Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting Held on October 3-4, 2018

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Wednesday, October 3, 2018, beginning at 10:30 a.m., in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, ON.

Present:

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

M. Leblanc, Secretary
M. James, Senior Counsel
P. McNelles, C. Moreau, S. Smith, Recording Secretaries

CNSC staff advisors were: R. Jammal, P. Elder, C. Moses, H. Robertson, H. Tadros, B. Torrie, C. Purvis, A. Bouchard, R. Butler, G. Boudrias, M.-P. Grondin, S. Faille, A. Viktorov, N. Riendeau, L. Forrest, P. Fundarek, K. Glenn, M. Broeders, K. Walker, A. Lee, T. Lieu, J.-A. Benjamin, R. Van Hoof, R. Kosierb, S. Mortimer, L. Simoneau, J. Ramsay, R. Snider, C. Cianci, N. Skov, E. Ibrahim, H. Marcotte and J. Campbell

Other contributors were:

- Saskatchewan Ministry of Environment: T. Moulding
- Saskatchewan Ministry of Energy and Resources: K. Cunningham
- Ontario Power Generation: S. Smith, P. Herrera and I. Malek
- Énergie NB Power: K. Ward
- Bruce Power: M. Burton
- Contractor: M. Fleming

Constitution

1. With the notice of meeting CMD 18-M50 having been properly given and all permanent Commission members being present, the meeting was declared to be properly constituted.

2. Since the meeting of the Commission held August 22-23, 2018, Commission member documents (CMD) 18-M37, 18-M38, 18-M40, 18-M49, and 18-M51 to CMD 18-M54 were distributed to members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 18-M51, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and P. McNelles, C. Moreau and S. Smith, Recording Secretaries.

Minutes of the CNSC Meeting Held August 22 and 23, 2018

5. The Commission members approved the minutes of the August 22 and 23, 2018 Commission meeting as presented in CMD 18-M52.

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 18-M53, which provides the Status Report on Power Reactors, CNSC staff provided the following updates:
   - CNSC staff corrected the information regarding the worker injury at the Bruce Nuclear Generating Station (NGS) and stated that a security guard slipped while exiting a truck cab
   - Pickering NGS Units 4, 5 and 6 were operating at 100% of Full Power (FP)
   - CNSC staff provided an update on the Darlington NGS Unit 2 refurbishment project, noting that 388 out of 480 new calandria tubes had been inserted
   - A full-scale nuclear emergency exercise known as Exercise Synergy Challenge 2018 was occurring at the Point Lepreau NGS on October 3 and 4, 2018, and involved the participation of over 35 government agencies and key stakeholders

7. The Commission noted the progress of the Darlington NGS Unit 2 refurbishment and enquired as to the approximate amount of time required to install new calandria tubes in the unit. The OPG representative stated that OPG was on schedule to finish the calandria tube installation by October 28, 2018. CNSC staff added that replacement of 480 calandria tubes was expected to take 103 days.

8. Further on this matter, the Commission requested an update regarding the overall progress of the Darlington Unit 2 refurbishment project. The OPG representative provided a detailed description of the work that was completed to date and the work that was planned to be completed throughout the project, noting that the Unit 2 refurbishment work was 32 days ahead of schedule and expected to be completed by November 2019. The OPG representative reported that OPG will provide an update to the Commission on this project in February 2019, that the

refurbishment work would reach the first of four CNSC hold points in May 2019, and that OPG had submitted the first completion assurance documentation to CNSC staff. The OPG representative added that no major issues or impediments to the project had been identified, and that there had been no further alpha radiation events since the February 2018 event.[1,2] The Commission was satisfied with the information provided by OPG in this regard.

9. The Commission asked for more details regarding the worker injury at the Bruce NGS. The Bruce Power representative provided a detailed overview of that event to the Commission and stated that the security guard fractured her wrist after slipping and losing her grip while descending from a truck cab. The Bruce Power representative confirmed that this accident resulted in a lost-time injury, and stated that the worker had since returned to work on modified duties and would remain so until medically cleared for regular duties.

10. The Commission noted that Pickering NGS Units 5 and 6 were de-rated due to a debris run and asked for additional details in that regard. CNSC staff informed the Commission that this was related to the algae run that was presented during the August 2018 Commission meeting[3,4] and that, while that situation had improved, some algae had remained.

11. The Commission expressed concern that the Pickering NGS Unit 7 was de-rated in order to maintain adequate trip margins. In response, the OPG representative informed the Commission that there was no degradation to the safety margins of the unit and that the consequences were solely economic. The OPG representative also provided the Commission with a detailed overview of the status of that unit and stated that an instrument loop known as T3F was reading a higher boiler inlet temperature than the actual temperature, which caused the de-rating of the unit in order to maintain the trip margin specified in OPG's procedures. The OPG representative stated that OPG was evaluating repair options for the T3F system.

[1] CNSC Event Initial Report (EIR) – CMD 18-M14, *Darlington Refurbishment – Retube Waste Processing Building – Internal Contamination Event*, March, 2018.
[2] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on March 15, 2018*, paragraphs 25-31.
[3] Canadian Nuclear Safety Commission EIR – CMD 18-M44, *Ontario Power Generation –Pickering Nuclear Generating Station: Unplanned Outage due to Algae Run*, August, 2018.
[4] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on August 22 and 23, 2018*, paragraphs 21-29.

INFORMATION ITEMS

Technical Briefing on Nuclear Substances in Canada

12. With reference to CMD 18-M49, CNSC staff provided a technical briefing on the use of nuclear substances in Canada. CNSC staff presented an introduction to ionizing radiation and summarized the applications of nuclear substances, radiation devices and prescribed equipment used in Canada. CNSC staff also provided an overview of some novel applications for nuclear substances.

13. The Commission complimented CNSC staff on this technical briefing and requested that the presentation be translated and posted on the CNSC's website. The Commission also expressed its appreciation of the technical briefing being delivered prior to the Regulatory Oversight Report on the use of nuclear substances, as it provided useful technical information and examples. **ACTION by June 2019**

14. The Commission enquired about the use of proton therapy units in Canada and their potential future applications. CNSC staff responded that TRIUMF, a large proton accelerator in Vancouver, had been performing limited proton therapy for ocular melanomas in the order of 15 to 20 treatments a year. CNSC staff added that there were currently no dedicated proton therapy facilities in Canada and that CNSC staff was planning to present a strategy to regulate proton therapy facilities in the coming months.

