Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on February 25 and 26, 2025

Minutes of the hybrid Canadian Nuclear Safety Commission (CNSC) meeting held in person and virtually on Tuesday, February 25, 2025, beginning at 9:01 a.m. EST, and Wednesday, February 26, 2025, beginning at 9:00 a.m. EST at the Outaouais Room, 140 Promenade du Portage, Phase IV, Gatineau, Quebec. The meeting was webcast live via the CNSC website, and video archives are available on the CNSC website.

Present:

P. Tremblay, President
T. Berube
A. Hardie
J. Hopwood
M. Lacroix
V. Remenda

C. Salmon, Commission Registrar
C. Maheux, Commission Counsel
T. Najem, Recording Secretary

CNSC staff advisors: E. Lemoine, A. Viktorov, A. Mathai, A. Bulkan, B. Carroll, B. Johnston, C. Cochrane, C. Moses, D. Moroz, H. Davis, J. Stevenson, J. Sigetich, K. Hazelton, L. Hunter, L. James, M. Rickard, M. Fabian Mendoza, M. Hornof, N. St. Amant, R. Jammal, R. Richardson, S. MacDougall, T. Kell, T. Blanchette, T. Gulinski, W. Grant, A. Levine, A. McAllister, C. Maynard, C. Robichaud, G. Smith, J. Lam, J. Amalraj, K. Cunningham, K. Gowdy, M. Jones, N. Petseva

Other contributors:

- New Brunswick Power: S. Bagshaw, K. Duguay, J. Nouwens, J. Allen, J. Lennox
- Bruce Power: K. Thomson, J. Scongack, G. Newman, J. Edey
- Ontario Power Generation Inc.: K. Carew, S. Sharma, S. Gregoris, L. Corkum, K. Aggarwal, S. Irvine, S. Lowe, P. Séguin, J. Downey, D. Kakuzhyil, M. Buckham, J. Nash
- Hydro-Québec: P. Desbiens
- Department of Fisheries and Oceans: A. Leblanc
- Cameco Corporation: L, Mooney, T. Smith, R. Peters
- SRB Technologies (Canada) Inc.: J. MacDonald
- BWXT Nuclear Energy Canada Inc.: D. Snopek, M. Miller
- BWXT Medical Ltd.: V. Puppo, T. Mahilrajan
- Nordion (Canada) Inc.: R. Wassenaar
- TRIUMF: Dr. N. Smith
- McMaster University: D. Cappon
- École Polytechnique de Montréal: N. Godbout, C. Chilian
- Best Theratronics Ltd.: M. Jackson

Constitution

1. With the Notice of Meeting Commission Member Document (CMD) 25-M12 been properly given and all Commission Members present, the meeting was properly constituted.

2. For the meeting, CMD 25-M8 to CMD 25-M10, and CMD 25-M17 to CMD 25-M19 were distributed to Commission Members. These documents are further detailed in Appendix A.

Adoption of the Agenda

3. The revised agenda, CMD 25-M13.A, was adopted as presented.

Chair and Registrar

4. President Tremblay chaired the meeting of the Commission, assisted by C. Salmon, Commission Registrar.

Minutes of Previous Commission Meetings

5. The minutes of the Commission meeting held on November 7, 2024, were approved secretarially in advance of this meeting. The minutes of the January 29, 2025 Commission meeting were not yet available at the time of this meeting.

Participant Funding Program

6. In its *Notices of Participation at a Commission Meeting and Participant Funding*,[1,2] the CNSC invited members of the public to intervene, by way of written submission, regarding the following submissions from CNSC staff:
   - *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2023* (NPGS ROR)
   - *Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors, and Class IB Accelerators in Canada: 2023* (UNSPF ROR)

[1] CNSC Notice of Participation at a Commission Meeting and Participant Funding - Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2023, July 23, 2024.
[2] CNSC Notice of Participation at a Commission Meeting and Participant Funding - Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors, and Class IB Accelerators in Canada: 2023, July 23, 2024.

In the spirit of reconciliation and in recognition of the Indigenous oral tradition for sharing knowledge, Indigenous Nations and communities were invited to also make oral presentations regarding the 2 regulatory oversight reports (RORs). The CNSC announced the availability of funds through the Participant Funding Program (PFP) to assist in the review of the RORs. A Funding Review Committee, independent of the CNSC, reviewed funding applications and made recommendations for funding to the eligible applicants. Details of the PFP amounts allocated are provided in paragraphs 38 and 73 of the minutes.

Status Report on Power Reactors

7. With reference to CMD 25-M17, which includes the status of the power reactor facilities as of February 4, 2025, CNSC staff presented the following additional updates:
   - on February 13, 2025, Bruce Nuclear Generation Station (NGS) A Unit 1 derated to 87% of full power, and Unit 2 shut down due to significant fish impingement on the travelling screens of the condenser cooling water system. This event caused a reduced flow of cooling water to the units. CNSC staff noted that Bruce Power took corrective actions to reduce the number of fish and minimize further fish ingress into the forebay. Bruce Power and CNSC staff provided updates on this event to relevant Indigenous Nations and communities, and other government agencies. As of February 25, 2025, Units 1 and 2 were operating at 91% and ~86% full power, respectively, and the latter was in the process of returning to full power. Units 3 and 4 remain shut down for major component replacement.
   - Darlington NGS Units 1 and 2 had returned to 100% full power
   - Pickering NGS Unit 7 had restored fuelling availability and returned to 100% full power

8. A New Brunswick Power (NB Power) representative presented the following update:
   - Point Lepreau NGS had a planned outage in 2024, and a planned generator electrical testing revealed degradation of the generator stator bars[3]
   - industry-proven repairs were completed, and the generator was operating safely; a full set of new stator bars are planned to be installed in the second half of 2025

[3] Stator bars are winding bars that are located in the stationary part of a generator. They are responsible for converting the rotary magnetic field to electric current.

Discussion

9. Regarding fish impingement at the Bruce NGS A, the Commission sought more information on the following subjects:
   - Bruce Power's response to address the reduced flow of cooling water
   - Bruce Power's current and planned measures to address fish impingement
   - the effects of the event on the fish (gizzard shad) and their population
   - the organization and maintenance of plant personnel safety during the event
   - the difference between Units A and B at the Bruce NGS
   - CNSC staff's standpoint on Bruce Power's actions

10. CNSC staff and representatives from Bruce Power and Ontario Power Generation (OPG) provided the following in their responses:
   - when taking into consideration the condenser pressure and automatic response from the system, Bruce Power's response occurred several hours after the onset of the event; the "operational decision making" process was used to plan out a response to prevent frazil ice formation and address the lack of cooling water
   - a fish diversion net was installed as an interim solution and will be maintained within the forebay to keep fish away from the pumphouses
   - there is no long-term impact to the fish. The event represents a learning opportunity to potentially implement engineered barriers and to collaborate with the Saugeen Ojibway Nation for additional mitigation efforts based on their knowledge; the event also offered a chance to better understand the impacts of climate change on the Great Lakes
   - overpopulation of the gizzard shad in Lake Huron triggered the observed event; reinforcement of the recirculation gate, where fish are attracted to warm water, represents another preventative strategy. Approximately 49,000 kg of fish were removed in the most recent event. The number of fish in the forebay appeared to be similar to an impingement event in 1977. It was also suggested that the installation of permanent cameras and the use of artificial intelligence may allow for more transparent quantification of the fish
   - a description of the accumulation of fish throughout the pumphouses, their removal, and Bruce Power's conservative approach to maintain Units 1 and Units 2

