Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 11–12, 2019

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held on December 11–12, 2019, beginning at 9:00 a.m. at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

Present:

R. Velshi, President
T. Berube
S. Demeter
M. Lacroix

M. Leblanc, Secretary
L. Thiele, Senior General Counsel
S. Dimitrijevic, C. Moreau and W. Khan, Recording Secretaries

CNSC staff advisors were: C. Ducros, M. Jones, L. Posada, K. Sauvé, M. Rinker, K. Glenn, L. Forrest, M. Broeders, K. Peters, L. Sigouin, I. Malek, Z. Khansaheb, L. Casterton, M. Burton, P. Larkin, P. Fundarek, W. Stewart, G. Schmidt, J. Irvine, R. Lane, H. Tadros and J. McManus
Other contributors were:

- Cameco Corporation: L. Mooney, T. Smith, K. Nagy and K. Cuddington
- BWXT Nuclear Energy Canada: J. MacQuarrie, N. Cutler and R. Decaire
- SRB Technologies: S. Levesque and J. MacDonald
- Nordion (Canada) Inc.: K. Brooks and R. Wassenaar
- Best Theratronics Limited: M. Soleimani
- Orano Canada Inc.: T. Searcy, G. Lafleur and V. Laniece
- Ontario Power Generation: M. Paiment
- Environment and Climate Change Canada: N. Ali
- Saskatchewan Ministry of Environment: T. Moulding

Constitution

1. With the notice of meeting Commission member document (CMD) 19-M44 having been properly given and a quorum of Commission members being present, the meeting was declared to be properly constituted.

2. Since the Commission meeting held on November 6–7, 2019, CMD 19-M35 to CMD 19-M37, CMD 19-M42, CMD 19-M44, CMD 19-M45, and CMD 19-M47 to CMD 19-M50 were distributed to members. These documents are further detailed in Appendix A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 19-M45.A, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and S. Dimitrijevic, C. Moreau and W. Khan, Recording Secretaries.

Minutes of the CNSC Meeting Held October 3, 2019 and November 6–7, 2019

5. The Commission approved the minutes of the October 3, 2019 Commission meeting as presented in CMD 19-M37. The minutes of the Commission meeting held on November 6–7, 2019 will be approved at a later date.

STATUS REPORT ON POWER REACTORS

6. With reference to CMD 19-M48, which includes the Status Report on Power Reactors, CNSC staff presented the following updates reflecting changes after the submission of the report:

    - Having returned to service following its planned outage, Bruce Nuclear Generating Station (NGS) Unit 2 was at 70% of full power, with a return to full power expected within one or two days.

    - Darlington NGS Unit 4 was shut down late on December 10, 2019 due to a steam leak on the secondary side.

    - At the Pickering NGS, a fish impingement event occurred on November 22, 2019. CNSC staff reported that Ontario Power Generation (OPG) had notified Fisheries and Oceans Canada and reported this event to the CNSC. CNSC staff added that it was monitoring further developments in regard to this impingement event and that it would assess the event as more information became available.

7. The Commission sought more information regarding the refurbishment of the Darlington NGS Unit 2. CNSC staff responded that OPG had completed loading fuel into the reactor and that the first regulatory hold point for the unit's return to service had been lifted on November 5, 2019.[1] OPG representatives confirmed that the fuel loading had been completed and that OPG was proceeding with filling the heat transport system at the end of December 2019. OPG representatives also provided a brief summary of OPG's current refurbishment activities, described the work for the retube and feeder replacement project, and submitted that OPG planned to carry out containment pressure testing in April 2020.

8. The Commission enquired about the steam leak on the secondary side of Darlington NGS Unit 4 resulting in its shutdown. CNSC staff submitted that Unit 4 had been shut down through normal procedures and that CNSC staff was following the investigation undertaken by OPG. An OPG representative stated that the steam leak resulted in a narrow, 12-inch circumferential crack on one weld, and stated that a very small amount of steam was leaking. The OPG informed the Commission that there were no public safety consequences as a result of the steam leak.

9. The Commission requested an update on the December 2018 failure of the power transformer at Bruce NGS Unit 8.[2] The Bruce Power representative responded that the root cause of the event had been determined to be a fault with a tap changer, an issue known by the manufacturer that had not been shared broadly with the industry. The Bruce Power representative further explained that the delivery of the replacement transformer had been delayed and that it was now expected to be delivered by the end of January 2020 with a planned March 2020 return to service.

Update on the Potassium Iodide Pill Working Group

10. In CMD 19-M48, CNSC staff also provided an update on the Potassium Iodide Pill Working Group (KI Working Group), which was a commitment made by CNSC staff during the June 2018 hearing for the licence renewal for the Pickering NGS.[3] CNSC staff informed the Commission about the Phase I workshop held on November 4–5,

[1] On November 5, 2019 the Executive Vice President and Chief Regulatory Operations Officer of the Regulatory Operations Brach provided a memo about removal of Fuel Load Regulatory Hold Point 1 at the Darlington NGS Unit 2 to the Commission Secretary, which was then shared with the Commission members (e-Doc 6065758).

[2] This event was reported to the Commission in the context of an event initial report during the December 12-13, 2018 Commission meeting, CMD 18-M32, *Transformer Fire and Mineral Oil Leak at Unit 8 of Bruce B Nuclear Generating Station*.

[3] CNSC Record of Decision – Ontario Power Generation Inc., *Application to Renew the Nuclear Power Reactor Operating Licence for the Pickering Nuclear Generating Station*, published December 2018.

2019 in Pickering, Ontario, which had the objective of providing clarity on the current strategy for the distribution of KI pills in the Pickering NGS Ingestion Planning Zone (IPZ). CNSC staff also reported on KI Working Group meetings held since August 2019.

11. The Commission enquired about the ways that the KI Working Group would ensure that it will obtain meaningful feedback from the public within the IPZ about the draft Phase I workshop report during the 30 to 45 day public comment period. CNSC staff responded that it was developing a communications plan that would inform the KI Working Group on how to best reach various individuals within the IPZ by using social media and other communications strategies that the KI Working Group members applied in its outreach activities.

12. The Commission requested that, in future KI Working Group updates and in order for the Commission to more easily track the KI Working Group's progress, CNSC staff provide updates on the KI Working Group's key activities and milestones, and how the KI Working Group was progressing. The Commission also expressed its satisfaction with the KI Working Group webpage on the CNSC website. The Commission noted that the webpage contained a timeline of activities being undertaken by the group and suggested that a hotlink embedded in these updates to the Commission would be of great help to interested persons in accessing the webpage. **ACTION** by March 2020

EVENT INITIAL REPORT (EIR)

Jubilant Draximage Inc.: Atmospheric Emissions Exceeded the Licence Limits

13. With reference to CMD 19-M50, CNSC staff presented information regarding an iodine-131 (I-131) weekly release limit exceedance at the Jubilant Draximage Inc. (Draximage) facility in Kirkland, Quebec. CNSC staff reported that it was advised of the release on November 20, 2019, noting that the licensee was investigating the potential causes for this exceedance. CNSC staff added that the release was below levels that could have an impact on the public or the environment, and that the thyroid monitoring of the workers involved in the processing of the I-131 did not demonstrate any I-131 uptake.