15. Asked about the decay of thallium-201 into mercury and the ensuing toxicity risk, CNSC staff explained that the amount of thallium-201 injected to patients was controlled to remain at a safe level and that the mercury was excreted by the body via normal biological processes. CNSC staff also noted that thallium-201 was used less frequently, that technetium-99m was often used in its place, and that the therapies were highly regulated by Health Canada to ensure that benefits of treatment outweighed the risks. In relation to carbon-14, CNSC staff explained to the Commission that it was used for the detection of a potentially harmful strain of bacteria in the stomach.

16. Asked about the physical security aspects of portable nuclear gauges and radiography devices, CNSC staff explained that REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources*[5] was in the process of being implemented by licensees and that it applied different levels of security requirements depending on the categorization of portable sources. CNSC staff added that, for example, high-level security requirements included direct

[5] REGDOC-2.12.3: *Security of Nuclear Substances: Sealed Sources*, May 2013.

observation, multiple barriers, as well as intrusion detection systems during transport. CNSC staff also stated that adequate training, such as certified exposure device operator (CEDO) training, was required for the people involved in handling portable devices to ensure safety and security.

17. In relation to the regulation by the CNSC of X-ray emitting devices, CNSC staff explained that the CNSC's mandate, as provided for by the *Nuclear Safety and Control Act*[6] (NSCA), was the regulation of ionizing radiation that had the capability of causing a nuclear transmutation (over 1 MeV of energy). CNSC staff added that the vast majority of X-ray emitting devices, including dental X-rays and computed tomography scanners (CT scanners), did not cause a nuclear transmutation and fell under provincial jurisdiction. CNSC staff further added that CNSC staff collaborated with provincial authorities in this regard and that, in partnership with Health Canada and the provinces, co-hosted the Federal Provincial Territorial Radiation Protection Committee.

18. The Commission enquired about the training provided to CNSC staff inspectors, given the wide range of nuclear substance and radiation devices, and their applications. CNSC staff explained that different processes were in place at the CNSC to train new employees such as the Inspector Training Qualification Program (ITQP) through which all CNSC inspectors had to be qualified; on-the-job training and job shadowing; and a rotation program to broaden their experience. CNSC staff added that lecture-based training and mentorship was also available. Several CNSC staff undergoing training through the ITQP provided the Commission with information about their experiences with the program.

19. The Commission noted the ease of shielding X-rays in the use of mobile accelerators for the detection of illicit substances and enquired about whether mobile neutron detectors could be used for this purpose. CNSC staff confirmed that agencies such as the Canada Border Services Agency used mobile accelerators for this purpose and noted that shielded areas would be more opaque, potentially leading to additional security measures such as a physical search. CNSC staff added that neutron radiography would not be a suitable technology for such activities due to different types of materials that would be mixed inside the containers, noting that neutron radiography was most effective for organic materials. CNSC staff added that there were no industrial neutron radiography licensees in Canada.

[6] SC 1997, c 9.

20. Further on the subject of other technologies that could be used for mobile accelerators, the Commission asked for information about prompt neutron activation technology. CNSC staff stated that neutron activation was used in the research sector primarily for materials research and not as an imaging technology. CNSC staff also discussed a licensee's ongoing research project looking at the use of a neutron accelerator for substance detection.

21. The Commission asked for information about the maintenance, calibration and inspection of portable devices to ensure they were maintained and kept in good service, and in a secure fashion. CNSC staff explained that the mobility of portable devices increased the potential for risks; however, these devices were robust and able to function in harsh environments with minimal maintenance. CNSC staff added that portable devices had recommended maintenance procedures provided by the device manufacturers and that CNSC staff inspections were overseeing that the proper maintenance procedures were performed. CNSC staff further explained that one of the risks with regards to mobile radiography equipment was that the devices eventually needed to have their sources replaced, noting that monitoring source replacement was a part of the CNSC staff oversight practices. CNSC staff also added that operators of portable devices were required to carry out daily quality checks to ensure that the equipment was fit for purpose and fit for use.

2017 Regulatory Oversight Report on the Use of Nuclear Substances

22. With reference to CMD 18-M37, CNSC staff presented to the Commission the annual Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2017 (the ROR). This report summarized the performance of 1,590 licensees which hold 2,191 licences and are authorized by the CNSC to use nuclear substances and prescribed equipment in the medical, industrial, academic and research, commercial, and waste nuclear substance[7] sectors. The CNSC's safety and control area (SCA) framework evaluates the performance of licensees for 14 SCAs, which cover all technical areas of regulatory oversight. For this ROR, the safety performance of the licensees was evaluated through their regulatory compliance in select SCAs: management system, operating performance, radiation protection (RP), security and – for the waste nuclear substance sector only – environmental

[7] These are licensees authorized by the designated officer to manage, handle, store and process low-level radioactive waste.

protection. This report represents the first time that the waste nuclear substance licensees have been included in this ROR.

23. Key results and findings of the ROR included:
    - CNSC staff conducted 944 inspections, including 160 security inspections, across the five sectors. Overall, the licensees showed satisfactory compliance ratings across all SCAs;
    - The CNSC took 24 escalated compliance enforcement actions against licensees in the five sectors, including 18 orders and 6 administrative monetary penalties (AMPs) ;
    - Radiation doses were monitored for 53,350 workers (19,184 nuclear energy workers (NEWs) and 34,166 non-NEWs) across the five sectors. Radiation exposures continued to be very low;
    - CNSC staff reviewed 146 events that were reported by licensees, where 144 were ranked as level 0 (no safety significance), 1 was ranked as level 1 (anomaly), and 1 was ranked as level 2 (incident) on the International Nuclear and Radiological Event Scale (INES);
    - Based on the CNSC's comprehensive regulatory oversight of the licensees in the ROR, CNSC staff concluded that the use of nuclear substances in Canada remained safe

24. The public was invited to comment on the ROR through written interventions and one written intervention was submitted by the Canadian Radiation Protection Association (CRPA), as detailed in CMD 18-M37.1. Participant funding in the amount of $25,000 through the CNSC's Participant Funding Program (PFP) was offered to assist Indigenous Groups, members of the public and eligible stakeholders in reviewing the ROR and submitting comments, in writing, to the Commission. One application for participant funding was received, but funding was not awarded by the Funding Review Committee.