- gizzard shad is an invasive species in Lake Huron and will be an area of focus going forward
- OPG has experienced less fish impingement and is collaborating with Bruce Power to share operating experience. During high fish periods, OPG installs fish impingement nets at the surface water intake; additionally, OPG is planning to implement a deep-water intake at the Pickering NGS following refurbishment
- Bruce Power ensured that its workers received the necessary information and understood the effectiveness of their actions
- fish loading at Bruce B differed significantly from Bruce A due to the distinct design of the intake structures between the two units
- CNSC staff conducted multiple inspections and found Bruce Power's mitigative and preventative measures, as well as personnel safety practices, to be satisfactory

11. Regarding the degradation of generator stator bars at the Point Lepreau NGS, the Commission requested more information about the following subjects:
    - the potential hazards from damage to the generator or turbine
    - the root cause of the stator bars degradation
    - whether the degradation was an aging related issue or a manufacturer defect
    - the reasoning behind the accelerated installation of new stator bars

12. An NB Power representative provided the following in response to the Commission's questions:
    - testing and condition assessments gave full assurance that the generator is safe to operate; the degradation issue will not cause hazards to the personnel or the plant
    - testing and root cause evaluation suggested degradation of insulation and brazing on the joints of the ends of the stator bars
    - the investigation is ongoing with the vendor partner for full understanding of the root cause of the degradation of the brazed ends
    - organizational capacity and outage scope led to part of that decision, with focus on installing new stator bars into the generator for long-term reliability

13. Referencing the fire incident in Unit 4 at the Pickering NGS,[4] the Commission asked for a follow up and whether there was any damage to equipment, and a timeline of repairs. An OPG representative responded that there were no damages to any station equipment associated with the fire on Unit 4.

[4] CMD 25-M17, page 4.

14. With reference to refurbishment-related events at the Darlington NGS, the Commission asked for updates on OPG's adjustments to operational priorities. An OPG representative explained that human performance improvement measures had been implemented for all workers and clarified that many of the events were latent issues, emerging during commissioning and unit start-up rather than resulting from human performance. The OPG representative underscored the organization's efforts to engage its workforce, maintain a strong commitment to ongoing improvements and collaborate with Pickering NGS workers for feedback.

15. The Commission asked for CNSC staff's assessment of OPG's performance at the Darlington NGS and response to the refurbishment-related events. CNSC staff informed the Commission of its ongoing discussions with OPG leadership and its plans to review common cause issues.

UPDATE ON ITEMS FROM PREVIOUS COMMISSION PROCEEDINGS

Nuclear forensics at the CNSC: CNSC staff presentation to the Commission

16. During the March 2023 Commission Meeting, respecting the designation of analysts under the Nuclear Safety and Control Act[5] (NSCA), the Commission requested further information on nuclear forensics in Canada. With reference to CMD 25-M8, CNSC staff provided a presentation on this topic, including the following:
    - an introduction to nuclear security and nuclear forensics in Canada, including Canada's contributions internationally
    - the CNSC's nuclear forensics program

[5] Statutes of Canada (S.C.) 1997, c. 9.

Discussion

17. The Commission asked CNSC staff about a number of topics, including the following:
    - the procedure for updating the nuclear forensics library
    - time required to identify material dropped onsite by the RCMP
    - storage locations for nuclear materials
    - detection and public reporting of radioactive material
    - the maintenance of samples in the nuclear forensics library from past uranium mines in Ontario and Saskatchewan, and impact of uranium grades on the chemical and isotopic signatures
    - effects of processing and irradiation on ore signatures
    - the triage process for emergency calls
    - CNSC staff's participation in international and standard emergency preparedness exercises

18. CNSC staff provided the following information in response to the Commission's questions:
    - the nuclear forensics library is updated with in-house analyses and data from other libraries, in collaboration with academic and industrial partners
    - the RCMP follows standard procedures for handling unknown materials, which are identified on-site using specialized methods
    - material is securely stored in a vault; although, it may be housed at multiple locations based on its properties, classification and lab capabilities
    - radioactive materials could be identified by CBSA using security devices at ports, or by police by identifying the radioactive symbol, or through intelligence. CNSC works with law enforcement agencies to provide specialized training and maintains a 24/7 hotline to guide public reports
    - the nuclear forensics library considers origin, age and grade of samples. Ongoing sampling and international collaboration, including with International Atomic Energy Agency (IAEA) and U.S., help improve resolution and reference material availability
    - materials are divided into subgroups to account for the impact of processing of ore on the stability of signatures; the signature of rare earth elements remains consistent during processing, particularly their relative ratios; CNSC staff also described their research with industry to determine the impact of processing on the signature of specific material and concluded that some of the initial signature is lost and more of the signature comes from the processing at the facility
    - a 24/7 duty officer handles emergency calls, assesses response needs, and can activate the Emergency Operations Center

- CNSC staff participate in international materials exercises and upcoming IAEA's ConvEx exercises[6] in 2025; CNSC staff highlighted two international peer reviews that assess the CNCS's emergency preparedness: the IAEA's Emergency Preparedness Review Mission[7] and the IPPAS Mission;[8] these reviews contribute to the CNSC's recognition for good practices and demonstrated global engagement

19. The Commission is satisfied with the information provided by CNSC staff in CMD 25-M8. **ACTION** # 27641 Closed

Ontario Power Generation, New Brunswick Power, and Bruce Power: Potential neutron exposure of workers

20. In response to an item raised at the September 2024 Commission Meeting in relation to an Event Initial Report, and with reference to CMD 25-M18 and CMD 25-M18.1, OPG, Bruce Power and NB Power provided written submissions to satisfy CNSC staff's request under subsection 12(2) of the General Nuclear Safety and Control Regulations.[9]

21. Representatives from OPG, Bruce Power and NB Power presented a joint statement on this matter, including information on the following:
    - conclusions related to the source of the neutron radiation[10]
    - dose reconstruction
    - communication with affected workers
    - program improvements made across the industry
    - sharing of operating experience (OPEX) across the broader nuclear industry

[6] As part of this exercise, the laboratory receives a sample and then it is required to analyze the sample for radionuclides, produce the results, and then report to IAEA within a period of 8 hours.
[7] The Emergency Preparedness Review (EPREV) is an IAEA service to assess the level of preparedness for a nuclear or radiological emergency in Member States. EPREV's facilitate the development of national emergency response capabilities, consistent with the IAEA Safety Standards.
[8] The International Physical Protection Advisory Service (IPPAS) mission compares a State's existing practices against relevant international instruments and IAEA nuclear security publications. It also includes an exchange of experience and good international practices aimed at strengthening the State's nuclear security regime.
[9] SOR/2000-202.
[10] The neutron source was determined to be spontaneous fission from Californium-252 (Cf-252), which likely originated from Uranium-238 (U-238) impurities in the base metal of pressure tubes and calandria tubes that had been exposed to continuous neutron flux in the reactor for 20-30 years.