14. The Commission enquired about whether the release resulted in any skin contamination. The Draximage representative explained that there was no skin contamination reported, as handling of the I-131 vials was done inside a hot cell. CNSC staff added that the I-131 vials needed to be handled remotely for radiation protection purposes.

15. Asked about the volatility of the I-131 solution being dependent on the supplier, the Draximage representative explained that the release happened with material coming from a different supplier than its usual one, raising questions about the formulation of the product. The Draximage representative added that, to date, there was no indication that the formulation was different between the suppliers.

16. The Commission enquired about the possible causes for this event. The Draximage representative told the Commission that Draximage was investigating whether there could have been a leak during shipping from the supplier, as a white residue was visible on the outside of the vial. The Draximage representative added that the next step would be to look at the vial and its cap for any signs of cracks or defects. In regard to additional precautions that have been taken by Draximage since the event, the Draximage representative indicated that Draximage informed the supplier of this event and that the supplier would also investigate to determine why it happened. The Commission was satisfied with the information provided on this matter.

INFORMATION ABOUT A REPORTABLE EVENT

Suncor Energy Inc.: Fire at the MacKay River Facility

17. CNSC staff presented information regarding a fire that had started at Suncor Energy Inc.'s (Suncor) MacKay River Facility on December 6, 2019, which was reported to the CNSC duty officer on that day. CNSC staff reported that the affected building contained four insertion-type fixed gauges under a CNSC nuclear substance and radiation device licence and that each gauge had five 1.85 GBq cesium-137 sources. CNSC staff also reported that surveys conducted around the building perimeter once the fire was extinguished showed that radiation was at background levels. CNSC staff added that all persons entering the area wore personal electronic dosimeters, which did not record any doses above background levels.

18. CNSC staff stated that the building sustained some structural damage and that the safety of the building needed to be verified before the licensee's personnel could access the gauges to verify their integrity. CNSC staff added that the licensee's preliminary inspection showed that the gauges appeared intact and were still mounted on the vessels. CNSC staff also stated that it will continue to monitor this situation and would update the Commission once it receives confirmation that the sources and the gauges have been secured and safely recovered.

19. Asked if the gauges had been in physical contact with the fire, CNSC staff indicated that the gauges were inserted in a dry well within a thick-walled vessel and that the vessel was built to withstand certain emergency situations. CNSC staff stated that it was unlikely that the gauges had been in direct contact with the fire but they could have been exposed to extensive heat and that CNSC staff would have to verify whether this had occurred, but noted that the tanks appeared intact from distant verification.

20. The Commission thanked CNSC staff for the timely information provided on this event and requested updates, via memo, when they become available. **ACTION** by December 2020

UPDATES ON ITEMS FROM PREVIOUS COMMISSION PROCEEDINGS

Clarification of CNSC Staff Response to Question from May 30, 2018 Bruce Part 2 Hearing on Elevation of Diesel Generator

21. With reference to CMD 19-M49, CNSC staff presented an update to clarify an incorrect response from CNSC staff on the elevation of diesel generators, discussed on May 30, 2018 during part 2 of the Bruce Power NGS licence renewal hearing.[4] The Commission acknowledged that the need for this clarification came as a result of a letter from an intervenor advising the CNSC of an incorrect response from CNSC staff during that hearing. CNSC staff acknowledged that the information provided by CNSC staff during the hearing was incorrect. However, CNSC staff noted that the error was not material to staff's recommendations since the analyses and assessments that CNSC staff carried out for that hearing in respect to this matter included the correct information. CNSC staff also stated that the information in the CMDs and recommendations to the Commission for that hearing were based on the correct information and remain unchanged.

22. Asked for information about the backup generators at the Bruce NGS, the Bruce Power representative indicated that each station, Bruce A and Bruce B, had four Class III standby generators, that Bruce B had an additional three emergency power generators and that Bruce A had two qualified power generators. The Bruce Power representative added that the standby generators could provide approximately 12 MW each, that the emergency power generators at Bruce B could each provide approximately 5 MW and that the qualified power generators at Bruce A could each provide 2 MW. The Bruce Power representative also stated that the generators were tested on a regular basis, had preventive maintenance programs and regularly scheduled

[4] Canadian Nuclear Safety Commission, Record of Decision, *Application to Renew the Power Reactor Operating Licence for Bruce A and Bruce B Nuclear Generating Stations*, September 2018.

outages for maintenance.

23. Further on the backup generators at the Bruce NGS, the Bruce Power representative stated that all Class III standby generators and two of the emergency power generators at Bruce B were turbine generators, while the remainder were diesel engine generators. The Bruce Power representative added that the generators could be cross-tied within each station, and that two backup generators were capable of allowing all four reactors in a station to cool down safely if needed.

24. Asked about the maximum wave height recorded on Lake Huron near the Bruce NGS, the Bruce Power representative stated that waves as high as 10 metres have been recorded in the Great Lakes but generally in the middle of the lake. The Bruce Power representative provided information about water levels near the Bruce NGS, noting that waves up to 3 metres could be seen close to shore because of the shallow water in those areas. The Bruce Power representative further added that its probabilistic safety assessment for external flooding found that the risk of flooding for the backup generators was very low.

25. The Commission asked CNSC staff how it will ensure that future corrections to the record will be done in a timely manner and without depending on intervenors to identify errors. CNSC staff stated that, although after receiving the intervenor's letter CNSC staff had corrected the information internally and with the intervenor, it had not formally corrected the record with the Commission. CNSC staff added that, for any future such occurrences, CNSC staff, in collaboration with the Commission Secretariat, will ensure that any corrected information is provided to the Commission more promptly. The Commission Secretary indicated that, as a result of this experience and in order to avoid an informal correction of such information, the Commission Secretariat was developing a formal process for the correction of record that will be incorporated into the CNSC's management system.

26. The Commission is satisfied with the information provided on this matter. CNSC staff's correction to the error does not indicate a need for the Commission to revisit its decision to renew the Bruce NGS operating licence.

INFORMATION ITEMS

Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2018

27. With reference to CMD 19-M35, CNSC staff presented the annual *Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities in Canada: 2018* (the UNSPF ROR). This report summarized the performance of all uranium and nuclear substance

processing facilities in all 14 SCAs, as assessed by the CNSC staff during the 2018 calendar year. The highlights of the 2018 UNSPF ROR included:

- An assessment of the 14 SCAs with a focus on the radiation protection, environmental protection and conventional health and safety SCA, which reflected the overall effectiveness of licensee programs and the safety performance of facilities.
- Highlights on licensees' public information programs, engagement with Indigenous groups and communities, reportable events, significant facility modifications and areas of increased regulatory focus.
- Confirmation that uranium and nuclear substance processing facilities were rated as "satisfactory" or better in all 14 SCAs for 2018.