General

25. The Commission asked for clarification regarding the process for the designation of nuclear energy workers (NEWs) by licensees. CNSC staff responded that it was the obligation of the licensee to determine the required number of and the designation of NEWs. CNSC staff further informed the Commission that the proposed RP programs were reviewed by CNSC staff in the assessment of all licence applications to ensure that the applicant had appropriately determined the categories of workers, and that adequate provisions were in place to inform all NEWs of their designation pursuant to

the *Radiation Protection Regulations*.[8] CNSC staff added that, following licensing, compliance verification activities to ensure that the RP programs were effective and that worker categorization was appropriate were carried out by CNSC staff.

26. The Commission requested information about the event reporting system used by the United States Nuclear Regulatory Commission (USNRC). CNSC staff provided an explanation of the USNRC's system, including that it was an automated system that would upload online every event that was reported and that the event may be removed or supplemented with additional information following a detailed event review. CNSC staff also provided an overview of the CNSC event reporting process, including translation and accessibility requirements. CNSC staff stated that it had focused its communications on events that produced clear lessons learned and provided the example of the International Nuclear Events Scale (INES) Level 2 event that was presented in the ROR. The Commission was satisfied with the information provided with regards to the CNSC's event reporting process.

27. The Commission noted the radiation safety officer (RSO) survey that was performed as part of the RSO effectiveness evaluation, which was considered in CMD 17-M44[9] during the October 2017 Commission Meeting.[10] Addressing the overarching purpose of the RSO survey, CNSC staff informed the Commission that, as the complexity of licensee operations increased, there was a need for a stronger focus on management systems, safety culture, and internal monitoring programs. CNSC staff stated that it had looked at the key success factors of radiation safety in order to derive improved guidance and expectations in support of a new REGDOC regarding RP programs for nuclear substance and radiation device licensees. CNSC staff stated that it would present this information to an advisory committee that consisted of internal and external members, and to the CNSC Management Committee, with the end result being new guidelines or recommendations.

28. The Commission noted that several planned inspections were not performed and requested details in this regard. CNSC staff provided the Commission with an overview of its inspection planning and prioritization process based on licensee risk categorization, geographical considerations, and time between inspections. CNSC staff confirmed that all high-risk licensees were

ACTION by October 2019

[8] SOR/2000-203.

[9] CNSC Commission Request for Information – CMD 17-M44, *Enhancing Oversight of Radiation Safety Officers and Radiation Protection Programs for Nuclear Substance and Radiation Devices Licensees*, October, 2018.

[10] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on October 11 and 12, 2017*, paragraphs 78-89.

inspected every year, with inspections for lower risk licensees performed less frequently, and that inspections were also carried out in response to an event or whistleblower report. With reference to the number of inspections performed on licensees considered in the ROR, the Commission directed CNSC staff to report in future RORs on the measures used to monitor and address the compliance verification of licensees that were overdue for inspections against the established inspection frequencies in the risk-informed regulatory program.

29. The Commission asked if there was a correlation between the level of risk of a licensed activity and the number of non-compliances for the associated licensees, and CNSC staff responded that no such quantifiable correlation had been observed. CNSC staff stated that the focus on RP, radiation safety and control measures were more comprehensive for high-risk sources than for lower risk sources; however it did not necessarily result in different levels of safety for activities of different levels of risk. CNSC staff added that the frequency of non-compliances was often dependant on the licensee's own processes and procedures. The Commission was satisfied with the information provided with respect to this matter.

30. The Commission noted the information provided about an unpaid AMP, and enquired about recourses available to the CNSC in the case of non-payment of an AMP. CNSC staff stated that AMPs may be issued to individuals or licensees. CNSC staff informed the Commission that unpaid AMPs were considered debts to the Crown and that CNSC staff could utilize a collection service, or the Memorandum of Understanding (MOU) with the Canada Revenue Agency (CRA), to attempt to collect those debts.

31. With respect to the unpaid AMP referenced in the ROR, CNSC staff provided an explanation of that event, as discussed in the December 2016 Commission Meeting.[11, 12] CNSC staff informed the Commission that in this case, the licensee had evidence that it was in compliance with regulatory requirements, however the worker took actions that were not compliant with the CNSC's regulatory framework. CNSC staff added that since the individual's employment was terminated and the transport licensee understood the severity of the issue, CNSC staff had decided not to leverage the CRA recovery option at this time. The Commission was satisfied with the information provided in this regard.

32. Addressing how lessons learned were disseminated to licensees,

[11] CNSC Information Item – *Report on an overexposure to members of the public during transport of packages containing nuclear substances, December, 2016.*

[12] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 14, 2016,* paragraphs 103-107.

CNSC staff informed the Commission of several methods, including the Directorate of Nuclear Substance Regulation (DNSR) newsletter, targeted communications through e-mail, communication during inspections, and information bulletins for specific items of importance.

33. The Commission recognized that there were licensees located outside of Canada and asked for details regarding the regulation of international licensees. CNSC staff informed the Commission that the majority of international licensees were from the United States and that, as CNSC licensees, they had to comply with all Canadian regulatory requirements. CNSC staff stated that it had performed compliance verification activities, such as inspections, on international licensees and provided several examples in that regard.