Discussion

22. The Commission asked questions regarding the following topics:
    - if all of the licensees had incorporated the additional hazard identification analysis into their radiation protection program
    - whether there is a plan in place to provide potentially affected workers continued counselling and monitoring
    - if specification changes were required for purchasing in-core materials
    - preprocessing materials taken from pressure tubes and calandria tubes to remove uranium impurities
    - whether the same effect could happen with fuel that is removed from the reactor
    - referencing the alpha radiation contamination incident,[11] the effectiveness of the monitoring program of pressure tubes from a radiation protection standpoint
    - lessons learned and information sharing with the international community relating to the retubing of CANada Deuterium Uranium (CANDU) reactors
    - whether licensees' radiation protection programs would incorporate more sensitive radiation detection instrumentation

23. CNSC staff and representatives from OPG, Bruce Power and NB Power provided the following in their responses:
    - OPG updated its radiation protection procedures, including new dosimetry requirements for neutron monitoring near pressure and calandria tube waste
    - ongoing surveys are conducted to ensure neutron hazards are understood, and an extent-of-condition review is being performed for radiological hazards as part of the root cause investigation
    - NB Power reviewed its radiation protection procedures, informed workers of the event, and was applying lessons learned to improve its as low as reasonably achievable (ALARA) program
    - Bruce Power was also implementing changes to its radiation protection program
    - CNSC staff welcomed improvements to the licensees' radiation protection programs but noted that it had not yet assessed the licensee's submissions to verify whether previously unaccounted doses did not exceed dose limits
    - all concerns from the potentially affected workers were satisfactorily addressed

[11] On November 2009 alpha contamination in the vault of Bruce A Unit 1 was discovered. Bruce Power reported that elevated beta levels were identified in a first air sample on November 26, 2009, and in a second sample on November 28, 2009.

- dose rates are a function of the concentration of trace uranium within the pressure tube and calandria tube material; however, review and analysis indicate that trace uranium levels, less than 3 ppm,[12] are a manageable hazard provided that appropriate controls are in place
- the primary concern with uranium impurities is with components that contact the primary heat transport system; during refurbishment, such uranium is securely contained within the tooling and waste containers used to cut and compress the pressure tubes
- given that spent fuel already has a high radiation hazard, any additional hazards would be minimal in comparison
- licensees identified the need to adopt a more proactive approach to prevent unexpected radiological hazards
- there was an oversight in failing to recognize this hazard during retubing; CNSC staff is assessing industry efforts to apply lessons learned and identify hazards in new activities; a CNSC staff shared this experience internationally, including CANDU colleagues and Nuclear Energy Agency
- since the incident, Bruce Power updated neutron detectors to more sensitive ones called Starlight, and the adequacy of the instrumentation will be covered as part of a vulnerability assessment
- NB Power and OPG's dosimetry equipment is as sensitive as the IAEA's equipment; an OPG representative indicated that neutron surveys were not conducted near waste containers or flasks, and as a response, OPG had purchased a handheld neutron detector, similar to the IAEA equipment
- OPG and Bruce Power were collaborating to introduce lighter neutron meters for field use; CNSC staff also suggested to assess the sensitivity and portability of their detectors

24. The Commission is satisfied with the information provided by CNSC staff and licensees regarding this item.

Update from Ontario Power Generation and Bruce Power on Hydrogen Equivalent Concentrations in Pressure Tubes (Commission Action # 14757)

25. With reference to CMD 25-M19 and CMD 25-M19.1, Bruce Power and OPG, provided written submissions on a progress update on industry research and development plan activities related to elevated

[12] Parts per million, 1 ppm = 1 milligram per kilogram.

hydrogen equivalent concentrations ([Heq])[13] in the inlet rolled joint region of the pressure tube, including activities relating to characterization and understanding of "blip"[14] formation, model development and relevant experiments. The subject previously arose in the context of the May 2024 Commission Meeting.[15]

26. Representatives from Bruce Power and OPG provided a joint verbal remark regarding this matter. The representatives highlighted that this accelerated and comprehensive program has been ongoing for the past two years and is expected to conclude its main elements by the end of 2025. Final reports, developed in collaboration with the CNSC, will be submitted in September. Although the accelerated program will wrap up in Q4 2025, ongoing burst tests and material property studies will continue.

27. The Commission sought more information from CNSC staff concerning the crack initiation model. CNSC staff provided the following in its response:
    - elevated [Heq] might lead to earlier crack initiation than would have been anticipated with the lower levels of [Heq] or lower thresholds for cracking initiation
    - an explanation about the different forms of crack initiation
    - threshold tests showed no change in crack initiation thresholds
    - a blunt flaw test indicated a potential reduction in the threshold for crack initiation suggesting that the current modelling requires some refinement
    - industry suggests that the reduced initiation threshold may result from bulk hydrides interacting with flaws
    - CNSC staff has no immediate concern on the current safe operation of nuclear power plants
    - modelling indicates that elevated [Heq] regions are unlikely to coincide with known flaw locations in pressure tubes

28. Further to this matter, the Commission requested additional information and the following from CNSC staff, OPG and Bruce Power:

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[13] Hydrogen equivalent (Heq) concentration ([Heq]) is the concentration of hydrogen by weight that would be present in a pressure tube if the deuterium atoms were replaced by hydrogen atoms [Heq] is expressed in ppm by weight.
[14] The localized region of elevated Heq is referred to as a "blip" by the industry, which is based on the shape of the Heq profile.
[15] Referencing the update provided by CNSC staff regarding Bruce Power and OPG's progress in hydrogen equivalent concentration ([Heq]) research and development, the Commission requested an update on the progress towards improving the characterization of the "blip" and expected evolution of the inlet region of elevated [Heq] with continued reactor operation. The Commission directed OPG and Bruce Power to work with CNSC staff to provide an update on this matter in, or around the time of, the Commission's consideration of the Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2023.

- elaboration on a figure in a written submission[16]
- whether research on cracking from flaws prompted any changes in the licensees operating processes to minimize the risk of flaws developing in pressure tubes
- whether issues related to the region of interest had resulted in any changes in the licensees' operational procedures
- whether CNSC staff accept the changes to the operating regime and confirm that the update does not invalidate any current restrictions

29. CNSC staff and representatives from OPG and Bruce Power provided the following in their responses:
    - OPG and Bruce Power representatives agreed with CNSC staff's characterization of the issue. A Bruce Power representative further explained an investigation of whether flaws at the inner diameter of the pressure tube could interact with hydrides at the outer diameter, known as the "blip" location, and draw additional hydrogen. The representative noted that no significant effect was observed; although there was a slight reduction in threshold behaviour at very high hydrogen concentrations, there was no noticeable interaction
    - a Bruce Power representative provided an explanation and indicated that the apparent cracks were zirconium hydride
    - a Bruce Power representative responded that OPG and Bruce Power have programs in place to minimize foreign material from entering the primary transport system. This approach forgoes damage potential to the fuel sheath and the pressure tube
    - a Bruce Power representative responded that the issues led to the refinement of existing step pressure profiles across all tubes to add more margin during cooling and heating processes. An OPG representative further indicated that early work on the fuel channel project led to changes in warmup and cooldown procedures, whereas recent discoveries revealed no flaw-forming in that region, suggesting no further changes are needed
    - CNSC staff stated that they were satisfied with the measures taken by the licensees

30. The Commission is satisfied with the information provided by CNSC staff and licensees regarding this item. The Commission is expecting a future update in this topic.

[16] CMD 25-M19, Figure 6, page 9.

Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2023

31. In its submission of the 2023 NPGS ROR (CMD 25-M9 and CMD 25-M9.A), CNSC staff provided a summary of the regulatory oversight activities by the CNSC and safety performance of the following Nuclear Power Plants (NPPs) and Waste Management Facilities (WMFs):
    - OPG's Darlington Nuclear Generating Station (NGS)[17] and Darlington WMF
    - OPG's Pickering NGS and Pickering WMF
    - Bruce Power's Bruce A NGS and Bruce B NGS
    - OPG's Western WMF and Radioactive Waste Operations Site-1 (RWOS-1)[18]
    - NB Power's Point Lepreau NGS and the included Solid Radioactive Waste Management Facility (SRWMF)
    - Hydro Québec's Gentilly-2 facilities[19]

32. The NPGS ROR also included information on:
    - CNSC inspections conducted
    - CNSC staff's assessments of the NPPs and WMFs across the 14 Safety and Control Areas (SCAs), and details of the reportable events from all the operating facilities
    - public information and Indigenous consultation and engagement
    - other matters of interest including, financial guarantees, an overview of the 2023 CNSC Independent Environmental Monitoring Program (IEMP) and forum between the CNSC and Canadian Environmental Non-Governmental Organizations (ENGOs)
    - the status of issues raised by Indigenous and Public intervenors in relation to the previous NPGS ROR (CMD 23-M36)
    - summary of engagement in relation to CNSC's terms of reference for long-term engagement and associated workplans in 2023
    - [Heq] estimates

33. CNSC staff added the following in its verbal remarks and supplemental submission (CMD 25-M9.A):
    - CNSC staff used a range of oversight tools to confirm safe operations at NPPs and WMFs
    - no serious process failures occurred and unplanned power transits were controlled and safely managed

[17] The facility includes the Tritium Removal Facility and Retube Waste Processing Building.
[18] This site is no longer receiving waste and is in a state of storage with surveillance by Ontario Power Generation.
[19] The facility consists of the nuclear generating station in a safe shutdown state, and associated waste storage facilities.

- licensees met Canada's international requirements with acceptable IAEA inspection results
- licensees implemented improvements through safety reviews, lessons learned and regulatory changes
- NPPs and WMFs operated safely; the workers at each facility were protected from radiation and conventional health and safety hazards, and there were no environmental releases that could harm the environment or the health and safety of people
- all NPPs and WMFs received a "satisfactory" rating across all 14 SCAs
- information on the Government of Canada's and the CNSC's approach to the implementation of the United Nations Declaration on the Rights of Indigenous Peoples Act (UNDRIP),[20] the UNDRIP Action Plan,[21] and ongoing collaboration with Indigenous Nations and communities to adapt and improve the CNSC's processes and policies to support the path towards reconciliation
- 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 the NPGS ROR

34. Licensee representatives provided oral updates to the Commission. They highlighted recent and upcoming activities, commitments to Indigenous Nations and communities, collaboration and engagement efforts, improvements, and their commitment to safety.

Interventions

35. With respect to the CNSC's PFP availability for the NPGS ROR, the Funding Review Committee recommended that up to $79,610.55 in participant funding be provided to 8 applicants. These applicants, along with their interventions, are listed below:
    - Wolastoqey Nation in New Brunswick (CMD 25-M9.5)
    - Canadian Environmental Law Association (CMD 25-M9.9)
    - Chippewas of Kettle and Stony Point First Nation (CMD 25-M9.12)
    - Passamaquoddy Recognition Group Inc. (CMD 25-M9.13)
    - Canadian Association of Nuclear Host Communities (CMD 25-M9.19)
    - Nuclear Transparency Project (CMD 25-M9.21)
    - Mississaugas of Scugog Island First Nation (CMD 25-M9.22)

[20] S.C. 2021, c.14.
[21] *The United Nations Declaration on the Rights of Indigenous Peoples Act Action Plan*, Department of Justice Canada, 2023.

- Saugeen Ojibway Nation[22]

36. In addition to the interventions received from PFP recipients, the Commission also received the following written interventions regarding the NPGS ROR:
    - Grey Bruce Labour Council (CMD 25-M9.2)
    - Bruce Power Pensioners Association (CMD 25-M9.3)
    - Grey Bruce Public Health (CMD 25-M9.4)
    - CANDU Owners Group (CMD 25-M9.6)
    - Town of Saugeen Shores (CMD 25-M9.7)
    - Canadian Nuclear Association (CMD 25-M9.8)
    - Fundy North Fishermen's Association (CMD 25-M9.10)
    - Gordon W. Dalzell (CMD 25-M9.11)
    - Municipality of Kincardine (CMD 25-M9.14)
    - Musquash Fire - Rescue Department (CMD 25-M9.15)
    - Bill Boutin (CMD 25-M9.16)
    - Zachary Simon (CMD 25-M9.17)
    - Huron Shores Hospice (CMD 25-M9.18)
    - Nuclear Innovation Institute (CMD 25-M9.20)

37. The Passamaquoddy Recognition Group Inc. (PRGI) provided the Commission with an oral presentation and a written submission focused on the Point Lepreau NGS, outlining the following:
    - concerns with changes to NB Power's *Fisheries Act*[23] authorization from Fisheries and Oceans Canada
    - concerns with data errors in the NPGS ROR
    - comments that there is a need for clearer regulatory authority, more comprehensive environmental reviews, and greater accountability in the CNSC's engagement process
    - concern that UNDRIP has not been incorporated into CNSC regulatory document REGDOC-1.1.4, *Licence Application Guide: Licence to Decommission a Reactor Facility*[24]
    - concerns with NB Power's plans for tritium[25] contaminated heavy water and treatment/disposal by 2028

38. The Commission asked for additional information regarding PRGI's intervention, including:
    - reasons for changes in thresholds set in the *Fisheries Act* authorization and whether changes affected evaluation of environmental impacts as well as station operation

[22] The Saugeen Ojibway Nation did not file an intervention.
[23] R.S.C., 1985, c. F-14.
[24] CNSC REGDOC-1.1.4, *License Application Guide: License to Decommission a Reactor Facility*, July 2025.
[25] Tritium is an isotope of hydrogen containing one proton and 2 neutrons. For the purposes of these minutes, hydrogen refers to the isotope containing one proton and zero neutrons.

- how CNSC staff ensures that Point Lepreau NGS remains complaint with required thresholds
- the extent to which tritium inhalation or exposure contributes to worker doses at the station
- onsite treatment of the tritium contaminated heavy water and intended date to start treatment
- PRGI's involvement in Environmental Risk Assessment (ERA)[26] at Point Lepreau NGS
- NB Power's plan to incorporate the PRGI's expertise in the ERA
- CNSC staff's perspective on the relationship between Point Lepreau NGS and the PRGI regarding the ERA
- summary of the PRGI's concerns related to the construction of a small modular reactor (SMR)[27]
- clarity on the PRGI's dissatisfaction with the dissemination of information and improvements that can be made,[28] and NB Power's perspective on this manner
- errors in the NPGS ROR

39. Representatives from NB Power and Fisheries and Oceans Canada (DFO), the PRGI, and CNSC staff provided the following in their responses:
    - an NB Power representative stated that the changes to the *Fisheries Act* authorization were administrative in nature and did not change the basis of the authorization[29] nor did they impact station operations; a DFO representative further explained that although the intake volume and velocity increased, NB Power remained within the required offsetting[30] limits
    - CNSC staff noted that it reviews annual reports from Point Lepreau NGS that rationalize any changes to *Fisheries Act* authorization
    - an NB Power representative emphasized NB Power's commitment to reduce tritium concentrations in the moderator

[26] Every 5 years, nuclear facilities and uranium mine and mills licensees must update an ERA, in accordance with CSA N288.6, *Environmental risk assessments at nuclear facilities and uranium mines and mills*, and CNSC REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*. An ERA evaluates a facility's impact on the environment under normal operating conditions. With each update, the ERA also considers changing environmental conditions that could be attributed to climate change, and if there has been any resulting change to the environmental risk profile to receptors from the facility.
[27] CMD 25-M9.13, page 4.
[28] CMD 25-M9.13, page 16.
[29] In 2023, CNSC staff and Fisheries and Oceans Canada each independently reviewed OPG's Point Lepreau NGS 2022 Fish Impingement Monitoring report and concluded that the report met the conditions of the *Fisheries Act* Authorization. The combined biomass of all species and ages impinged in 2022 was 2,478.96 kg. This amount, along with the biomass from 2021 remained below the two consecutive year threshold of 3,619 kg.
[30] Offsetting measures are the actions taken by a proponent to counterbalance the residual effects to fish and fish habitat that are caused by their project after avoidance and mitigation measures have been applied.