28. The public was invited to comment on the UNSPF ROR through written interventions. Four interventions were received. Through the CNSC's Participant Funding Program (PFP), funding was offered to assist Indigenous groups, members of the public and other stakeholders in reviewing the UNSPF ROR and submitting comments, in writing, to the Commission. A Funding Review Committee (FRC) – independent of the CNSC – recommended that participant funding in the amount of up to $14,100 be granted to two intervenors:

    - Swim Drink Fish Canada / Lake Ontario Waterkeeper (Waterkeeper)
    - Thessalon First Nation

29. The President noted that some of the intervenors had raised concerns regarding procedural considerations such as short timelines and the inability to present orally on the content of the RORs. The President acknowledged that the Commission had taken note of these concerns and that CNSC staff were going to be looking at the RORs and identifying opportunities for improvement with regard to content, timeliness, frequency and participation opportunities. The President added that, in early 2020, CNSC staff would start consultation with Commission members, licensees, Indigenous peoples, interested persons and civil society organizations, to address some of those concerns.

Comments from Licensee Representatives

30. The Commission invited licensee representatives to provide comments regarding the UNSPF ROR. The Cameco representative emphasized to the Commission that Cameco's priority was the safety and protection of its workers, the public and the environment. The Cameco representative stated that Cameco was proud to have a "fully satisfactory" rating in conventional health and safety at its Blind River Refinery (BRR) facility for the 6th year in a row and that it had been over 12 years since that facility had experienced a lost time injury (LTI). The Cameco representative also addressed public engagement activities that Cameco had carried out in 2018 and expressed its commitment to continued safe operation of its facilities.

31. The BWXT Nuclear Energy Canada (BWXT) representative informed the Commission that, in 2018, no LTIs occurred at BWXT facilities, and that no radiation or environmental action levels were exceeded. The BWXT representative also stated that BWXT successfully held an emergency evacuation drill that demonstrated BWXT's emergency preparedness.

32. The Nordion (Canada) Inc. (Nordion) representative stated that, although Nordion divested its medical isotopes business to BWXT Isotope Technologies Group in August 2018, medical isotopes work at Nordion facility continued to be performed under Nordion's licence with Nordion's continued oversight and responsibility over the operations until such time that the Commission decides to issue BWXT Isotope Technologies Group a Class IB licence. The Nordion representative added that Nordion was committed to the safety and security of its employees and customers, the public and the environment.

Written Interventions

Swim Drink Fish Canada / Lake Ontario Waterkeeper (Waterkeeper) (CMD 19-M35.3)

33. In considering the intervention from Waterkeeper, the Commission asked CNSC staff to clarify how it selected the environmental data published in RORs. CNSC staff explained that the different types of uranium and nuclear substance processing facilities had different interactions with the environment, which explained some of the variances in this reporting. CNSC staff added that it was looking at providing more environmental data online, including data in machine-readable formats.

34. Regarding submission from Waterkeeper about identifying licensee contact persons for follow-up information requests, the Commission

enquired about whether it was possible to provide that information to the public. Representatives from Cameco, BWXT, SRB Technologies (Canada) Inc. (SRBT), Nordion and Best Theratronics Limited (BTL) commented that it was possible for them to provide a direct point of contact which CNSC staff could disclose to the public, as needed. The Commission expects licensees to provide this information to CNSC staff so that it can then be made publicly available.

ACTION
by
July 2020

35. The Commission enquired about the difference in release limits for uranium between the two BWXT facilities. CNSC staff explained that the derived release limits (DRL) were calculated using CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities.*[5] CNSC staff added that different release limits at different facilities varied based on the surrounding area, the receiving water body and the exposure pathways. CNSC staff further explained that the release limits were based on a public dose constraint of 50 μSv per year. For this specific case, CNSC staff stated that the BWXT Toronto receiving environment was much larger than that of BWXT Peterborough, accounting for the difference in DRL.

36. The Commission, in reference to a recommendation from Waterkeeper's intervention on event communication, enquired about the public disclosure of additional details by licensees after an event investigation, such as lessons learned or mitigation measures taken by the licensees. The Cameco representative stated that Cameco would look to improve its posting process by having the date of the event, the date it was posted and the applicable action level or limit as part of the initial posting. The Cameco representative added that Cameco would refer the public to the quarterly report or annual report for more detail on events, adding that those reports were posted on Cameco's website.

37. Further on event information disclosure, CNSC staff stated that the reporting requirements for licensees were in the regulations made under the NSCA, and further detailed in REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*,[6] noting that CNSC staff verified that the information provided by licensees was accurate. CNSC staff added that it also notified the Commission for the larger or higher-impact events that may warrant an EIR.

[5] N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, CSA Group, 2014.
[6] Canadian Nuclear Safety Commission, REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*, 2018.

38. As raised by Waterkeeper in its intervention, the Commission asked for details concerning the impact of the Port Hope harbour wall collapse in October 2018.[7] The Cameco representative explained that the Port Hope harbour wall remediation project was completed in the fall of 2018 in collaboration with the Municipality of Port Hope and Canadian Nuclear Laboratories (CNL). The Cameco representative added that monitoring of its Port Hope Conversion Facility (PHCF) cooling water intake had shown an increase in some of the contaminants of concern, but noted that these have since returned to a normal state.

Thessalon First Nation
(CMD 19-M35.4)

39. In considering the intervention from the Thessalon First Nation, the Commission enquired about the feasibility of making licensee decommissioning plans publicly available. CNSC staff stated that there was no current requirement to make decommissioning plans publicly available, noting that some components of the decommissioning plans were proprietary. CNSC staff added that a licensee's decommissioning strategy and the decommissioning timelines could be made public.

40. CNSC staff indicated that preliminary decommissioning plans did not authorize licensees to conduct decommissioning activities and that the CNSC's licensing process included Indigenous engagement in this regard. CNSC staff added that decommissioning plans were subject to Commission authorization and that an environmental assessment may be required. CNSC staff stated that the revised CSA N294:19, *Decommissioning of facilities containing nuclear substances*[8] includes an Indigenous engagement component for both the development of the preliminary and the detailed decommissioning plans.

41. Further on this topic, the Cameco representative informed the Commission that Cameco summarized its decommissioning plans, removing proprietary information, and posted them to its website. The Commission expressed its satisfaction with Cameco's actions in this regard and strongly encouraged all licensees to make information about decommissioning plans available to the public.

General Questions

42. In relation to SRBT's monitoring wells and the elevated level of tritium in well 6-10, the Commission enquired about how this water was discharged to the environment. The SRBT representative

[7] Canadian Nuclear Safety Commission, CMD 18-M66, *Update from CNSC Staff: Status Update on Port Hope Harbour Wall Collapse of October 9, 2018*, December 2018.
[8] N294:19, *Decommissioning of facilities containing nuclear substances*, CSA Group, 2019.

explained that groundwater was traveling towards the Muskrat River at a rate of a couple of metres per year, allowing for radiological decay and dilution of the tritium. The SRBT representative added that the contamination was due to historical practices and that groundwater studies demonstrated that the contamination had occurred when tritium had been deposited on the ground which was then infiltrated by rainwater. The SRBT representative added that SRBT had taken mitigation measures to reduce tritium emissions such as the maintenance of stack equipment and suspending operations in periods of precipitation, and that these have reduced the amount of concentrated tritium entering the well and the surrounding environment.

43. The Commission invited CNSC staff to summarize its engagement activities with Indigenous peoples in regard to the facilities considered in the UNSPF ROR. CNSC staff reported that the CNSC took a holistic approach to its relationships with Indigenous communities, with the RORs being one of the different activities used to engage with them on a regular basis. CNSC staff added that the engagement schedule was community specific, as CNSC staff asked the communities that have a direct interest in a facility on how often they would like to meet with CNSC staff. CNSC staff further added that it was also answering questions received through telephone calls and teleconferences.

