Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on May 15, 2019

May 15, 2019

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Wednesday, May 15, 2019 beginning at 9:30 a.m. at the CNSC Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario.

Present:

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

K. McGee, Assistant Commission Secretary
L. Thiele, Senior General Counsel
M. Hornof, Recording Secretary

CNSC staff advisors were: H. Tadros, M. Rinker, P. Fundarek, A. Viktorov and L. Casterton

Other contributors were:

- Ontario Power Generation: C. Axler and M. Duarte
- Bruce Power: M. Burton
- Cameco Corporation: L. Mooney

Constitution

1. With the notice of meeting CMD 19-M11 having been properly given and all permanent Commission members being present, the meeting was declared to be properly constituted.

2. Since the Commission meeting held February 20, 2019, CMDs 19-M12 to 19-M19 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-M12.A, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by K. McGee, Assistant Commission Secretary and M. Hornof, Recording Secretary.

Minutes of the CNSC Meeting Held February 20, 2019

5. The Commission approved the minutes of the February 20, 2019 Commission meeting secretarially. The Assistant Commission Secretary noted that the meeting minutes would be posted on the CNSC website, in both official languages, within two weeks of this proceeding.

UPDATES ON ITEMS FROM PREVIOUS COMMISSION PROCEEDINGS

Request to CNSC Staff to Report the Total Recordable Injury Frequency (TRIF) Data, including Data for Contractors, in Future Regulatory Oversight Reports

6. With reference to CMD 19-M15, CNSC staff presented an update regarding the reporting of TRIF data for all nuclear generating station (NGS) workers, including contractors, as raised in the November 2018 Commission meeting and in Commission Action Item #17560.[1] In its submission, CNSC staff explained that TRIF data for all employees and contractors – including third-party contractors – were only available for the Darlington, Pickering and Point Lepreau NGS. CNSC staff confirmed that all Canadian NGS licensees met regulatory requirements in respect of accident frequency rate reporting and met the reporting requirements of REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*,[2] as required by their licences.

7. The Commission requested additional information about why OPG and NB Power collected TRIF data, whereas Bruce Power did not. CNSC staff explained that OPG and NB Power were members of the Canadian Electrical Association (CEA) and were required to collect TRIF data, whereas Bruce Power was not a CEA member and was not required to collect these data.

8. The Bruce Power representative was invited to provide the Commission with additional information on this matter. The Bruce Power representative confirmed that Bruce Power did not collect TRIF data, but stated that Bruce Power collected lost time accident, lost time injury and first aid injury data for all workers, including third-party contractors.

[1] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on November 8, 2018*, paragraph 60.
[2] CNSC REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, Version 2, 2016.

9. The Commission requested clarification in regard to the data used by CNSC staff to assess the "conventional health and safety" safety and control area (SCA). CNSC staff explained that the data submitted by all NGS licensees, as required by REGDOC-3.1.1, were the same and that accurate comparisons of licensee performance in the conventional health and safety SCA could be carried out by CNSC staff.

Commission Directions

10. Following the public portion of the Commission meeting, the Commission deliberated on this matter in a closed session. The Commission is of the view that the reporting and assessment of third-party contractor injury data – that is, lost time accident, lost time injury and first aid injury data – is essential to the assessment of the overall safety of a nuclear facility. The Commission also notes that third-party contractors often make up a large component of the workforce at nuclear facilities and perform high-hazard work. Further, with the large-scale projects currently being undertaken at NGS in Canada, the number of third-party contractors is likely to remain steady or increase.

11. In regard to TRIF data, the Commission is of the view that the collection and assessment of these data are proactive measures. The Commission is also of the view that TRIF data provide a more complete overview of safety at a facility. The Commission, however, recognizes that the reporting of TRIF data could represent additional regulatory burden for licensees. Therefore, the Commission directs CNSC staff to carry out a cost-benefit review, including consultation with industry, on the issue of amending REGDOC-3.1.1 to require NGS licensees to report TRIF data for all workers, including third-party contractors. The Commission expects that the results of this review would inform a recommendation to the Commission in regard to such an amendment to REGDOC-3.1.1.