34. Noting the diversity of licensed activities and geographical dispersion of the licensees considered in the ROR, the Commission enquired about the methods used by CNSC staff to ensure the consistency of regulatory oversight, as well as about the internal quality control processes for inspectors. CNSC staff reported that the CNSC had maintained the robust and standardized ITQP, which included cross-training with inspectors responsible for different sectors; the periodic assessment and independent verification of inspectors and inspection processes; and the peer review of reports. CNSC staff stated that meetings between all CNSC inspectors were held twice a year in order to share information, knowledge and best practices. CNSC staff added that inspectors had a large variety of different tools and techniques that were available to them and that DNSR had a robust and well-developed management system. The Commission was satisfied with the information provided on this matter.

35. The Commission enquired about how CNSC staff ensured that consultant RSOs had the requisite authority to perform their duties. CNSC staff reported that a licensee's RP program performance and the results of compliance verification activities would demonstrate the adequacy of oversight of the RSO, regardless of their employment status. CNSC staff reported that, during the licensing process, CNSC staff verified that licensees understood their responsibilities with respect to the RP program and noted that, when necessary, CNSC staff assisted licensees with the development of the RP program through licensing activities. CNSC staff stated that, during inspections, CNSC staff verified that RSOs had the appropriate involvement in the management of a licensee's site and that RSOs ensured the proper implementation of the RP program.

36. The Commission asked for details regarding the irradiation of food. CNSC staff provided the Commission with information in that regard explaining that the irradiation of food was largely regulated by Health Canada and verified by the Canadian Food Inspection Agency (CFIA). CNSC staff stated that, after the *Food and Drug Act Regulations*[13] were amended to allow for the sale of irradiated beef, CNSC staff met with Health Canada and the CFIA regarding the effect of those amendments on its regulatory oversight. CNSC staff further explained that, based on these meetings, no fundamental changes with respect to the regulatory oversight performed by CNSC staff was identified.

37. The Commission noted that the 2017 *Report on Occupational Radiation Exposures*[14] from Health Canada confirmed that all worker exposures were below the regulatory limit. The Commission enquired about why, in general, nuclear medicine technologists had higher average occupational doses than well loggers. CNSC staff further informed the Commission that workers handling radiopharmaceuticals would experience a longer exposure to a low level of radioactivity, mainly due to the work environment, which would result in a larger average dose.

38. The Commission asked for details regarding the field work performed by designated officers (DOs). CNSC staff responded that certain inspectors were also DOs, as were the DNSR directors and director general. CNSC staff stated that, amongst other authorities, DOs had licensing authorities and that, in carrying out these authorities, they were required to determine if the applicant or licensee had adequate safety and control measures to provide for the safe operation of the licenced activities. CNSC staff added that inspectors would then perform compliance verification activities to ensure the licensee had complied with the licence and regulatory requirements. The Commission expressed an interest in observing an inspection, and requested that CNSC staff arrange for the Commission to observe and participate in an inspection in the near future.

ACTION by June 2019

Industrial Sector

39. The Commission noted that the CRPA expressed concern in its written submission regarding CNSC staff's compliance verification for vessel entry with nuclear gauges and asked for additional details in this regard. CNSC staff informed the Commission that, during the normal operation of the gauges, there would not be worker exposure as the radiation was contained within the vessel. However, if the workers entered the vessel, such as for

[13] CRC, c870.
[14] Health Canada, *Report on Occupational Radiation Exposures*, H126-1-2017, April 2018.

maintenance operations, radiological hazards would be present. CNSC staff stated that strong licensee health and safety programs were required and that, through compliance verification activities, CNSC staff had identified non-compliances with those programs.

40. In response to the non-compliances, CNSC staff informed the Commission that the CNSC had updated its regulatory requirements and had targeted this aspect of the health and safety programs of relevant licensees during compliance inspections. In addition, CNSC staff had increased its compliance enforcement through orders and administrative monetary penalties (AMPs), and had also increased the sharing of best practices among licensees using pressure vessels and fixed gauges. CNSC staff added that licensees had the obligation to ensure that licensed activities were performed safely and in accordance with licence requirements. Asked to clarify the lock-out procedures for fixed gauges to allow for worker entry into vessels, CNSC staff responded that the gauge may be locked-out or shielded before worker entry, and that the gauge may also be removed from the vessel.

41. The Commission noted that a significant number of reported incidents were in respect to damaged portable gauges and asked about the standards used for testing the robustness of the containers for portable gauges. CNSC staff reported that radiography gauges, which used higher activity sources, were often stored in Type B containers and robustly tested using methods similar to those detailed in the *Packaging and Transport of Nuclear Substance Regulations, 2015*.[15] CNSC staff stated that moisture gauges used sources with lower levels of radioactivity and were tested and certified with respect to several international standards, including those from the International Standards Organization, International Electrotechnical Commission and the American National Standards Institute.

42. Upon enquiry, CNSC staff confirmed to the Commission that disused or orphan sources were an area of concern, and that it had actively engaged licensees and waste management facilities in that regard. CNSC staff informed the Commission about several programs for sources that were found to be outside of regulatory control including the provision of informational brochures to metal recycling and waste facilities, and programs for legacy items including radium dials and historical artefacts. CNSC staff stated that, during inspections, recommendations in regard to the management and disposal of disused sources were provided to licensees.

[15] SOR/2015-145.

43. Further on disused and orphan sources, CNSC staff informed the Commission about methods that the CNSC had implemented for inventory control of radiation sources, including the financial guarantee requirement which was based on a licensee's inventory and thus encouraged the proper disposal of unused sources. CNSC staff added that this insurance framework was seen as a good practice internationally. The Commission was satisfied with the information provided on this matter.

44. The Commission noted the possibility for the loss of sources used during well-logging, and enquired about the frequency and environmental impacts of such an occurrence. CNSC staff stated that there were a few such events each year, that licensees were required to notify CNSC staff about such events and that, generally, the licensees were able to recover the source. CNSC staff further informed the Commission that, in the event that a licensee was not able to recover a lost source in a well, the CNSC would ensure that the affected source and sealed well would not pose a risk to the health and safety of people or the environment before the site was released from regulatory control.

Medical Sector

45. The Commission noted that one of the most common non-compliances in the medical sector regarding the RP SCA was related to thyroid monitoring and requested information in this regard. CNSC staff provided to the Commission a detailed overview of thyroid monitoring procedures and licence conditions, as well as several reasons for those non-compliances, including time constraints and geographical considerations. CNSC staff added that it would continue to work with licensees' RP personnel to ensure continuous compliance improvement in this regard.