44. Asked about its Indigenous engagement activities, the Cameco representative explained that Cameco was focussing on its nearest neighbours, in accordance with Canadian jurisprudence, and trying to maintain a constant flow of information. The Cameco representative added that Cameco also aimed to employ Indigenous peoples, including a representation of approximately 15% of the employees at the BRR, as a way to continue developing its relationship with First Nations adjacent to that facility. The Cameco representative further stated that Cameco was posting information on its website and referred any questions received to subject matter experts for response.

45. On BWXT's Indigenous engagement activities, the BWXT representative indicated that BWXT joined the Canadian Council of Aboriginal Business in 2017 and was training its executive staff in Indigenous cultural awareness. The BWXT representative added that BWXT identified communities of interest and reached out to them regularly with information, invited them to events, requested them to meet with BWXT representatives and to participate in facility tours. The BWXT representative further added that BWXT was a member of a Progressive Aboriginal Relations Working Group that met on a regular basis.

46. Addressing the difference between the high release limits compared to the low monitoring results, CNSC staff explained that the upcoming

REGDOC-2.9.2, *Environmental Protection: Controlling Releases to the Environment*[9] would establish release limits which were based on a maximum predicted design release. CNSC staff noted that this would represent what a licensee would be capable of achieving, taking past performance into account.

47. The Commission asked Cameco about its onsite medical resources to manage anhydrous hydrogen fluoride inhalation incidents at the PHCF. The Cameco representative described a recent injury-free incident where a leak required the activation of its Emergency Response Team, noting that this team also included medical response personnel. The Cameco representative further added that an ambulance would take approximately 10 minutes to arrive to the PHCF and the transport time to Northumberland Hills Hospital would be approximately 15 minutes. The Commission considers that the time required for an injured worker to reach the hospital is long and suggests that Cameco performs a drill in 2020 to simulate an anhydrous hydrogen fluoride inhalation incident at the PHCF.

48. The Commission asked for clarification about a sentence in the UNSPF ROR stating that "… *the highest annual average uranium concentration in ambient air among the sample stations was 0.003 micrograms per cubic metre* ..." around Cameco PHCF. CNSC staff informed the Commission that there were five ambient air monitors around the PHCF, that the results were reported as an annual average and that these were representative of the highest annual average of the five stations. CNSC staff added that there were no action level exceedances to report in 2018. The Cameco representative indicated that Cameco reported individually on each monitoring station.

49. Commenting on the reduction in dose to the public measured at the Nordion facility between 2014 and 2018, the Nordion representative indicated that the reduction reflected the fact that Nordion had ceased processing reactor isotopes from the National Research Universal reactor following its shutdown in 2018.

50. On the worker dose fluctuation observed over the last five years at BTL, the BTL representative explained that the observed doses were reflective of the workload.

51. The Commission enquired about tritium storage at SRBT. The SRBT representative indicated that tritium was stored in depleted uranium containers the size of a soda can. The SRBT representative added that SRBT had a number of safety and security measures in place to ensure that the tritium was well protected and secure.

[9] Canadian Nuclear Safety Commission, REGDOC 2.9.2, *Environmental Protection: Controlling Releases to the Environment*, currently under development.

52. The Commission asked for details concerning a reportable event at SRBT involving a tritium shipment. The SRBT representative described the event and explained that SRBT shipped a container designed and certified for a Type B quantity of tritium with documentation for a Type A quantity. The SRBT representative added that the corrective action to prevent a recurrence was to ship this type of container administratively as a Type B container regardless of the tritium quantity.

53. Concerning the amount of contaminants removed from pumping wells at the Cameco PHCF, the Commission asked for the reason that the nitrate concentration had almost doubled between 2017 and 2018, while other contaminants decreased. The Cameco representative stated that the reason for the increased nitrate concentration in the pumping wells was not known and added that reasons for this increase could include activities from the various municipalities in the same watershed, agricultural activities or the increased lake level. The Cameco representative also stated that Cameco was monitoring nitrates resulting from the PHCF processes since they used nitric acid. CNSC staff noted that it was satisfied that the nitrate concentration measured in the monitoring wells was not posing a risk to the environment.

54. The Commission asked about whether CNSC staff had concerns about the 2018 BRR groundwater monitoring results for uranium concentration in well number 22. CNSC staff informed the Commission that this particular well had been under observation since 2013, that Cameco undertook an examination of potential sources of uranium and that it did not identify a single cause. CNSC staff added that Cameco had undertaken measures to reduce the sources of uranium inflow to that area, including work done around the hard surfaces. CNSC staff further added that the partial 2019 monitoring results showed that the uranium concentration was decreasing.

55. On the comparison of the underground water from monitoring wells to the *Guidelines for Canadian Drinking Water Quality*[10] (GCDWQ), CNSC staff explained that it used the GCDWQ due to the lack of an alternative and because groundwater could be a source of drinking water.

56. Asked about the development of a satisfactory environmental monitoring program, CNSC staff indicated that it assessed the potential risks to people and the environment and that the results of that risk assessment informed the nature of the requirements for effluent monitoring and receiving environment monitoring, including groundwater monitoring. CNSC staff added that the environmental risk assessment was governed by REGDOC 2.9.1, *Environmental*

[10] Health Canada, *Guidelines for Canadian Drinking Water Quality*, 2017.

Protection: Environmental Principles, Assessments and Protection Measures[11] and the CSA N288 series of standards and guidelines on environmental management of nuclear facilities.

57. The Commission enquired about the limit for tritium concentration in drinking water and the reason that the limit differed between countries. CNSC staff explained that the Canadian limit of 7,000 Bq/L would relate to a dose of 0.1 mSv in a year for a person consuming 1.5 litres of water a day. CNSC staff added that Australia's limit of 70,000 Bq/L was based on a dose of 1 mSv per year[12] and that the United States made a well-documented calculation error when it established a 740 Bq/L limit. However, since the industry was meeting that limit, they have not chosen to update it.

58. Upon request for detail about Cameco's Vision in Motion project, the Cameco representative informed the Commission that the Vision in Motion project was a site remediation project at the PHCF aimed at removing legacy waste. The Cameco representative listed the activities that were already completed, future work to be performed, such as deep excavations throughout the site to remove contaminant material, and stated that the project would be completed around 2024.

59. The Commission was satisfied with the information provided by CNSC staff. The Commission requests CNSC staff to prepare a summary of the basis behind DRLs in the next UNSPF ROR. **ACTION** by December 2020

Update on the Independent Environmental Monitoring Program (IEMP)

60. With reference to CMD 19-M42, CNSC staff presented an overview of the IEMP and enhancements that have been made to the program since its initiation in 2012. The objective of the IEMP is to independently verify and communicate how the public and the environment around nuclear facilities are protected from releases originating from the activities being carried out at these facilities. The program also satisfies the International Atomic Energy Agency (IAEA) *General Safety Requirements Part 3*,[13] which provides that the regulatory body shall ensure that environmental monitoring is in place and results are recorded, and shall be responsible implementing an independent environmental monitoring program. The IEMP complements licensee environmental monitoring programs, which licensees are required to implement to satisfy the conditions of their licences. CNSC staff noted that, as part of the CNSC's Indigenous

[11] Canadian Nuclear Safety Commission, REGDOC 2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, 2017.
[12] The public dose rate is set at 1 mSv per year per subsection 13(1) of SOR/2000-203
[13] IAEA Safety Standard Series - *General Safety Requirements Part3: "Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards,"* Requirement 32, IAEA, Vienna 2014, STI/PUB/1578 978-92-0-135310-8.

engagement activities and when possible, the CNSC's PFP provides funding to Indigenous peoples to support their participation in the IEMP.