ACTION
#17560
by
June 2020

12. For now, the Commission requests OPG, NB Power and Bruce Power to collect and provide CNSC staff with third-party contractor injury data as soon as practicable. These data should be included in the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2018*. The Commission recognizes that these data are not currently required by the CNSC to be collected and reported. The Commission understands, though, that two of the three licensees do collect this information, and it understood from Bruce Power that this could be done. Until such time as the cost-benefit review is completed, the Commission will not decide to amend the reporting requirements in REGDOC-3.1.1. Until then, however, the Commission asks that licensees proactively collect

ACTION
by
November
2019

these data and report them to the CNSC.

Bruce Power – Update on the Request to Make Available for the Public the Volume of Waste That Will be Produced During the Major Component Replacement (MCR) of the Six Units at the Bruce NGS

13. With reference to CMD 19-M16, Bruce Power submitted an update in response to the Commission's request arising from the May 2018 licence renewal public hearing and raised in Action Item #14751.[3] In its submission, Bruce Power informed the Commission that the estimated volumes of low- and intermediate-level nuclear waste associated with the six planned MCR outages would be made available on Bruce Power's public website by March 29, 2019, and would be reviewed and updated on the website no later than March 31 on an annual basis.

14. The Commission was satisfied with Bruce Power's response to this action and considers this action closed. **ACTION** #14780 Closed

Update from CNSC staff on the Guideline for Uranium in Ambient Air and Groundwater

15. With reference to CMD 19-M17, CNSC staff submitted a response to the Commission enquiry about Canadian environmental quality guidelines and criteria of uranium in groundwater and ambient air, which was raised during the December 2018 Commission meeting and subsequently in Action #18712.[4] In its submission, CNSC staff also provided information about the federal drinking water quality guideline for uranium of 0.02 mg/L and the Ontario Ministry of Environment, Conservation and Parks ambient air quality criteria of 0.03 $\mu g/m^3$, as requested by the Commission.

16. The Commission appreciated the detail provided in CNSC staff's memo on this matter and closed Action Item #18712. **ACTION** #18712 Closed

Update from CNSC staff on the Event Initial Report (EIR) for Isologic Innovative Radiopharmaceuticals (Isologic) – International Nuclear and Radiological Event Scale (INES)

17. With reference to CMD 19-M18, CNSC staff submitted to the Commission an INES classification for the EIR at Isologic's Burlington, Ontario facility, as discussed in the December 2018

[3] CNSC Record of Decision – Bruce Power Inc., *Application to Renew the Power Reactor Operating Licence for Bruce A and Bruce B Nuclear Generating Stations*, published September 2018.
[4] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 12 and 13, 2018*, paragraph 148.

Commission meeting and raised in Action #18709.[5] CNSC staff informed the Commission that its assessment of the event showed that a Level 2 INES classification was appropriate for this event. The Commission noted, for the record, that CMD 19-M18 erroneously referred to this action as #18710, rather than action #18709.

18. The Commission was satisfied with the information provided on action #18709 and considers it closed.

ACTION
#18709
Closed

OPG – Responses to Questions Raised on Steam Generators

19. With reference to CMD 19-M19, OPG provided the Commission with information about the cleaning of steam generators at OPG NGS, as discussed during the February 20, 2019 Commission meeting.[6] During the Commission meeting, OPG had undertaken to provide the Commission with details regarding steam generator cleaning methods and degradation mechanisms. An action was not raised by the Commission in regard to this undertaking.

20. The Commission expressed its appreciation in regard to OPG's follow-up on this issue and was satisfied with the response provided.

STATUS REPORT ON POWER REACTORS

21. With reference to CMD 19-M14, which includes the Status Report on Power Reactors, CNSC staff presented the following updates:

    - The cause of the partial failure of the Class II electrical system at the Bruce NGS Unit 2 had been identified as a failed communication port in the power inverters. The equipment was repaired and Unit 2 was back at 100% full power.

