency Management developed a 5-year public education plan related to nuclear emergency preparedness.</p> <p>In 2021, Ontario Tech University and Durham Region released a survey to</p>

Action	CNSC staff response
	<p>residents to determine their level of knowledge in nuclear preparedness, including their roles and responsibilities, during a nuclear emergency. The 4-year project consists of surveys designed to help inform the nuclear emergency preparedness public education campaigns and tactics, measure year over year changes in resident knowledge, and compare the level of preparedness between geographic nuclear planning zones.</p> <p>The 2021 public alerting campaigns were designed to reach people within 10 km of the Darlington and Pickering NGS. The goal was to improve public awareness about the public alert testing and where the public can get more information.</p> <p>To reach the target audience, neighbourhood signs, digital, print and broadcast advertisements including the Weather Network, were used for both spring and fall campaigns.</p> <p>The spring campaign was shortened due to the competing COVID-19 vaccine roll out campaigns across the province and ran for about 3 weeks from April 19 to May 6. The fall campaign ran from September 27 to October 20.</p> <p>In addition, in 2021, businesses were also contacted through boards of trade and chambers of commerce to increase awareness of the sirens being a regional system. There is a misconception that the sirens belong to OPG so efforts were made to educate the public and businesses that the Region is responsible for conducting the semi-annual tests, operations and maintenance of the system.</p>

Action	CNSC staff response
	<p>The success of each campaign was determined by several indicators, including media impressions, micro-conversations (i.e. social media followers, blog subscribers and survey participants), conversion rates, social media analytics, website metrics, and media coverage.</p> <p>An impression is one view (or listen) of a piece of content. Impressions are a proxy measure for awareness and a standardized way to measure shared, earned, paid and owned media.</p> <p>CNSC staff recommend that item (iii) be closed, and item (v) remain open in order to monitor future developments.</p>
<p>[RIB 20544]</p> <p>Present how many IIP commitment in each NGS were planned, completed, reviewed and closed</p>	<p>Further details of IIP commitments are provided in the introduction section for each NGS where they are applicable (3.1.0, 3.3.0 and 3.5.0, 3.7.0).</p> <p>CNSC staff recommend that this request be closed.</p>
<p>[RIB 17557]</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates regarding several additional matters of interest pertaining to the Pickering site:</p> <ul style="list-style-type: none"> (i) CNSC staff's regulatory oversight of OPG's progress and performance with respect to the PNGS integrated implementation plan (IIP) activities (ii) whole-site PSA methodology and progress for the PNGS site 	<p>The Commission had previously closed item (ii), and item (iv) is tracked via RIB 19575, outside of NPGS ROR reporting</p> <p>As a follow-up to the licence renewal for Pickering NGS, the 2021 NPGS ROR:</p> <ul style="list-style-type: none"> (i) provided an update of the status of the IIP in section 3.3.0 (iii) provided an update on the joint fuel machine reliability project in section 2.6 <p>CNSC staff recommend that items (i) and (iii) be closed.</p>

Action	CNSC staff response
<p>(iii) joint fuel machine reliability project</p> <p>(iv) decision made by ECCC on the nomination to include radionuclides as chemicals of mutual concern (COMCs) (via memo)</p>	
<p>[RIB 16516]</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates related to fish and fisheries in the vicinity of Pickering:</p> <p>(i) improvements and resulting fish impingement rate</p> <p>(ii) results of Ontario Power Generation's (OPG's) thermal plume monitoring</p> <p>(iii) a) OPG's compliance with its <i>Fisheries Act</i> authorization and</p> <p>b) involvement of Indigenous groups in activities related to the authorization</p>	<p>The 2021 NPGS ROR described:</p> <p>(i) improvements and resulting fish impingement rate in section 3.3.0</p> <p>(ii) results of OPG's thermal plume monitoring in section 3.3.0</p> <p>(iii) a) OPG's compliance with its <i>Fisheries Act</i> authorization in section 3.3.0 and</p> <p>b) involvement of Indigenous groups in activities related to the authorization in section 2.16</p> <p>CNSC staff recommend that this request be closed.</p>
<p>[RIB 14761]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested CNSC staff to monitor Bruce Power's continual enhancements to bring internal fire risk to below the safety goal target for the Bruce A units.</p>	<p>Provided an update on the status of internal fire risk safety goal enhancements in section 3.5.4</p> <p>CNSC staff recommend that this request remain open in order to monitor future developments.</p>
<p>[RIB 14757]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission directed CNSC staff to describe developments related to pressure tube fracture toughness for Bruce A and B,</p>	<p>(i) The work on developing new models for pressure tube fracture toughness and the hydrogen equivalent (H_{eq}) content in pressure tubes at Bruce A and B is addressed in section 2.6 of the 2021 NPGS ROR.</p> <p>(ii) The estimates of the maximum amount of equivalent hydrogen are provided in</p>

Action	CNSC staff response
<p>including:</p> <ul style="list-style-type: none"> i) fracture toughness modelling ii) estimates of the maximum amount of equivalent hydrogen 	<p>Appendix C of the 2021 NPGS ROR.</p> <p>CNSC staff recommend that this request remain open in order to monitor future developments.</p>
<p>[RIB 14753]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested updates from CNSC staff on the status of the major component replacement (MCR) in NPP Status Reports, as well as the NPGS ROR. In addition, the Commission requested to be informed of any significant changes to the plans, schedules, or any other work related to the MCR - should it occur before or after October 31, 2019</p>	<p>Progress toward the MCR is addressed in section 3.5.0 of the 2021 NPGS ROR.</p> <p>CNSC staff recommend that this request be closed.</p>

* CNSC staff capture such important requests in the Regulatory Information Bank (RIB). The RIB numbers in this supplemental CMD refer to specific entries in this database, which CNSC staff track to closure.

4 ERRATA

Some minor errors in the 2021 NPGS ROR were identified through reviews by CNSC staff, licensees and intervenors. Prior to publication, the following errors will be corrected in the report:

- In figure 1, titled “Locations and facilities of nuclear power generating sites in Canada”, two incorrect titles in the legend: “In-service” and “In-service & refurbished” were stated. These titles should be replaced with “In-service within design life” and “Returned to service” respectively.
- In figure 1, titled “Locations and facilities of nuclear power generating sites in Canada”, if the circles indicating the operational status of the reactors are read left to right and top to bottom, then the status colours are in the incorrect order. They should match the order as presented in figure 2, titled “Operating Performance of the Canadian Nuclear Fleet.”
- In Section 3.5.0 under the heading “Fisheries Act Authorization”, the statement that reads as: “Both DFO and CNSC staff reviewed the results of fish impingement monitoring and maintenance of mitigation structures in 2021 and confirmed that Bruce Power met the conditions of the FAA for 2021”, should instead read: “CNSC staff reviewed the results of fish impingement monitoring and maintenance of mitigation structures in 2021 and confirmed that Bruce Power met the conditions of the FAA for 2021”.
- In Section 3.7.0, Table 22, which currently reads:

Total commitments	Overall	2021
Planned by NB Power	346	290
Completed by NB Power	291	281*
Closed by CNSC	202	0

should instead read:

Total commitments	Overall	2021
Planned by NB Power	346	291
Completed by NB Power	281	281*
Closed by CNSC	0	0

REFERENCES

1. [Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2021, CMD 22-M34](#)
2. [General Description of Regulatory Framework for Nuclear Power Generating Sites](#)

GLOSSARY

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