61. The Commission commended CNSC staff for its presentation and asked if any of the results obtained during the conducted IEMP campaigns had led to concerns in regard to contamination, or were beyond expected limits. CNSC staff responded that, to date, no unexpected results or findings raising concerns about contamination had been obtained through the IEMP. CNSC staff provided examples in which data obtained through the IEMP had resulted in better understanding of the dynamics of contaminant dissipation in the environment and led to closer collaboration with licensees regarding their environmental monitoring programs.

62. The Commission asked for reasons for a lack of IEMP data for Cameco's Cigar Lake mine from 2012 – 2019. CNSC staff responded that, in general, a lower frequency of sampling was carried out at uranium mine sites primarily due to the meaningful environmental results obtained through provincial programs, namely the Eastern Athabasca Regional Monitoring Program (EARMP). CNSC staff noted that leveraging the results obtained through collaboration with the EARMP had been deemed to be more cost effective than carrying out environmental monitoring through the IEMP in these regions.

63. The Commission enquired about the criteria that CNSC used to select the species to be sampled. CNSC staff responded that the criteria are based on food consumption in a specific community, information obtained from Indigenous peoples, the environmental risk assessment for a specific area and looking at the species that are monitored by the licensees.

64. Asked about participation of Indigenous peoples in the sampling process, CNSC staff responded that, in some cases, members of Indigenous communities actively participated in the collection of samples. CNSC staff also stated that, in many cases, Indigenous peoples participated in the IEMP through engagement activities and meetings with CNSC staff by providing traditional knowledge or by submitting lists of the species that should be sampled. CNSC staff further explained that, through these engagement activities, better insights regarding samples that are the most meaningful to Indigenous peoples near a facility are obtained.

65. The Commission asked about a 10-year projection of how the program would evolve. CNSC staff expressed its intention to put more effort on the practical value of information provided to the public, especially regarding food safety, and to move from actual "snapshot" like campaigns to more holistic, larger and less frequent studies. CNSC staff also expressed its wish to collaborate more

closely with other government departments involved in environmental monitoring activities.

66. The Commission asked about whether the studies conducted through the IEMP included human bioassays. CNSC staff explained that bioassays were part of licensee operational radiological protection programs, but not part of any environmental program, including the IEMP.

67. Asked to compare the IEMP with similar programs in other countries, CNSC staff responded that, since the initial benchmarking done in 2012, a similar study has not been done and that CNSC staff intends to perform one in the future. The Commission agreed that CNSC staff should consider benchmarking the IEMP against similar international programs in the next couple of years to ensure that the CNSC is implementing best practices in its IEMP and having a global influence in this area.

Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018

68. With reference to CMD 19-M36, CNSC staff presented its annual report for 2018 on the safety performance of uranium mines and mills (UMM ROR) in Canada. CNSC staff's submission assessed all 14 safety and control areas (SCAs) – with a focus on radiation protection, environmental protection and conventional health and safety, and provided the following information:

    - All 14 SCAs for all of the uranium mines and mills in Canada were given a "satisfactory" rating, with the exception of the radiation protection program at Orano's McLean Lake, which received a rating of "fully satisfactory."

    - Cameco's McArthur River Operation, Rabbit Lake Operation and Key Lake Operations remain in a state of care and maintenance. CNSC staff will continue compliance verification activities using a risk-informed approach.

    - CNSC staff continued to participate in Northern Saskatchewan Environment Quality Committee (NSEQC) meetings and meet with Indigenous communities to present the findings detailed in the UMM ROR.

69. Through the CNSC's PFP, participant funding had been offered to assist Indigenous peoples, members of the public and other stakeholders in reviewing the UMM ROR and submitting comments, in writing, to the Commission. A Funding Review Committee – independent of the CNSC – had recommended that up to $63,700 in participant funding be provided to four applicants:

- Canadian Environmental Law Association (CELA) on behalf of C. Simon
- English River First Nation
- Prince Albert Grand Council
- Ya'thi Néné Land and Resource

In the spirit of reconciliation and in the recognition of the Indigenous oral tradition for sharing knowledge, Indigenous peoples were provided the opportunity to make oral presentations.

Comments from Industry Representatives

70. The Commission invited comments from the licensees whose facilities and sites were reported on in the UMM ROR. The Cameco Corporation (Cameco) representative emphasized Cameco's commitment to safety and the environment, and provided details regarding the decision to place the McArthur River, Key Lake and Rabbit Lake operations into a state of care and maintenance due to a challenging global uranium market. The Cameco representative reported that, with 2018 being the first year Cameco had three mines in a state of care and maintenance, this had a negative impact on the number of employees and contractors at its facilities. The Cameco representative noted that Cameco had endeavoured to maintain 50% of its workers from northern Saskatchewan.

71. An Orano Canada Inc. (Orano) representative provided information about the McClean Lake Operation and the Cluff Lake Project, noting that Orano had appeared before the Commission for a licence renewal for the Cluff Lake Project in May 2019. The Orano representative reported that its operations at McClean Lake continued to produce and process high-grade ore slurry while keeping nuclear energy workers (NEWs) average doses near the public 1 mSv per year dose limit. The Orano representative also detailed Orano's efforts in the area of transparency and public engagement.

Interventions

<u>Prince Albert Grand Council (PAGC)
(CMD 19-M36.2)</u>

72. The Commission asked for information about the "Indigenous based restorative process for conflict resolution" that was noted by the PAGC in its intervention, and how it could be applied. A Cameco representative responded that this process, which is part of Cameco's collaborative agreements, is used within First Nations communities and refers to restoring balance so that those who are in conflict can

come together and reach resolution.

73. With respect to the recommendation submitted by PAGC regarding open communication of spills and leakages, the Commission asked about how such events were communicated to the public. CNSC staff responded that if a spill was of high safety significance occurred, it would be reported to the Commission through an EIR, posted on the CNSC website and the licensee's websites, with additional details of these events provided in the UMM ROR. A Cameco representative reported that the summary of the event would be posted on Cameco's website and that information regarding such events is discussed during quarterly meetings with the subcommittees with which Cameco has a collaboration agreement.

74. The Commission asked about whether the study being conducted by CNSC staff on the health impacts on uranium workers in Canada will include specific data on the individual Indigenous groups in order to compare these groups with the general population of uranium workers. CNSC staff responded that, because the data being used is historical data from the Eldorado study[14] and the Ontario miners study,[15] it did not break down the data into individual groups (i.e. Indigenous status). CNSC staff added that the data in Health Canada's National Dose Registry were being analyzed in order to extrapolate the data specific to uranium mine, mill, processing and fabrication workers.