water by 2028; however, the method for achieving this – either by shipping moderator water to OPG's tritium reduction facility or by constructing an onsite tritium reduction facility – was still being determined
- an NB Power representative noted that tritium is the primary source of internal radiation exposure for workers at the Point Lepreau NGS; tritium typically accounts for 10-30% of a worker's overall dose, and this can vary depending on the type of work being performed
- a PRGI representatives advocated for proactive involvement in NB Power's decision-making processes, particularly regarding tritium and the ERA, and engaging in early discussions so that planning processes can be a joint effort
- representatives from NB Power detailed their recent engagements with the PRGI and commitment to continued collaboration with the PRGI; in response, the PRGI representative emphasized the knowledge and expertise that they could bring to the table
- CNSC staff explained its review process for ERAs from licensees against a standard[31] that emphasizes the inclusion of Indigenous Nations' and communities' perspectives in environmental and human health risk assessments; CNSC staff also ensures that licensees have considered input from Indigenous Nations and communities in their ERAs
- the PRGI representative commented on the applicability of impact assessments to SMRs,[32] and expressed concerns regarding potential future developments at the Point Lepreau NGS site
- CNSC staff acknowledged the errors in the ROR and noted that it had issued corrections

40. The PRGI representative provided closing remarks emphasizing duty to future generations, their people and the land, importance of mutual respect, treaty obligations and true reconciliation.

Discussion on the 2023 NPGS ROR

41. The Commission asked for additional information on several topics, including the following:
    - an update regarding notices of non-compliance (NNCs) pertaining to the calibration of radiological devices, fire drills and maintenance of fire equipment
    - Bruce Power's implementation of CSA N290.7[33]

[31] CSA N288.6, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*.
[32] Per the *Physical Activities Regulations* under the *Impact Assessment Act*.
[33] CSA N290.7, *Cyber security for nuclear facilities*.

- concerns raised by the Canadian Association of Nuclear Host Communities and the Municipality of Clarington's (CMD 25-M9.19) related to transparency and community engagement
- an update regarding Pickering NGS's seismic hazard characterization[34] and its preparation in accordance with OPG's seismic Probabilistic Safety Assessment (PSA) guide
- additional information regarding OPG's non-compliance with safe operating envelope requirements[35]
- how the licensees and CNSC staff provide ongoing and up-to-date information to the public, despite the time delay in the NPGS ROR
- NB Power's corrective actions in light of the non-compliant findings identified under the Human Performance Management SCA[36]
- an update from NB Power regarding a CNSC warning letter that was issued in January 2025
- additional information about the environmental qualification (EQ) program[37]
- clarification regarding the violations related to minimum shift complement (MSC)[38]
- additional information about seismic restraint of equipment,[39] and whether seismic checks are included in routine return to service activities for critical equipment
- an update regarding issues related to Foreign Material Exclusion (FME)
- additional information about the forum between the CNSC and Canadian ENGOs[40]

[34] CMD 25-M9, page 50.
[35] CMD 25-M9, page 48.
[36] In 2023, CNSC staff discovered 3 non-compliant findings under the Human Performance Management SCA at Point Lepreau NGS. The 2 non-compliant findings being referred to include one low safety significant finding was related to a contractor performing work without the required training, and one low safety significant finding was due to some workers in safety-sensitive positions exceeded their hours of work limits.
[37] Environmental qualification (EQ) programs in nuclear power plants establish auditable assurance that the equipment required to perform safety functions will meet or exceed the functional and performance requirements under design-basis accident conditions while taking into consideration the effects of normal service.
[38] In 2023, OPG reported 6 MSC violations in their security organization at the Pickering NGS.
[39] In 2023, CNSC staff issued 3 non-compliant findings in the specific area of seismic qualification; these were based on observations of unsecured equipment/materials during quarterly field inspections. All 3 findings were determined to be negligible, and CNSC staff found Bruce Power's corrective actions for the observed non-compliances to be acceptable.
[40] The forum promotes constructive dialogue, discussion, and debate in a respectful, open and transparent setting, and is separate from formal regulatory proceedings and comment periods.

- progress on actions related to large break loss of coolant accident (LBLOCA)[41] towards closure, and whether there are discussions with the international community regarding the process being followed
- additional information regarding the circumstance, potential impacts and timing of response related to the unavailability of the emergency coolant system (ECS)[42]
- the underlying cause and mitigation of instrument line breaks[43]
- an explanation regarding the differences between a Type I and Type II inspections,[44] and the percentage of physically versus virtually completed reports and assessments
- information about contractor performance issues,[45] vendors' perspective on the applied change, and initiatives undertaken by OPG and NB Power for improvement in this area
- the aging mechanisms in feeders and how deficiencies in weld inspection data are addressed to prevent failure
- more information on isotope production in commercial reactors

42. CNSC staff and representatives from Bruce Power, OPG and NB Power provided the following in their responses:
    - CNSC staff clarified that it issued NNCs in relation to fire drills and maintenance of fire equipment at the Pickering NGS;[46] OPG subsequently made significant improvements in the emergency response teams' performance and in the maintenance of fire response equipment were observed
    - regarding the calibration of radiological devices at the Pickering NGS, CNSC staff noted that OPG had taken immediate action in response to the NNCs, and no further action was required
    - a Bruce Power representative stated that CNSC inspection against CSA N290.7-14[47] identified one non-compliance, and that Bruce

[41] Loss of coolant accident (LOCA) is a type of reactor accident that results from a loss of coolant due to a break in the primary heat transport system.
[42] CMD 25-M9, Section 2.1.6, page 24.
[43] CMD 25-M9, Section 2.5.3, page 77.
[44] Type I inspections are in-depth examinations of a licensee's processes and operations, and typically occur at the licensee's operational site(s). Type II inspections examine the outcomes from processes that a licensee uses in their operations. Type II inspections are typically shorter, since extensive interviews are not performed, and data is collected mainly through direct observations, measurements and reviews of on-site records.
[45] CNSC staff observed a trend of events in the area of contractor safety performance, specifically with issues related to conventional safety, fire protection, and rigging and lifting.
[46] The non-compliances pertained to updates of pre-fire plans, fire brigade drill assessment, fire brigade fire response performance, identification of fire zones, correct use of fire fighting equipment, proper fire fighting technique, and testing the implementation of emergency measures. A non-compliance of medium safety significance pertained to maintenance of staged fire equipment.
[47] CSA N290.7-14, *Cyber security for nuclear power plants and small reactor facilities.*

Power was on track for completing a corrective action by the end of 2025; Bruce Power, along with other licensees, plans to implement CSA Group standard N290.7-21 by early 2027