46. The Commission further enquired about the non-compliances related to the implementation of effective RP programs within the medical sector. CNSC staff reported that the non-compliances were related to safe work procedure non-adherence by workers, including dose monitoring and contamination monitoring procedures. CNSC staff added that procedural non-compliances were associated with a lack of establishing an organizational safety culture, which emphasized monitoring and procedural adherence practices.

47. The Commission asked CNSC staff if increased enforcement actions were necessary to ensure compliance in the medical sector. CNSC staff clarified that, in improving the compliance oversight of the medical sector, CNSC staff had focused its inspections on

areas of suspected non-compliance. CNSC staff added that, although additional enforcement actions had been considered based on the identified trends, CNSC staff had found that licensees in the medical sector were actively sharing best practices and lessons learned, and had expressed a desire for improvement. CNSC staff further stated that planned REGDOCs would aid these licensees with respect to oversight tools for monitoring work performance and for the establishment of a healthy safety culture. The Commission was satisfied with the information with respect to the common non-compliances within the medical sector.

48. The Commission asked for additional information regarding the inspection process for the medical sector. CNSC staff provided to the Commission a detailed overview of the inspection process in the medical sector, including the inspection frequencies, the determination of which licensees would be inspected, as well as the risk level of the licensees. CNSC staff stated that medical sector licensees were considered to be of medium risk and were therefore only inspected every two years. CNSC staff reported that announced inspections were primarily used for the medical sector to ensure that patient therapy was not disrupted and that both announced and unannounced inspections were performed in the industrial sector, such as for the verification of field workers.

49. The Commission expressed concern regarding an August 2017 event where workers were unable to exit a radiation treatment bunker due to an electronic switch failure and asked if such bunkers were required to be equipped with manual back-ups. CNSC staff informed the Commission that licensees were required to ensure that employees could exit the bunker regardless of circumstances through the use of a manual mechanism, noting that the manual mechanism failed.

50. Further on this event, the Commission enquired about the failure of the manual mechanism. CNSC staff stated that, although the mechanical door mechanism failed, such an event was a rare occurrence. CNSC staff provided the Commission with additional details regarding that event, noting that the testing of the manual mechanism was part of the licensee's procedures and stated that, in response to the event, CNSC staff had required the licensee to improve the operability and usability of the manual door control mechanism.

Commercial, Academic and Waste Nuclear Substance Sectors

51. CNSC staff informed the Commission regarding the typical applications of nuclear substances and radiation devices, the safety assessment of the SCAs, and the safety performance measures

regarding licenced activities for the licensees in each of the commercial, academic and waste nuclear substances sectors. These three sectors combined accounted for 447 of the 2,191 licences in this report, accounted for the lowest number of workers (both NEWs and non-NEWs and lowest amount of compliance enforcement actions, and did not perform any high-risk licenced activities during the reporting period for the ROR.

52. CNSC staff stated that the commercial, academic, and waste nuclear substance licensees had showed the highest compliance rating in the Operating Performance, Radiation Protection, and Security SCAs, and had showed satisfactory compliance ratings in all of the SCAs that were examined. CNSC staff reported that in cases where non-compliances were identified, CNSC staff ensured that the licensees took appropriate corrective actions. The Commission was satisfied with the information provided in the ROR regarding the performance of the licensees in the commercial, academic and waste nuclear substance sectors.

Commission Direction for Future RORs

53. Upon Commission enquiry, CNSC staff informed the Commission that, every year, the ROR included incremental improvements based on the feedback and direction of the Commission. CNSC staff noted that the ROR was intended for three audiences: the Commission, the public, and the licensees. CNSC staff further informed the Commission about other compliance oversight developments, such as reports cards for the cyclotrons and isotope producers, which highlighted trends in industry performance and common areas of non-compliance.

54. Noting that CNSC staff had produced several iterations of this ROR, the Commission directed that they should focus on matters of safety, security and compliance, as well as the trends in that regard, and improve upon the aggregation of similar information contained in the ROR. The Commission also noted that, since the CNSC was a risk-based organization, the RORs should include detailed information on the high-risk licensed activities. The Commission expressed its appreciation for the usefulness of the information in the appendices in this ROR. The Commission directed CNSC staff to present the results of the ongoing CNSC review of the ROR process and the proposed way forward at a future public Commission meeting.

ACTION by December 2019

55. The Commission provided several suggestions for improvement regarding CNSC staff's presentations for RORs, such as the use of additional images and videos, more concise information in the presentations slides, and that the detailed information is to be

included in the speaker notes.

Closure of Action Item

56. The Commission was satisfied with the information presented by CNSC staff regarding Regulatory Information Bank (RIB) action item #12139, *Additional Specificity of Worker Dose Statistics – Average Worker Doses* that was raised during the October 2017 Commission meeting,[16] and closed this item.

ACTION
Closed

Overview of the Institutional Control Program for Decommissioned Uranium Mine and/or Mill Sites in Saskatchewan

57. With reference to CMD 18-M38, CNSC staff presented the Commission with information concerning the Province of Saskatchewan's Institutional Control Program (ICP). CNSC staff's presentation addressed the decommissioning and end-state criteria of uranium mines and mills; an overview of the ICP and how the ICP meets Canada's international obligations; information on the CNSC's role in the ICP; a summary of the monitoring and maintenance program for sites in the ICP; and the current status of other Canadian jurisdictions in regard to institutional control.

58. Asked to provide comments about CNSC's staff presentation to the Commission, both the representatives from the Saskatchewan Ministry of the Environment (SMOE) and the Saskatchewan Ministry of Energy and Resources (SMER) stated that the SMOE and SMER had collaborated with the CNSC in the drafting of CMD 18-M38 and that the CMD provided an accurate overview of the ICP.

59. The Commission asked for additional information about opportunities for public participation related to the ICP. CNSC staff stated that CNSC licensees were expected to inform the public of proposed plans, including seeking to have a CNSC-licensed site to be transferred to the ICP. CNSC staff also explained that public and Indigenous engagement would be undertaken by CNSC staff in advance of any applications for exemption from CNSC licensing and transfer to the ICP being brought before the Commission.