75. The Commission further enquired as to whether it would be possible to link the data to another database in order to break the data down further. CNSC staff responded that it could be beneficial to do a nested study within the study and focus on Indigenous workers to ensure that they were being represented. CNSC staff further submitted that it was focussing its collaboration with Indigenous peoples in this regard and that CNSC staff hoped to develop a related study working group in 2020.

Ya'thi Néné Land and Resource Office (Ya'thi Néné)
(CMD 19-M36.6)

76. The Commission requested information on a concern raised by the Ya'thi Néné about the potential health impacts from uranium mining and asked whether it would be possible to facilitate an independent health study for different Indigenous groups. The Northern Saskatchewan Medical Health Officer (NSMHO) responded that the

[14] Lane RS, Frost SE, Howe GR, Zablotska LB. Mortality (1950-1999) and cancer incidence (1969-1999) in the cohort of Eldorado uranium workers. Radiat Res. 2010 Dec; 174(6):773-85.
[15] Navaranjan G, Berriault C, Do M, Villeneuve PJ, Demers PA. Cancer incidence and mortality from exposure to radon progeny among Ontario uranium miners. Occup Environ Med. 2016 Dec; 73(12):838-845. doi: 10.1136/oemed-2016-103836. Epub 2016 Sep 20. PubMed PMID: 27651479.

last cancer study that was conducted included data up to 2014 and showed that the cancer rate among women in northern Saskatchewan was approximately the same as in Saskatchewan and that the cancer rate for men was lower in northern Saskatchewan when compared to the male population in Saskatchewan.

77. Further on that topic, the NSMHO representative stated that, in Canada, the pediatric cancer rates were low at 7 per 100,000 in northern Saskatchewan, as compared to 14 per 100,000 provincially and 16 per 100,000 nationally. The NSMHO representative further submitted that smoking rates were at approximately 20% whereas the recent First Nations Food, Nutrition & Environment Study,[16] which included First Nations communities in northern Saskatchewan, found that the smoking rate in these northern Saskatchewan communities was at nearly 80%, which may lead to higher cancer rates. Specifically, the NSMHO reported that, although the male cancer rate was decreasing provincially, this decrease was not yet seen in the Athabasca region.

78. The Commission asked the NSMHO representative to comment on the level of engagement that takes place between Indigenous groups and the NSMHO in northern Canada. The NSMHO responded that during a meeting with the Ya'thi Néné in September 2019 and following the October 2, 2019 CNSC Commission hearing,[17] the Ya'thi Néné had indicated that they would like an update on the existing cancer health study. The NSMHO representative added that, following the Ya'thi Néné's recommendations, NSMHO has collaborated with the Athabasca Health Authority, the Northern Intertribal Health Authority and the Saskatchewan Cancer Agency to conduct an updated study and that it was currently in the early stages.

79. In regard to the health study, CNSC staff responded that it had initiated planning in order to conduct a health study on uranium workers in collaboration with the Saskatchewan government which would include approximately 8,000 workers. CNSC staff added that letters were being drafted to inform interested persons that this study is planned and ways by which they could participate.

80. The Commission asked about whether the study being conducted by CNSC staff on the health impacts would be beneficial to the Ya'thi Néné. A Ya'thi Néné representative responded that a third party health study conducted by the CNSC would be greatly beneficial for the Ya'thi Néné people.

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[16] First Nations Food, Nutrition & Environment Study, http://www.fnfnes.ca/ (accessed 20 November 2019).

[17] http://nuclearsafety.gc.ca/eng/the-commission/hearings/documents_browse/results.cfm?dt=2-Oct-2019&yr=2019

81. The Commission, noting that Indigenous peoples were concerned about which traditional country foods and water were safe to eat and drink, asked licensees to provide additional information on this matter. A Cameco representative submitted that Cameco has a comprehensive environmental monitoring program – in addition to a community-based monitoring program – which performs annual surveys in all seven Athabasca First Nations or communities. The Cameco representative added that these surveys include the sampling of fish, wild game, berries and water to ensure that they remained safe to consume. An Orano representative confirmed that Orano has similar environmental programs in place and, noting the opportunities for improvement that have been identified, Orano looked forward to finding a better path forward.

82. Noting the concerns expressed by the Ya'thi Néné about the safety of water near uranium mine sites, the Commission asked for information on what kind of liquid effluent monitoring program was in place. A Cameco representative responded that liquid effluent was treated to meet release requirements, after which it was discharged into a pond and a composite sample was collected. The Cameco representative added that, as the pond water was released into the river, samples are taken on a weekly basis while, further downstream, where there are less changes, the samples are collected on a monthly basis, analyzed, and the results are sent to the CNSC as well as the province of Saskatchewan, as per licensing requirements.

83. Further on that topic, a Cameco representative reported that a high percentage of the environmental technicians who sampled the effluent were northern Saskatchewan residents and that Cameco used this as a tool to convey to the residents that there is a robust environmental protection program at Cameco.

84. The Commission asked the Ya'thi Néné for more information about the concerns that they expressed about communication with the licensees and the CNSC. The Ya'thi Néné representative explained that the main concerns were related to the difference in cultures as the methods of communication used by the Ya'thi Néné were by 'word of mouth,' rather than electronic means, noting that the Elders do not use computers.

85. The Commission enquired as to what CNSC staff could do differently in the future. CNSC staff responded that, in 2018, CNSC staff initiated an annual leadership meeting which was held in Prince Albert with over 25 leaders present from northern Saskatchewan. Noting the concerns expressed by the Ya'thi Néné about communication and engagement, CNSC staff submitted that the communication gaps that have been brought forward in this meeting would be addressed in the upcoming year.

86. With respect to the recommendation made by the Ya'thi Néné about public information programs or Indigenous engagement, the Commission asked how the licensees assessed the effectiveness of their communications. A Cameco representative responded that there is a subcommittee originating from the Ya'thi Néné Collaboration Agreement, to which information on environmental performance is reported and that it is through this forum that Cameco assesses the effectiveness of its communications with the Ya'thi Néné. The Cameco representative further submitted that Cameco regularly communicated with the Athabasca Joint Engagement Sub-Committee (AJES) community and the Ya'thi Néné on how it can improve its processes for public reporting.

87. An Orano representative reported that, Orano has community liaison officers with the First Nations communities that report information on workforce developments, community investment and any information from the AJES. The Orano representative further submitted that there were communication gaps that have been identified in this Commission meeting and that Orano would try to address them in its 2020 work plan. The Commission requests that CNSC staff provide an update on how Orano addressed these communications gaps in the context of the 2019 UMM ROR or through other means, as appropriate.

ACTION
by
November
2020

88. The Commission asked the Ya'thi Néné how knowledge was transferred and shared within their community, and how the licensees could improve their communications with First Nations. A Ya'thi Néné representative responded that knowledge was transferred from Elders and residents that have worked in the mines, adding that communications would be much more effective if the licensees came directly to the communities to present what changes were being planned rather than rely on liaison officers.