    - On May 10, 2019, the power supply of one of two digital control computers (DCC) at the Pickering NGS Unit 1 failed. Several hours later, the second DCC failed and operators shut the reactor down in accordance with established procedures. The faults were identified, repaired and tested, and the reactor was expected to return to service later in the week.

    - At the Point Lepreau NGS, a fire-resistant fluid leak developed on a valve on the conventional side of the NGS on May 14,

[5] *Ibid.* at paragraph 51.
[6] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on February 20, 2019*, Paragraphs 69 and 70.

2019, resulting in an operator tripping the reactor. The fluid was contained, with no effluent leaking into the environment, repairs were made and the reactor was synchronized to the power grid and was at 35% full power as of May 15, 2019.

- CNSC staff corrected the date of the fracture injury at the Point Lepreau NGS, noting that it occurred on May 3, 2019, not May 8, 2019 as stated in CMD 19-M14. CNSC staff also reported that an investigation by WorkSafe New Brunswick showed that no health and safety contraventions had been identified and the investigation into the injury was closed.

Bruce Power – Bruce NGS

22. The Commission requested additional information about the failed communication port in the Unit 2 power inverters. The Bruce Power representative provided details about the function of the equipment, the power system classes and available redundancies. The Bruce Power representative noted that, although the power inverter had a backup, the backup had also failed. The Bruce Power representative further stated that a Class III power system existed as an additional backup in the event of such a double failure. However, the reactor operators took the conservative decision to shut the reactor down and to investigate the failures.

23. The Commission enquired about the follow-up actions that Bruce Power was taking to determine the root causes of the power inverter failures. The Bruce Power representative explained that Bruce Power would carry out a forensic investigation to determine the causes of the two failures, with the results informing adjustments to Bruce Power's maintenance and preventive maintenance programs to ensure that these failures did not reoccur.

24. The Commission enquired about the repair status of the transformer that was damaged during a fire at Bruce station B in 2018.[7] The Bruce Power representative responded that the transformer was on order, that it was expected to be delivered in December 2019 and to be back in service by early 2020.

25. Asked about details regarding the Unit 3 outage extension in order to replace a pressure tube, the Bruce Power representative explained that, during inspection of Unit 3, a garter spring was found to have moved significantly since the last inspection and, because of this movement, Bruce Power expanded its inspection. The Bruce Power representative stated that the expanded

[7] CMD 18-M62, Event Initial Report (EIR), *Transformer Fire and Mineral Oil Leak at Unit 8 of Bruce B Nuclear Generating Station*, December 2018.

inspection identified a pressure tube that was in contact with a calandria tube, requiring the pressure tube's replacement.

OPG – Darlington NGS

26. Referring to the update on the November 2018 alpha event at the Darlington NGS,[8] the Commission asked about OPG's planned changes in regard to adequately managing the radiological risks associated with the removal of foreign material from inside the header. The OPG representative explained that, since the November 2018 event, workers have worn plastic suits when working near the header. The OPG representative also stated that an investigation into the event informed additional improvements to OPG's programs to prevent alpha uptakes by workers, including changes to work controls.

27. The Commission requested additional details about the improvements that OPG had implemented to its radiation protection program in response to this event. The OPG representative responded that OPG had benchmarked its alpha dosimetry program against those of the Canadian and US nuclear industries and that, as a result of the benchmarking, OPG would, going forward, conduct fecal sampling for any work that may result in alpha doses. The OPG representative also stated that OPG was working to implement a random fecal sampling plan by September 30, 2019.