60. Further on this topic, the SMOE representative stated that Saskatchewan's process for public participation began at the assessment stage of a project and that the public was invited to provide information and comment on its review of the relevant

[16] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on October 11 and 12, 2017*, paragraph 40.

documentation. The SMER representative confirmed the information provided by the SMOE representative and noted that sufficient opportunity for public participation was one of the factors considered when determining whether to accept a site into the ICP. The SMER representative added that records related to site applications and site inspections, as well as environmental monitoring reports, were made available to the public.

61. The Commission asked for additional details regarding the potential for a decommissioned mine site to be transferred out of the ICP. The SMER representative explained that the conditions under which a property under the ICP would be transferred to another entity were defined in *The Reclaimed Industrial Sites Act*.[17] The SMER representative explained that an assessment would be undertaken to ensure that a responsible operator was capable, financially and otherwise, of managing the site and returning it to an active condition, as appropriate. The SMER representative also stated that any such application relating to a former CNSC-licensed site would be considered in collaboration with the SMOE and the CNSC. CNSC staff confirmed the information provided and added that, though unlikely, in the event of an application to transfer a site exempt from CNSC licensing out of the ICP, the issue of the exemption under section 7 of the NSCA for the site would be brought back to the Commission for a decision.

62. The Commission requested confirmation that the continued monitoring of sites in the ICP would include both radiological and non-radiological hazards. CNSC staff confirmed that site-specific environmental monitoring would include all hazards of concern for the site, including radiological and non-radiological substances, as well as health and safety considerations at the site.

63. The Commission asked for additional details about post-decommissioning monitoring that was carried out when a site was still licensed by the CNSC and before acceptance into the ICP. CNSC staff explained that post-decommissioning monitoring was conducted to ensure that the decommissioning activities had returned the site to the intended end-state. CNSC staff explained that the length of time required for this monitoring varied from site to site, based on the characteristics of the site and the activities that were undertaken there.

64. The Commission enquired about whether a licensee could opt out of the ICP following the acceptance of its site into institutional control. CNSC staff explained that, in order for a site to be placed

[17] SS 2006, C R-4.21.

into the ICP, there had to be agreement between the Province of Saskatchewan to accept the site into the ICP, the Commission to exempt the site from CNSC licensing, and the licensee to transfer control of the site to the province. CNSC staff further explained that, once a site was accepted into the ICP, the province would become responsible for the site, there no longer was a CNSC licence and the original licensee would no longer be responsible for the site.

65. The Commission asked for details about how a request to conduct exploration activities on a formerly CNSC-licensed site in the ICP would involve the CNSC. CNSC staff explained that, although exploration was not a CNSC-licensed activity, the CNSC may be required to make a decision in advance of exploration activities at such a site depending on the specifics of the exemption under the NSCA for that site. CNSC staff also noted that a CNSC licence would not be required for exploratory activities since that was not a licensed activity but further explained that, under the terms of the ICP, the Province of Saskatchewan would still notify the CNSC of such a request.

66. The Commission asked for CNSC staff comment on what would happen in the event of an insolvent mine operator. CNSC staff explained that the CNSC's requirement for licensees to maintain a financial guarantee ensured that the funds to decommission a CNSC-licensed site were available should a licensee become insolvent. CNSC staff explained that in the case of an insolvent uranium mine operator in Saskatchewan, the financial guarantee would be payable to Saskatchewan, which would then use those funds to undertake the required decommissioning activities.

67. The Commission noted that the ICP was currently set up to accept sites on provincial Crown land and asked for more information about whether a site on privately-owned land could be accepted into the ICP. The SMOE representative stated that currently all of the operating uranium mines in Saskatchewan were on provincial Crown land. The SMER representative confirmed the information provided by the SMOE representative and added that provincial regulations specified that only sites on provincial Crown land would be accepted into the ICP, but noted that the program may eventually be updated to be able to accept sites located on privately-owned land.

Closure of Action Item

68. The Commission was satisfied with the information presented by CNSC staff regarding RIB action number # 9323, *Regulatory* **ACTION Closed**

Framework Update in Regard to CNSC Licencing Exemptions from the December 2016 Commission meeting,[18] and closed this action.

CNSC Regulatory Safety Oversight Culture Assessment

69. With reference to CMD 18-M40, CNSC staff presented the Commission with information on CNSC staff's self-assessment of the CNSC's regulatory safety oversight culture. CNSC staff presented the process that was undertaken in conducting the self-assessment and provided the Commission with five recommendations that arose from the assessment and how those recommendations had been actioned by CNSC staff. CNSC staff also introduced Dr. Mark Fleming, Canadian National Professor of Safety Culture at Saint Mary's University, an independent expert on safety culture who assisted CNSC staff throughout the process. CNSC staff reported that the CNSC was one of only a few nuclear regulators in the world to have undertaken a comprehensive assessment of its own safety oversight culture.

70. CNSC staff reported that this presentation was a follow-up from a Commission presentation delivered in CMD 16-M46[19] regarding the *Technical Review of Probabilistic Safety Assessment Issues Raised in an Anonymous Letter*, during the August 2016 Commission meeting. CNSC staff reported that the Commission had directed CNSC staff to "implement a mechanism to formally assess CNSC staff safety culture as soon as practicable".[20]

71. The Commission invited Dr. Fleming to provide comments regarding the CNSC's self-assessment. Dr. Fleming expressed his support for the comments that were made by CNSC staff during the presentation and stated that, in his opinion, the CNSC had done an excellent job in the conduct of its self-assessment.

72. The Commission also invited the Nuclear Regulatory Group (NUREG) representative to provide comments. The NUREG representative stated that NUREG was pleased with the consideration that the Commission had given to this self-assessment and looked forward to working with CNSC management in respect of the recommendations that had been made.

[18] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 14, 2016*, paragraph 93.
[19] CNSC Technical Briefing – CMD 16-M46, *Technical Review of Probabilistic Safety Assessment Issues Raised in an Anonymous Letter*, August, 2016.
[20] *Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on August 17-18, 2016*, paragraph 94.