- CNSC staff informed the Commission that the licensees' timeline to implement the new CSA N290.7-21 is acceptable due to the complex changes in cybersecurity, architecture, procedural, administrative and hardware updates
- an OPG representative discussed OPG's public engagement program and relationship with the Municipality of Clarington, and stated that OPG is committed to open and transparent communications on operations and projects as outlined in REGDOC-3.2.1, *Public Information and Disclosure*[48]
- CNSC staff stated that it was satisfied with OPG's response to seismic PSA issues; an OPG representative described the technical process and timeline for updating seismic plans for the Pickering NGS
- an OPG representative reported that, based on an engineering assessment, OPG had made a temporary change to reactor building temperature limits during summer operations without impact to operation safety; CNSC staff stated that it was satisfied with OPG's implementation of corrective actions to address this issue
- Bruce Power, OPG and NB Power representatives discussed the licensees' public communication and engagement programs
- an NB Power provided information regarding NB Power's response to the non-compliances related to human performance management; CNSC staff stated that it was satisfied with NB Power's corrective actions, but noted that additional work remained to be completed
- further on this issue, an NB Power representative explained the issues with fully implementing an effective scheduling software to maintain the minimum shift complement[49]
- an OPG representative stated that OPG's EQ program is effectively managed to ensure systems remain compliant, and that issues related to this program rarely arise; CNSC staff noted that the deficiency related to the EQ program at the Darlington NGS related to the impact of increased temperatures on the longevity of equipment, and that it continues to monitor OPG's corrective actions
- an OPG representative stated that the number of MSC violations decreased with corrective actions, although there was some recurrence in the past year; CNSC staff added that it was satisfied

[48] CNSC REGDOC-3.2.1, *Public Information and Disclosure*, May 2018.
[49] CNSC REGDOC-2.2.5, *Minimum Staff Complement*, April 2019.

with the corrective actions implemented by OPG to address the violations

- a Bruce Power representative stated that Bruce Power workers' awareness of seismic requirements has improved with ongoing training; CNSC staff added that it regularly inspects seismic restraints with subject matter experts to ensure compliance across all operating units
- an NB Power representative outlined the source of FME issues and preventative plans that are expected to finish by 2026. The representative stated that NB Power is collaborating with industry to solve the issues and have observed significant improvement. CNSC staff acknowledged NB Power's corrective actions
- CNSC staff explained that it meets with ENGO representatives at the ENGO forum to share information on regulatory and industry issues
- a Bruce Power representative reported on Bruce Power's progress under Project 2030 to restore power levels to 100%, with further improvements expected within 1 to 2 years; CNSC staff acknowledged the challenges related to LBLOCA issues and the industry's commitment to resolving them through research and development, and expressed that the proposed timeline is realistic
- an OPG representative noted that a grounding issue during maintenance led to a temporary ECS impairment, which was quickly addressed; CNSC staff confirmed that OPG's corrective actions were sufficient, and noted that lessons learned from this event were incorporated into operator training and technical procedures
- a Bruce Power representative explained that the underlying cause of instrument line breaks was fretting wear, and detailed mitigation and elimination measures to prevent this wear
- CNSC staff clarified the difference between Type I and Type II inspections; CNSC staff added that Type I and Type II field inspections are mostly done in person, whereas a desktop inspection can be done remotely
- Bruce Power, OPG and NB Power representatives described steps taken to address contractor issues, including improved internal and vendor oversight, and the sharing of operating experience; CNSC staff confirmed that there had been improvements in this regard
- Bruce Power and OPG representatives discussed aging management and the inspection and evaluation of feeders, and noted that they continue to be safe; CNSC staff stated that there are sufficient safety margins for Bruce Power's current operations, but noted that further work is required to confirm fitness for service for future operations

- Bruce Power and OPG representatives discussed their organizations' experience and plans regarding the production of lutetium-177 and molybdenum-99, respectively; CNSC staff discussed its regulatory oversight of these activities

43. The Commission appreciated the information provided by CNSC staff, licensees and intervenors in response to Commission Members' questions on the NPGS ROR.

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class IB Accelerators in Canada: 2023

44. With reference to CMD 25-M10 and CMD 25-M10.A, CNSC staff presented its 2023 UNSPF ROR. The ROR summarizes the safety performance of the following facilities in Canada over specific reporting periods:
    - Uranium Processing Facilities (2023):
        - Cameco Corporation's (Cameco) Blind River Refinery
        - Cameco Corporation Port Hope Conversion Facility (PHCF)
        - Cameco Fuel Manufacturing Inc. (CFM)
        - BWXT Nuclear Energy Canada Inc. (BWXT NEC)
    - Nuclear Substance Processing Facilities (2023):
        - SRB Technologies (Canada) Inc. (SRBT)
        - Nordion (Canada) Inc. (Nordion)
        - Best Theratronics Ltd. (BTL)
        - BWXT Medical Ltd. (BWXT Medical)
    - Research Reactors (2021-2023):
        - McMaster University
        - Royal Military College of Canada (RMC)
        - École Polytechnique de Montréal (EPM)
    - Class IB Accelerators (2020-2023):
        - TRIUMF
        - Canadian Light Source (CLS)

45. The 2023 UNSPF ROR included the following information:
    - CNSC staff's regulatory oversight of the relevant UNSPFs, including performance ratings
    - CNSC staff's assessment of safety at the UNSPFs across all 14 SCAs, with a focus on radiation protection, environmental protection, and conventional health and safety SCAs
    - engagement with Indigenous Nations and communities
    - reportable events and other matters of regulatory interest, including public engagement and the CNSC's IEMP

- summary of engagement in relation to CNSC's terms of reference for long-term engagement and associated workplans in 2023
- summary of status of issues, concerns and requests from intervenors in the previous UNSPFs ROR (CMD 23-M35)

46. In addition, CNSC staff presented and provided verbal remarks on the following:
    - public/Indigenous engagement and outreach
    - an update on BTL's employee strike and CNSC staff's oversight of issues related to security, emergency preparedness and BTL's financial guarantee
    - errata to the 2023 UNSPF ROR
    - information on the Government of Canada's and the CNSC's approach to the implementation of the UNDRIP, the UNDRIP Action Plan, and ongoing collaboration with Indigenous Nations and communities to adapt and improve the CNSC's processes and policies to support the path towards reconciliation

47. CNSC staff reported that UNSPFs in Canada operated safely in 2023. CNSC staff rated licensee performance in all 14 SCAs as "satisfactory" for each of the facilities covered in the UNSPF ROR, with the following exceptions:
    - TRIUMF and the CLS were rated "below expectations" in the management system SCA for the years 2019 to 2022, and 2019, respectively, due to delays in implementing CSA N286-12;[50] both facilities have since implemented the standard.
    - TRIUMF was "below expectations" in the safety analysis and physical design SCAs in 2021 following three reportable events; risk to workers and the public remained low, and corrective actions were taken.
    - EPM received a "below expectations" rating in the safeguards and non-proliferation SCA in 2023; EPM has since implemented corrective actions.

48. Licensee representatives, including Cameco, BWXT NEC, BWXT Medical, Nordion, TRIUMF, and McMaster University provided oral statements regarding the UNSPF ROR. Licensee representatives agreed with CNSC staff's conclusions in the UNSPF ROR. The representatives also highlighted their commitment to safety and their ongoing engagement with Indigenous Nations and communities. BWXT NEC and TRIUMF representatives noted their organizations' improvements to address reportable events and NNCs.

[50] CSA N286:12, *Management system requirements for nuclear facilities*.