OPG – Pickering NGS

28. The Commission enquired about whether OPG was carrying out a root cause analysis in respect of the Unit 1 DCC failures and DCC aging management. CNSC staff responded that OPG was carrying out a root cause analysis which would be submitted to CNSC staff for review and that CNSC staff also expected OPG to assess how many of its units may be affected. CNSC staff also stated that it would provide the Commission with DCC aging management information at a later date. The Commission notes CNSC staff's commitment in this regard and expects CNSC staff to submit a memo to the Commission about DCC aging management and how it is being managed across Canada's nuclear reactor fleet. **ACTION** by August 2019

29. Asked about the potential safety implications of a DCC failure, CNSC staff responded that DCCs control reactor power, but noted that the DCCs worked independently of each other and that there were multiple additional redundancies built into the system,

[8] *Supra* note 4, at paragraphs 12 – 23.

including the two emergency safety shutdown systems. CNSC staff added that, as was done by operators during this event, reactors could be shut down manually by operators in the event of transients or out-of-range parameters. CNSC staff stated that it was satisfied with OPG's immediate response to this event, noting that there was no impact on workers, the public or the environment.

Update on the Potassium Iodide Pill Working Group

30. CMD 19-M14 also provided information and an update regarding the Potassium Iodide Pill Working Group (KI Working Group), which was a commitment that was made by CNSC staff during the June 2018 hearing for the Pickering NGS licence renewal.[9] CNSC staff informed the Commission that the Terms of Reference (TOR) for the KI Working Group were signed by all signatories: the CNSC, OPG, the Ontario Office of the Fire Marshal and Emergency Management and the Ontario Ministry of Health and Long-Term Care. CNSC staff also explained that working group activities could begin now that the TOR had been agreed to and signed.

31. Noting that they were not signatories to the TOR, the Commission enquired about how stakeholders such as Toronto school boards and the City of Toronto would be invited to participate in the KI Working Group. CNSC staff explained that, although the working group included the four signatory bodies, the local public health units and emergency management coordinators, as well as Health Canada, would also form part of the working group body. CNSC staff further stated that the CNSC would engage with interested non-governmental organizations and the Toronto school boards through the CNSC Advisory Committee. The Commission is satisfied with the CNSC's approach to actively involving stakeholders in the KI Working Group.

EVENT INITIAL REPORT (EIR)

Cameco Corporation – Uranium in Groundwater Monitoring Well at Key Lake Operation

32. With reference to CMD 19-M13, CNSC staff presented information regarding the December 4, 2018 discovery of elevated uranium concentrations in groundwater monitoring well MT-802 on the Key Lake Operation site located in northern Saskatchewan. CNSC staff reported that the peak uranium concentration from well

[9] 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.

samples was 35 mg/L. CNSC staff noted, for reference purposes, that the peak uranium concentration of 35 mg/L is approximately 10 times higher than the Province of Saskatchewan's treated effluent discharge limit. CNSC staff further submitted that Cameco had noted an increasing trend in uranium in the well in November 2018, with an initial investigation showing that a sump area within the molybdenum extraction building – which had been flooded as a radiation protection measure – had allowed water to seep through the concrete floor to the ground. Cameco estimated that a maximum of 50 m^3 of contaminated water leaked into the ground and that elevated concentrations of uranium had not been detected in the surrounding wells or other monitoring locations on the site.

33. The Commission invited the Cameco representative to provide information about this event. The Cameco representative informed the Commission that the increasing uranium concentration was reported to the CNSC and the Saskatchewan Ministry of Environment in accordance with reporting requirements, and noted that groundwater near the molybdenum extraction building moved slowly and that the contamination was localized to that area. The Cameco representative also confirmed that Cameco was investigating the uranium release and was developing a corrective action plan with a third-party expert. The Cameco representative further stated that Cameco had posted information about the event on its public website, had engaged with local Indigenous groups in regard to this event and would continue communicating its corrective action plan through regularly scheduled meetings with local residents.

34. Asked for details about the MT-802 well, the Cameco representative explained that the well was downstream of the molybdenum extraction circuit, which was the likely source of the uranium contamination. CNSC staff clarified for the Commission that the MT-802 well was not the source of contamination, that it was intact and that it was functioning as designed.