Canadian Environmental Law Association (CELA) on behalf of C. Simon (CMD 19-M36.8)

89. Due to the concerns raised by the intervenor with respect to allowed non-compliances with regulatory documents (REGDOC), the Commission requested information about the implementation of REGDOCs by licensees. CNSC staff responded that, as the regulatory framework is being modernized with the publication of new REGDOCs, licensees are required to conduct a gap analysis and submit an implementation plan to the CNSC. CNSC staff added that the licensees' progress continued to be monitored and that all UMM licensees are on track with the implementation of the applicable regulatory documents. CNSC staff also stated that mechanisms were in place to assess the reasonableness of licensee implementation plans.

90. With respect to the REGDOCs that Cameco will be implementing in the future, the Commission asked if the implementation dates were part of the original implementation plan submitted by Cameco. CNSC staff responded that an extension would only be granted if the justification and alternate approach provided by the licensee was reasonable, noting that extensions in regard to training and personnel qualifications were approved as Cameco proposed that it would be preferable to wait until the mines and sites were in full operation. The Commission notes that implementing new or updated REGDOCs is not a matter of compliance with regulatory requirements, but of continuous improvement.

91. The Commission enquired as to whether the licensees had any initiatives in place that took climate change into consideration. A Cameco representative responded that risk assessments carried out at licensed sites are in accordance with CSA N288.6-12 (R2017), *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*,[18] which considers several factors, including current and long-term changes in climate. The Cameco representative added that, when taking climate change into consideration, many factors such as temperature, precipitation, stream flow, river flow, and lake levels were considered. Asked if Cameco looks into optimization in terms of facility footprint in respect of climate change, a Cameco representative responded that, due to continuous improvements in technology, the footprints for the McArthur River Mine or Cigar Lake Mine are much smaller compared to older mines such as those at Cluff Lake, Key Lake and Rabbit Lake. The Cameco representative added that Cameco also actively considers energy management, where Cameco's focus has been on reducing greenhouse gas emissions.

92. With respect to recommendation 8 in the submission from C. Simon, that the CNSC should reconsider its recommendation to not include radionuclides in the National Pollutant Registry Index (NPRI), the Commission asked CNSC staff for further information about this. CNSC staff responded that, because including a new constituent or chemical in the NPRI would require substantial resources, Environment and Climate Change Canada (ECCC) and CNSC staff agreed that it would be more efficient to link the existing data on the CNSC website to the NPRI.

93. The Commission requested information about the Office of the Auditor General's *Environment and Sustainable Development Spring Report*[19] (ESDSR) on mines in Canada and asked whether there were any action items on the CNSC resulting from the report. CNSC staff responded that the CNSC had gone through a similar third party audit

[18] CSA N288.6-12 (R2017), *Environmental risk assessments at Class I nuclear facilities*, CSA Group, reaffirmed in 2017.
[19] https://www.oag-bvg.gc.ca/internet/English/parl_cesd_201804_e_42985.html

and that, although the findings and recommendations were related to compliance verification with respect to power reactors, the lessons learned were incorporated throughout the nuclear fuel cycle. CNSC staff added that, while there were no action items arising from this report, CNSC will study the findings in this report and review whether there are any lessons learned that can apply in the mining sector.

General Questions

94. The Commission enquired as to why radiological exposure from gamma radiation was higher than that resulting from radon progeny at Cigar Lake, considering that radon progeny represented the highest source of exposure at all other Canadian uranium mines. CNSC staff responded that, due to engineering controls in place at Cigar Lake, the radon progeny was very low, resulting in the low exposure from this radiological source.

95. With respect to the event related to an uncontrolled release at Cigar Lake in January 2018, the Commission asked how many tears in water storage liners Cameco expected annually and what preventative measures are in place to avoid them. A Cameco representative responded that once the water was treated at the water treatment facility, there was a wait time in getting a water sample analyzed, during which time the water was stored in a pond. The Cameco representative added that the water that was released was treated water which met the provincial effluent release criteria but, because it was an unplanned release in excess of 1 m^3, it was reported to the CNSC as an event. The Cameco representative also stated that in order to prevent tears in the liners, the most efficient way was to reduce the wait time for the samples to be analyzed.

96. The Commission requested additional information on whether the same liners were used for effluent pending treatment. A Cameco representative reported that the liner used was an 80 mil high density polyethylene liner which was used throughout Cameco's operations and that, for effluent waiting to be treated, two liners would be used with a leakage detection layer in between. CNSC staff submitted that it was satisfied with the measures taken by Cameco as the effluent released during the event met the release criteria.

97. The Commission noted that four uncontrolled release events involving ammonia at Cigar Lake in 2018 were related to valve leaks and enquired as to what processes Cameco had in place to monitor the freeze plants and to detect such leaks. A Cameco representative submitted that, in the last couple of years, Cameco had focussed on leak prevention and detection at Cigar Lake and detailed the upgrades that had been made to the Cigar Lake freeze plants. The Cameco representative also stated that, in the newest freeze plant, the leak

detection system had been upgraded to a laser detection system that monitors the operating environment in real time, rather than detecting a single point. The Cameco representative added that some of the personnel with expertise from McArthur River freeze plants had been relocated to the Cigar Lake site and that Cameco used best available technology solutions in the construction of new freeze plants and in retrofitting its older freeze plants, where possible.

98. Further on that topic, the Commission enquired about whether operators who performed walkthrough inspections had personal protective equipment (PPE) to protect against ammonia hazards. The Cameco representative responded that, because the plants were automated, the operators were in the control room majority of the time and not in the area that is being monitored. The Cameco representative further reported that operators now had ammonia indicators that they were able to wear as they do walkthroughs and added that they were provided training on what PPE is required in the event of a leak.

99. The Commission asked about the units used for calculating the radon concentration in waste rock pile and what concentration would be needed to reach the annual public dose limit of 1 mSv. CNSC staff responded that, because the mines in Canada contain uranium ore in very thin seams, with the ore not distributed throughout the orebody, it is difficult to measure the emanation rate and, therefore, radon concentration is measured in Bq/m^3. CNSC staff further added that the concentration would have to be 55 Bq/m^3 to reach a dose of 1 mSv.

100. The Commission asked about whether there was a cap with respect to the annual production of uranium ore given that licensees can carry forward the amount of uranium not used from previous years. The Cameco representative responded that all of its mining operations had an annual production cap, noting that the Cigar Lake operation, which is the only mine currently in operation, had an annual production limit of 9.25 Mkg of uranium per year and that this limit could not be exceeded. The Cameco representative added that the average annual production at Cigar Lake is approximately 7 Mkg of uranium per year and as such, the 9.25 Mkg of uranium production limit provided flexibility in respect of carrying forward uranium production from a previous year.

101. The Commission asked CNSC staff to explain how it resolved challenges that may arise when working with other government agencies. CNSC staff responded that the CNSC works very closely with Saskatchewan Ministry of Environment (SME) and ECCC, and have regular discussions including CNSC staff's participation in NSEQC meetings. An SME representative stated that the SME carried out ongoing discussions with the CNSC staff, noting that SME staff

provided report findings as well as participated in joint site inspections with the CNSC.

102. Further on that topic, the Commission asked the SME representative if there were opportunities for improvement to further enhance the working relationship between the SME and the CNSC. The SME representative responded that, although the working relationship between the two agencies was good, it could be further enhanced by formalizing the working arrangements. The Commission anticipates that CNSC staff will engage and work with the SME to formalize working and collaboration agreements in the near future and directs CNSC to report to the Commission about this engagement in the 2019 ROR or via other means, as applicable.