Interventions

49. With respect to the CNSC's PFP availability for the UNSPF ROR, the Funding Review Committee recommended that up to $66,967.76 in participant funding be provided to the following 5 applicants:
    - Algonquins of Pikwakanagan First Nation (CMD 25-M10.2)
    - Kebaowek First Nation (CMD 25-M10.3)
    - Nuclear Transparency Project (CMD 25-M10.4)
    - Mississaugas of Scugog Island First Nation (CMD 25-M10.5)
    - Prince Albert Grant Council[51]

50. Algonquins of Pikwakanagan First Nation (AOPFN) made submissions, including an oral presentation (CMD 25-M10.2A), that focused on the four facilities located within AOPFN's traditional territory: SRBT, Nordion, BTL, and BWXT Medical. AOPFN presented information pertaining the following topics:
    - engagement and issues tracking between the CNSC and AOPFN
    - engagement with UNSPFs and funding for evaluations by Indigenous parties
    - AOPFN rights and Aboriginal Rights Safety Control Areas (ARSCAs), and their proposed inclusion into CNSC staff's assessment of UNSPF operations
    - Algonquin Knowledge and Indigenous perspective on health, wellbeing, risk and trust
    - accessibility and plain language in the ROR
    - risk communication
    - the CNSC's IEMP
    - Cultural Awareness Training
    - the performance rating of the four UNSPFs

    The AOPFN expressed specific concerns about the exclusion of the AOPFN's Guardian Program from the licensees' environmental monitoring plans, as well as the lack of meaningful engagement from both Nordion and BTL.

51. The Commission asked for additional information on several topics, including the following:
    - input from CNSC staff and BTL regarding AOPFN's assessment of BTL's engagement performance as "far below expectations"
    - why AOPFN had not been informed of BTL's compliance issue regarding its financial guarantee
    - the process of AOPFN's integration into the CNSC's IEMP

[51] Prince Albert Grant Council did not file an intervention.

- how CNSC staff integrates culture from different Indigenous Nations and communities with the IEMP
- what it would take to build a greater sense of trust between the CNSC and AOPFN
- additional information about the Algonquin Foods Program
- whether AOPFN was involved in the Regional Information and Monitoring Network for the Ottawa River Watershed (RIMNet) initiative[52]
- additional information about Cultural Awareness Training

52. CNSC staff and representatives from AOPFN and BTL provided the following in their responses:
    - CNSC staff acknowledged AOPFN's concerns, noting the employee strike contributed to delays in BTL's regulatory compliance and engagement, and emphasized ongoing efforts to improve communication with AOPFN; a BTL representative stated that BTL had invited AOPFN to events but could not financially support AOPFN's initiatives
    - CNSC staff explained that, since BTL's financial guarantee non-compliance didn't present a risk to health or the environment, it followed its standard communication protocols; CNSC staff acknowledged AOPFN's concern and recognized the need to strengthen communications
    - an AOPFN representative expressed that certain aspects of its Guardians Program should be incorporated into the IEMP planning, and described how it would strengthen the IEMP; CNSC staff noted the CNSC's ongoing support through funding and collaboration, adding that AOPFN's input had informed sampling efforts
    - CNSC staff stated that it collaborates with Indigenous Nations and communities through dedicated relationship leads who maintain engagement and build trust, and explained that Indigenous Nations and communities are involved in IEMP planning and sampling, with feedback documented for improvement
    - an AOPFN representative highlighted the need for a clear communication protocol, noted the challenges posed by resource and capacity limitations, and emphasized the importance of communication frequency to build a trustful relationship with the industry and CNSC

[52] The Regional Information and Monitoring Network (RIMNet) is an initiative by the Canadian Nuclear Safety Commission (CNSC) and Environment and Climate Change Canada (ECCC) to enhance information sharing and document the environmental aspects of nuclear facilities and activities in the watershed. By centralizing resources, RIMNet aims to increase transparency, build public confidence, and foster trust. It is independent and not linked to any specific nuclear project or activity.

- an AOPFN representative described the Algonquin Foods Program as a culturally grounded approach to risk communication, aimed at increasing community awareness, confidence, and participation in project-related decisions
- an AOPFN representative stated that AOPFN was unable to discuss RIMNet at this time but expressed willingness to provide more information in the future; CNSC staff confirmed that integrating AOPFN in the RIMNet initiative was an ongoing process, and noted that RIMNet and the IEMP could be used to share environmental and health information more effectively
- an AOPFN representative described its cultural awareness training to teach about Pikwakanagan's history, present, and future, and cultural values and principles; CNSC staff also shared its perspective on the training

53. Kebaowek First Nation (KFN) provided the Commission with an oral presentation (CMD 25-M10.3A) and written submission in which the KFN made recommendations including the establishment of a framework for implementing free, prior and informed consent (FPIC) decision making in relation to nuclear substance facilities. KFN raised concerns including on the absence of consideration of UNDRIP and the impacts of cumulative effects of nuclear activities on the environment and climate change in the UNSPF ROR.

54. The Commission asked for additional information on several topics, including the following:
    - referencing the Athabasca River Basin monitoring program mentioned in KFN's written intervention, the Commission asked about existing community-based environmental monitoring programs, and how good practices might be shared with other Indigenous Nations and communities
    - how CNSC staff addresses climate change in its regulatory oversight, inspections, communication with licensees and affected communities, and expectations from licensees in terms of communicating upcoming climate-related events to nearby Indigenous and non-Indigenous communities

55. CNSC staff and a Cameco representative provided the following in their responses:
    - CNSC staff described the Eastern Athabasca Regional Monitoring Program (EARMP),[53] and expressed interest in incorporating

[53] The Eastern Athabasca Regional Monitoring Program (EARMP) is an industry-government partnership between the Government of Saskatchewan, the Canadian Nuclear Safety Commission (CNSC), and uranium mining companies, Cameco Corporation and Orano Canada Inc. The environmental monitoring program was established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative. One of the primary goals of the program was to assess the ecological integrity of Saskatchewan's northern

lessons learned into the RIMNet initiative; CNSC staff further stated that discussions with Indigenous Nations and communities pertaining to regional monitoring opportunities and cumulative effects are ongoing
- a Cameco representative acknowledged CNSC staff's response and described the EARMP as a community-informed monitoring program that enhances trust in food and water safety in the region; CNSC staff noted that EARMP samples are collected by CanNorth, an Indigenous-owned consulting company and sample analysis is conducted by Saskatchewan Research Council, an independent laboratory
- CNSC staff provided information on how it integrates climate change into its oversight, including requirements for ERAs, as well as its collaboration with federal partners like Environment and Climate Change Canada international organizations such as the IAEA; CNSC staff added that it communicates with licensees, Indigenous Nations and communities and the public through clear, regular communication to reflect evolving expectations
- Nordion and BWXT Medical representatives commented on their organizations' engagement with Indigenous Nations and communities and the public.

56. A KFN representative provided closing remarks reiterating concerns about engagement, and meaningful participation and recognition in the CNSC's regulatory processes.

Discussion on the 2023 UNSPF ROR

57. The Commission asked for more information on the ROR, including the following:
    - noting NTP's written intervention, the availability of certain data on the Open Government portal
    - how licensees are managing their workforces in areas of growing demand
    - reportable events at CFM, including ground contamination and an environmental discharge
    - Cameco's adoption of Exposure Based Release Limits (EBRLs) at CFM
    - TRIUMF's performance, in light of the "below expectations" ratings
    - BWXT NEC's performance with respect to public engagement
    - a warning letter issued to EPM

watersheds in order to address potential environmental concerns and to identify sustainable management practices in the region.