35. Asked about whether this event was the result of preventive maintenance to reduce radon emissions, CNSC staff confirmed this information and explained that water was put on the floor of the molybdenum extraction building to control radon emissions resulting from previously-deposited contamination.

36. The Commission enquired about future hydrogeological consequences of this contamination. CNSC staff explained that, through extensive monitoring to characterize the contamination, Cameco would develop a remediation and corrective action plan with the aim of removing the contamination. The Cameco representative confirmed that other groundwater recovery wells near the molybdenum extraction building did not show uranium

contamination and that the contamination was limited to the MT-802 well.

37. The Commission enquired about whether CNSC staff would carry out monitoring at the site through the CNSC's Independent Environmental Monitoring Program (IEMP). CNSC staff explained that, in such situations, it was the responsibility of the licensee to conduct investigations into the event and determine the way forward, including any remediation. CNSC staff confirmed that Cameco was required to characterize the extent of the contamination, inside and outside of the licensed areas, and that CNSC staff would review Cameco's corrective action plan to ensure that it was satisfactory in characterizing and in addressing the contamination.

38. CNSC staff reiterated the objectives of the IEMP and stated that, in addition to Cameco's environmental monitoring program, Indigenous groups were involved in environmental monitoring activities around the Key Lake site through the Eastern Athabasca Regional Monitoring Program, which provided additional assurance that the harvesting of traditional country foods near the Key Lake site was safe.

39. The Commission is satisfied with the information provided by CNSC staff and Cameco on this event. The Commission expects Cameco to carry out environmental monitoring, remediation and corrective action activities as presented during this meeting.

OPG – Security Related Event

Since CMD 19-M20 contains prescribed information respecting nuclear security, this matter was considered by the Commission in closed session on May 16, 2019. CMD 19-M20 will not be made available to the public.

40. With reference to CMD 19-M20, CNSC staff and OPG provided information to the Commission about this event.

Closure of the Public Meeting

41. The public portion of the meeting closed at 10:18 a.m. on Wednesday May 15, 2019. In addition to the closed session related to CMD 19-M20, the Commission convened for a closed session on May 15, 2019 to review the matters raised for its consideration during this meeting. These minutes reflect both the public meeting itself and the Commission's directions as a result of the meeting.

Recording Secretary — Date: June 10, 2019.

Assistant Commission Secretary — Date: June 10, 2019

APPENDIX A

19-M11	2019-04-15	5840041
Notice of Commission Meeting		
19-M11.A	2019-04-23	5886140
Revised Notice of Commission Meeting		
19-M12	2019-05-02	5840133
Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on Wednesday, May 15, 2019, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario		
19-M12.A	2019-05-13	5897348
Revised Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on Wednesday, May 15, 2019, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario		
19-M15	2019-03-20	5864115
Update from CNSC Staff – Request to CNSC staff to report in future Regulatory Oversight Reports the total recordable injury frequency, including contractors data		
19-M16	2019-03-25	5878782
Update from Bruce Power – Update from Bruce Power on the request from the Commission to make available for the public the volume of waste that will be produced during the major component replacement (MCR) of the six units at the Bruce Nuclear Generating Station		
19-M17	2019-03-06	5878870
Update form CNSC Staff – Update on the guideline for uranium in ambient air and groundwater		
19-M18	2019-02-28	5878902
Event Initial Report Update on Event Initial Report for Isologic Innovative Radiopharmaceuticals – International Nuclear and Radiological Event Scale (INES) rating		
19-M19	2019-04-16	5884828
Update from Ontario Power Generation – Responses to questions raised on steam generators during the February 20, 2019 Commission Meeting		
19-M14	2019-05-13	5899713
Status Report on Power Reactors Presentation by CNSC Staff		

19-M13	2019-05-09	5898576
Event Initial Report – Cameco Corporation – Uranium in groundwater monitoring well at Key Lake Operation (December 2018) Submission from CNSC Staff		
19-M20	2019-05-14	Not publicly available
Ontario Power Generation – Security related event Submission from CNSC staff – Discussed in closed-session		