ACTION by December 2020

103. The Commission asked whether there was a time limit as to how long a mine can be in a state of care and maintenance and whether maintaining this state could become a safety concern. A Cameco representative responded that Cameco has experience in bringing mines back into production, noting the restart of the Eagle Point mine, and added that, as time progressed, challenges did increase with mines in care and maintenance but Cameco did not anticipate these becoming a safety concern.

104. The Commission asked about why the nickel concentration in effluent is approximately two orders of magnitude higher at Key Lake than at all the mine other sites. A Cameco representative responded that, during production at Key Lake, there was a significant amount of nickel in the ore and that the root cause of this was the geology of the land, noting that Cameco had not introduced any nickel in its operations.

105. The Commission asked for information on the health implications related to an event involving the discharge of 150 kg of molten sulphur at McClean Lake in June 2018. The Orano representative stated that molten sulphur had a temperature of about 150ºC and that, upon contact with the human body, it would burn and cause pain. The Orano representative confirmed that all workers who unloaded molten sulphur were required to wear specialized PPE in case of a splash or spill. Upon enquiry, the Orano representative also stated that such an event had only occurred once in 2018 and that it was the only such event in the last three to four years.

DECISION ITEM

REGDOC-3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities, and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices*

106. With reference to CMD 19-M47, CNSC staff presented to the Commission its recommendation to approve REGDOC-3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities, and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices* for publication.

107. The Commission asked what steps licensees would have to take in order to implement REGDOC-3.1.3. CNSC staff responded that all requirements in REGDOC-3.1.3 were based on those in the NSCA and its regulations, as well as licences, and that these were compiled into one regulatory document.

108. The Commission enquired as to how long it would take to update all the licence conditions handbooks (LCH) if REGDOC-3.1.3 was approved. CNSC staff responded that the LCHs were updated approximately once a year and further submitted that because the licensees were already in compliance with the requirements of REGDOC-3.1.3, CNSC staff anticipates that the LCHs will be updated for the 2020 reporting year.

109. The Commission requested information about whether there was any conflict between the provincial privacy legislation and the requirements under the NSCA and its regulations. CNSC staff responded that information which was collected by the CNSC was for regulatory recording purposes and not for public purposes. CNSC staff further submitted that any protected information that is collected is subject to the *Privacy Act*[20] and that it would have to be appropriately restricted within the organization.

110. The Commission asked if the disposition of the comments had been shared with the commenters prior to the Commission meeting. CNSC staff responded that it was common practice to include all the dispositioned comments in a table and send it to those who commented along with the revised draft document.

111. The Commission asked about how CNSC staff would reach out to different groups of licensees, noting that the majority of those which had commented were NGS licensees and not licensees which would be impacted by the REGDOC. CNSC staff responded that there were two different licensing groups that would be taking different approaches due to the complexity and number of licensees for each of

[20] R.S.C., 1985, c. P-21

the two groups. CNSC staff responded that the Accelerators and Class II Facilities Division had three different venues to reach out to licensees: a C3 working group which is composed of members of the Canadian Radiation Protection Association and the Canadian Organization of Medical Physicists; various forums such as industry and scientific meetings; and through Type I inspections. CNSC staff from the Waste and Decommissioning Division responded that because there were a fewer number of licensees, CNSC project officers were regularly in contact with the licensees and communicate new regulatory documents.

Commission Decision

112. After considering the recommendations submitted by CNSC staff, the Commission approves regulatory document REGDOC-3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities, and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices*, for publication and use.

DECISION
REGDOC-3.1.3
Approved

Closure of the Public Meeting

113. The public meeting closed at 2:33 p.m. on December 12, 2019. These minutes reflect both the public meeting itself and the Commission's decisions taken as a result of the meeting.

Recording Secretary	March 23, 2020 Date
Recording Secretary	March 23, 2020 Date
Hornof, Monica Recording Secretary	March 23, 2020 Date
Leblanc, Marc Secretary	March 23, 2020 Date

APPENDIX A

CMD	Date	e-Docs No.
19-M45	2019-11-26	6040687
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 11-12, 2019 in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario		
19-M45.A	2019-12-05	6062385
Revised agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 11-12, 2019 in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario		
19-M37	2019-11-12	6043192
Approval of the Minutes of Commission Meting held on October 3, 2019		
19-M35	2019-10-11	5978433
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Submission from CNSC Staff		
19-M35.A	2019-12-04	5978433
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Presentation from CNSC Staff		
19-M35.1	2019-11-08	6040511
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Submission from the Canadian Nuclear Association		
19-M35.2	2019-11-12	6040554
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Submission from the Canadian Nuclear Workers' Council		
19-M35.3	2019-11-12	6041569
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Submission from Swim Drink Fish Canada / Lake Ontario Waterkeeper		

19-M35.4	2019-11-14	6042494
Information Items Regulatory Oversight Report on Uranium and Nuclear Processing Facilities in Canada: 2018 Submission from the Thessalon First Nation		
19-M42	2019-12-11	6062185
Update on Independent Environmental Monitoring Program (IEMP) Presentation from CNSC Staff		
19-M47	2019-11-28	6020186
Decision Item REGDOC-3.1.3, Reporting Requirements for Waste Nuclear Substances Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices Submission from CNSC Staff		
19-M47.A	2019-12-11	6040186
Decision Item REGDOC-3.1.3, Reporting Requirements for Waste Nuclear Substances Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices Presentation from CNSC Staff		
19-M48	2019-12-06	6065512
Status Report Status Report on Power Reactors facilities of December 4, 2019 Submission from CNSC Staff		
19-M49	2019-12-02	6060856
Update on an item from a previous Commission proceeding Clarification of CNSC Staff Response to Question from May 30, 2018 Bruce Part 2 Hearing on Elevation of Diesel Generator Submission from CNSC Staff		
19-M50	2019-12-05	6064030
Event Initial Report Jubilant Draximage Inc.: Atmospheric Emissions Exceeded the Licence Limits Submission from CNSC Staff		
19-M36	2019-10-11	5939090
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from CNSC Staff		

19-M36.A	2019-12-11	6018833
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Presentation from CNSC Staff		
19-M36.2	2019-11-10	6038727
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Presentation from the Prince Albert Grand Council		
19-M36.6	2019-11-08	6040603
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Ya'thi Néné Land and Resource Office		
19-M36.6A	2019-12-04	6063706
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Ya'thi Néné Land and Resource Office		
19-M36.1	2019-10-28	6038818
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Saskatchewan Mining Association		
19-M36.3	2019-11-06	6038829
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from Northern Saskatchewan Environmental Quality Committee		
19-M36.4	2019-11-08	6040490
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Canadian Nuclear Assocation		
19-M36.5	2019-11-12	6040587
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Canadian Nuclear		
19-M36.7	2019-11-12	6041544
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the English River First Nation		

19-M36.8	2019-11-12	6041553
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Canadian Environmental Law Association on behalf of Christie Simon		
19-M36.9	2019-10-25	6042990
Information Item Regulatory Oversight Report on Uranium Mines and Mills in Canada: 2018 Submission from the Athabasca Joint Engagement and Environmental Subcommittee		