- the 11 Environmental Protection action level exceedances of uranium in sanitary sewer discharges at PHCF
- "drum dumping equipment" at the PHCF
- requirements for soil monitoring

58. CNSC staff and licensee representatives provided the following in their responses:
    - CNSC staff is committed to making environmental data publicly accessible, with its current efforts focused on uploading EARMP data, and noted that data is available through RORs and licensee annual reports; CNSC staff added that efforts are underway to improve efficiency by encouraging licensees to provide data in machine-readable format
    - Representatives from BWXT Medical, BWXT NEC, and McMaster University provided information on expanding their respective workforces, noting the focus on training and safety; CNSC staff described its approach in assessing licensee's training programs and safety culture
    - A Cameco representative informed the Commission that the low-level contaminated material at CFM (below 500 ppm) was excavated, placed in drums and disposed of at a hazardous waste landfill in the United States
    - CNSC staff explained that, in accordance with REGDOC-2.9.2, *Environmental Protection: Controlling Releases to the Environment*[54] Cameco established exposure-based limits for CFM by calculating how emissions from the facility could impact nearby receptors through air and water; the release limits were based on radiological risks under CSA N288.1,[55] which were updated to align with the EBRL framework in REGDOC-2.9.2, and account for the chemical toxicity of uranium
    - a Cameco representative explained that a discharge at CFM occurred due to inflow from snowmelt during system downtime that caused small overflow at a maintenance hole, and that the entire treatment system was replaced in December 2023, with scheduled replacement for all wells and associated pumps to occur between 2025 and 2026; CNSC staff stated that it was satisfied with Cameco's response and infrastructure upgrades
    - CNSC staff reported that, despite the below-expectations ratings, TRIUMF operated safely with no risk to people or the environment; a TRIUMF representative noted that it had closed 36 of the 41 NNCs, which stemmed from TRIUMF's failure to implement CSA N286-12 in 2021, and that TRIUMF was

[54] CNSC REGDOC-2.9.2, *Environmental Protection: Controlling Releases to the Environment*, March 2024.
[55] CSA N288.1-14, *Guidelines for Calculating Derived Release Limits for Radioactive Material in Airborne and Liquid Effluents for Normal Operation of Nuclear Facilities*.

committed to returning to compliance through cultural and structural changes within the organization
- CNSC staff noted that BWXT NEC had made improvements to its public information program and now meets expectations for public information disclosure requirements; a BWXT NEC representative noted the improvements made, and that BWXT NEC would continue to improve its relationship with the community liaison committee
- CNSC staff explained that, in response to the warning letter, EPM committed to increase its resources to address the issues; an EPM representative stated that EPM had since done so
- a Cameco representative explained that the action level exceedances occurred between January and April 2023, and resulted from aging infrastructure, which is being repaired as part of Cameco's Vision in Motion project; CNSC staff stated that it was satisfied with Cameco's corrective actions
- a Cameco representative explained that the "drum dumping equipment" was the repackaging of 150,000 cubic metres of legacy waste being transferred from old drums into large "supersacks," which allows for crushing and bagging while maintaining safeguards accountability, part of the Vision in Motion project
- CNSC staff explained that soil monitoring frequency varies depending on the facility, as well as the ERA

59. The Commission appreciated the information provided by CNSC staff, licensees and intervenors in response to Commission Members' questions on the UNSPF ROR.

Closure of the Public Meeting

60. The public meeting closed at 12:48 p.m. EST on February 26, 2025. These minutes reflect both the public meeting itself and the Commission's considerations following the meeting.

Najem, Tarek Digitally signed by Najem, Tarek Date: 2025.06.02 08:50:10 -04'00'

Recording Secretary Date

Salmon, Candace Digitally signed by Salmon, Candace DN: C=CA, O=GC, OU=CNSC-CCSN, CN="Salmon, Candace" Reason: I am the author of this document Location: Date: 2025.06.02 17:31:23-04'00' Foxit PDF Editor Version: 13.0.1

Commission Registrar Date

APPENDIX A – Commission Member Documents

25-M8	2025-02-25	7463372
Nuclear Forensics at the CNSC CNSC Staff presentation to the Commission		
25-M9	2024-08-26	7349396
CNSC Staff Submission - Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023		
25-M9.A	2025-02-17	7465591
Supplementary submission from CNSC Staff on the Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2023		
25-M9.2	2025-01-06	7438074
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from Grey Bruce Labour Council		
25-M9.3	2025-01-03	7438095
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from Bruce Power Pensioners Association		
25-M9.4	2025-01-06	7438150
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from Dr. Ian Arra, Grey Bruce Public Health		
25-M9.5	2025-01-04	7438163
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from Wolastoqey Nation		
25-M9.6	2025-01-07	7438166

Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from CANDU Owners Group (COG)		
25-M9.7	2025-01-03	7438324
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from the Town of Saugeen Shores		
25-M9.8	2025-01-09	7439751
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from the Canadian Nuclear Association		
25-M9.9	2025-01-10	7439791
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written submission from the Canadian Environmental Law Association		
25-M9.10	2025-01-10	7439807
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Fundy North Fishermen’s Association		
25-M9.11	2025-01-10	7439823
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submissioon from Gordon W. Dalzell		
25-M9.12	2025-01-10	7439851
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Three Fires Group, on behalf of the Chippewas of Kettle and Stony Point First Nation		

25-M9.13	2025-01-13	7440069
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Passamaquoddy Recognition Groiup Inc.		
25-M9.14	2025-01-11	7440497
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Municipality of Kincardine		
25-M9.15	2025-01-11	7440491
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Musquash Fire-Rescue Department		
25-M9.16	2025-01-11	7440494
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Bill Boutin		
25-M9.17	2025-01-10	7440322
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Zachary Simon		
25-M9.18	2025-01-10	7440464
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Huron Shores Hospice		

25-M9.19	2025-01-10	7440728
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from the Canadian Association of Nuclear Host Communities and the Municipality of Clarington		
25-M9.20	2025-01-10	7440783
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Nuclear Innovation Institute		
25-M9.21	2025-01-10	7440800
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Nuclear Transparency Project		
25-M9.22	2025-01-27	7453011
Information Items Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for 2023 Written Submission from Mississaugas of Scugog Island First Nation		
25-M10	2024-09-06	7318533 English 7359386 French
Submission from CNSC staff on the Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities Research Reactors and Class 1B Accelerators: 2023		
25-M10.A	2025-02-25	7466782
Presentation from CNSC Staff – Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors & Class IB Accelerators in Canada: 2023		
25-M10.2	2025-01-10	7440037
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Written Submission from the Algonquins of Pikwakanagan First Nation		

25-M10.2A	2025-02-04	7466583
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Presentation from the Algonquins of Pikwakanagan First Nation		
25-M10.3	2025-01-11	7440055
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Written Submission from the Kebaowek First Nation		
25-M10.3A	2025-02-18	7466593
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Presentation from the Kebaowek First Nation		
25-M10.4	2025-01-11	7440065
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Written Submission from the Nuclear Transparency Project		
25-M10.5	2025-01-27	7452993
Information Items Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, Research Reactors and Class 1B Accelerators in Canada: 2023 Written Submission from the Mississaugas of Skugog Island First Nation		
25-M12	2025-01-30	7454905
Notice of Meeting of the Commission on Feb 25, 26, 2025		
25-M13	2025-02-19	7464403
Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on February 25, 26, 2025		

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25-M13.A	2025-02-20	7467317
Revised agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on February 25, 26, 2025		
25-M13.B	2025-02-21	7468325
Revised agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on February 25, 26, 2025		
25-M17	2025-02-10	7462450
Status Report Status Report on Power Reactors Written submission from CNSC staff		
25-M18	2025-01-31	7465477
Information Items Update from OPG on the potential neutron exposure of workers Written submission from Ontario Power Generation Inc.		
25-M18.1	2025-01-31	7466255
Information Items Update from OPG on the potential neutron exposure of workers Written submission from Bruce Power		
25-M19	2025-01-24	7464423
Information Items Update from OPG and Bruce Power on Hydrogen Equivalent Concentrations in Pressure Tubes Written submission from Bruce Power		
25-M19.1	2025-01-27	7464414
Information Items Update from OPG and Bruce Power on Hydrogen Equivalent Concentrations in Pressure Tubes Written submission from Ontario Power Generation Inc.		