73. The Commission noted the first self-assessment recommendation for the coaching and mentoring for supervisors, managers and executives on leadership, and the fourth recommendation of effective knowledge management practices. The Commission enquired about whether training activities in respect of these two recommendations might be beneficial for Commission members. CNSC staff provided information about how the CNSC was taking action on these recommendations and how this could be extended to Commission Members, if desired. The Commission indicated interest in investigating options for additional training for Commission members in this area.

ACTION by May 2019

74. The Commission asked for additional information on the processes used by the CNSC to maintain a healthy safety culture, including the Difference of Professional Opinion (DOPO) process. CNSC staff provided information about the CNSC's Open Door Policy, the Non-Concurrence Process, and the DOPO process, and how these tools worked together to provide an array of options for issues resolution with varying levels of formality. CNSC staff stated that these tools were created through a collaborative process that included representation from NUREG, CNSC staff and CNSC management. CNSC staff also provided the Commission with information about recent examples of the use of the Non-Concurrence Process to date.

75. The Commission asked for more information about the CNSC's stated values and goals with respect to safety culture. CNSC staff reported that recommendation 3 of the self-assessment was to develop a Safety Culture Policy which would address the CNSC's core values and goals. CNSC staff further stated that this policy had since been developed in a draft form and would be finalized by the end of 2018. CNSC also noted that safety culture considerations were included in human resources performance management for all CNSC staff.

76. The Commission asked for more details about the interactions between safety culture, workplace morale and satisfaction, and how these factors were measured. CNSC staff provided details about the tools used to measure these factors, including pulse surveys and the Public Service Employee Survey. CNSC staff stated that CNSC response rates were well above the public service average in 2017 and that responses were generally positive in terms of employee satisfaction.

77. The Commission requested additional information about how regulatory safety oversight culture could include mechanisms to promote the independence of a nuclear regulator and the avoidance

of regulatory capture. Dr. Fleming provided details in this regard, explaining that the independence of a nuclear regulator could be ascertained through other indicators of regulatory safety oversight culture, such as the ability to raise technical concerns internally. CNSC staff added that the issue of regulatory capture was addressed in the Regulatory Safety Oversight Culture Assessment and stated that transparency and public involvement were additional mechanisms through which the independence of the CNSC could be ensured.

78. The Commission asked for comments about how the CNSC compared to other nuclear regulators worldwide in terms of safety culture assessment. CNSC staff explained that the CNSC was the second nuclear regulator, after Pakistan, to undertake a Regulatory Safety Oversight Culture Assessment, and provided details about the initiatives of certain other nuclear regulators in the area of safety culture. CNSC staff emphasized that work in this area in the international community was ongoing, making reference to IAEA work[21] to establish attributes of an effective regulatory safety oversight culture and other relevant ongoing work.

79. The Commission asked CNSC staff for additional details concerning the role of the CNSC's Chief Science Officer in the DOPO and other dispute-resolution processes. CNSC staff explained that the Chief Science Officer served as a mediator with respect to technical information. CNSC staff further explained that, as part of the DOPO and other internal CNSC processes, the Chief Science Office considered the technical information and brought forth any technical issues that needed to be considered in regard to research requirements or regulatory recommendations.

80. The Commission asked about whether the same CNSC staff might be involved in the use of the issues-resolution tools, such as the same manager being involved in the open-door policy, the non-concurrence process, and the DOPO process. CNSC staff explained that different staff would be involved during each process in order to avoid bias and clarified the roles of various levels of staff.

81. The Commission asked for comment on CNSC staff's willingness to make use of the issues-resolution tools. CNSC staff explained that CNSC staff's attitudes toward the various processes were studied through the use of surveys and that, in general, the results indicated that CNSC staff was aware of and comfortable with these processes. CNSC staff also explained that it was expected that, as these processes are used more often, comfort levels with them

[21] International Atomic Energy Agency, "Establishing a safety and security culture in nuclear", https://www.iaea.org/topics/safety-and-security-culture, accessed 19 November 2018.

would increase further.

82. The Commission asked for comments from the NUREG representative regarding NUREG's view of its members' comfort with the open-door policy. The NUREG representative provided information about CNSC staff views that had been communicated with NUREG, and indicated that it would be important to continue to include NUREG in meaningful consultation with the goal of continually improving the CNSC's policies, procedures, processes and practices such that the CNSC becomes an organization where all employees are fearless in speaking out on any issue. CNSC staff indicated their agreement with this goal.

83. The Commission expressed its satisfaction with the presentation and commended CNSC staff on undertaking the Regulatory Safety Oversight Culture Assessment. The Commission also expressed its appreciation to NUREG for participating during this Commission meeting item and for its collaboration with the CNSC in respect of its regulatory safety oversight culture assessment, and anticipated future collaboration in this regard.

84. The Commission enquired as to the proposed date of the next self-assessment being in 2022, and requested additional details in this regard. CNSC staff explained that as safety culture improvements can take time to take effect, this was determined to be a reasonable span of time, in order to ensure that the updated processes that had been put in place had time to be adopted and used and to allow for opportunities to work with the Nuclear Energy Agency to investigate applying some of the safety culture elements for licensees to the CNSC. The Commission strongly encourages CNSC staff to consider carrying out a self-assessment earlier than 2022, should a need be identified.

Closure of Action Item

85. The Commission was satisfied with the information presented by CNSC staff regarding Regulatory Information Bank (RIB) action item #8650, *Safety Culture Assessment at the CNSC* that was raised during the August 2016 Commission meeting and closed this item. **ACTION Closed**

Regulatory Framework Program, 2017-2018 Annual Program Report

86. With reference to CMD 18-M54, CNSC staff provided an annual update and an overview of the CNSC's Regulatory Framework Program. CNSC staff presented the program evolution and accomplishments followed by the challenges and priorities for the years to come.

87. The Commission enquired about the benchmarking exercise that was carried out against other agencies and the rationale for selecting agencies such as the National Energy Board, Transport Canada and the Canada Food Inspection Agency for the comparison. CNSC staff reported that the criteria for comparison included the framework structure, the document review cycle and the consultation and stakeholder engagement. CNSC staff further explained that the selection was made by choosing agencies that were known to the public.

88. Further on the regulatory framework benchmarking activities that the CNSC had carried out, the Commission asked about the comparison between the NSCA and Health Canada's *Food and Drugs Act*[22] (FDA), and if there was any lessons learned from the FDA that the CNSC could apply. CNSC staff answered that the comparison activity did not go into a great level of depth, noting that comparisons were difficult to make because of the different reporting structures and the nature of the CNSC's mandate.

89. Noting the USNRC's online submission system, the Commission asked for the capability of the CNSC to receive the submission of comments on REGDOCs and other regulatory framework-related subjects online. CNSC staff indicated that it was possible to implement such a tool from a policy perspective. However, CNSC staff added that some challenges existed for online comments such as the cost of the implementation and the lack of internet access in some remote locations.

90. The Commission asked CNSC staff for comparison of the CNSC to the other agencies in terms of overall documentation and control. CNSC staff answered that it believed that the CNSC regulations were among the most robust in Canada, but noted that they could still be improved. CNSC staff explained that the CNSC was an active member of the Community of Federal Regulators which was a government-wide organization that shared best practices amongst different regulators; developed training programs; and also coordinated best practices and improvements throughout the government. CNSC staff added that the CNSC regulations were peer reviewed internationally through forums such as the review meetings of the Contracting Parties to the *Convention on Nuclear Safety*[23] and that the feedback from the international peer review was part of the CNSC's improvement plan.

[22] RSC 1985, c. F-27.

[23] *Convention on Nuclear Safety* (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 October 1996 (CNS).

91. Noting the USNRC's prescriptive regulatory framework as compared with the CNSC's less prescriptive regulatory framework, the Commission asked how CNSC staff ensured that licensing requirements were homogeneous for all licensees. CNSC staff explained that being less prescriptive and more objective based added regulatory flexibility for the licensees in respect of their licensed activities. CNSC staff further explained that the Licence Condition Handbook specified that licensees had to look at the best available technology and the best practices, and that, if additional best practices were introduced, CNSC staff would recommend that all other licensees take them into consideration.

92. The Commission enquired about the evergreen review process and update of regulatory documents by CNSC staff. CNSC staff explained that the objective was to implement a five-year review cycle for the REGDOCs. CNSC staff added that, if a REGDOC needed to be revised, CNSC staff would not wait until the end of the cycle to make those revisions. CNSC staff would perform a review of that REGDOC, and revise it accordingly.

93. The Commission enquired about the process used by CNSC to evaluate the regulatory effectiveness of REGDOCs. CNSC staff answered that licensees, Indigenous groups, members of the public and other stakeholders provided feedback on the clarity and regulatory effectiveness of the REGDOCs , and that CNSC staff was planning to perform a survey evaluation on the status of regulatory clarity.

94. The Commission further enquired whether a non-prescriptive regulatory framework like the one used in Canada would still be effective with a larger number of licensees. CNSC staff explained that having to regulate more licensees would require more resources and added that CNSC staff did not see any reason why the key principles of the Canadian regulatory framework – strong governance, clarity and public participation – would not work to regulate a larger number of licensees.

95. Upon request for comment from the Commission on CNSC's regulatory framework, the Bruce Power representative responded that, from a licensee perspective, Bruce Power was satisfied with the regulatory framework and the way CNSC staff consulted the industry about it. The Bruce Power representative added that Bruce Power did not always agree with CNSC staff, but that CNSC staff was responsive to consultation questions and comments from the licensees. The Bruce representative was of the view that the Canadian regulatory framework was better than the framework from other countries as it was looking at continual improvement by updating standards to the most modern standards. The Bruce Power

representative also added that the 2020 timeline for the completion of the regulatory documents did not pose any problem. The Commission was appreciative of the information provided on this matter by Bruce Power.

96. In relation to the Gender-based Analysis Plus (GBA+), the Commission enquired about the training provided to CNSC staff on that topic and asked for specific examples of topics that GBA+ had introduced in the REGDOCs. CNSC staff indicated that GBA+ included age, sexual orientation, religion, and mental or physical disability. As an example of the impact of GBA+ in the CNSC's regulatory framework, CNSC staff reported that the impacts of radiation protection on pregnant and breastfeeding women were considered. CNSC staff informed the Commission that CNSC staff was involved with the Canada School of Public Service to create a course for the entire Canadian Public Service on this topic and that this course was soon to be piloted. CNSC staff also stated that available training from the Status of Women Canada had been provided to some CNSC staff in this regard.

Impact Assessment Act – Bill C-69

97. In relation to Bill C-69,[24] the Commission enquired about how this would affect the operation of the Commission and the CNSC. CNSC staff explained that the key changes would be with the decision making, regarding the change in responsibility from the Commission, under the current *Canadian Environmental Assessment Act, 2012*[25] (CEAA 2012), to the Cabinet under the new IAA. CNSC staff added that socioeconomic factors will be requirements of the impact assessment (IA). Concerning the impact of Bill C-69 on the regulatory affairs at the CNSC, CNSC Staff provided details in regard to impact assessments, public consultation, timelines, the proposed IA project list and the consideration of projects already underway.

98. The Commission enquired about the additional layer of decision-making in the proposed Bill C-69 and how this would affect the CNSC's regulatory framework. CNSC staff explained that the CNSC's authority in respect to nuclear matters in Canada was provided for by the NSCA and that CNSC staff would be participating in the integrated panel review process that would inform the Cabinet in regard to the proposed IAA decision.

[24] Bill C-69: An *Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, to amend the Navigation Protection Act and to make consequential amendments to other Acts.* [2018]. 1st Reading February 8, 2018, 42nd Parliament, 1st Session.
[25] SC 2012, c19, s52.

99. Asked about the time required to perform IA under the proposed Bill, CNSC staff responded that the process should take 180 days for an early planning phase and then 300 federal clock days from the establishment of a panel to the IA decision, compared to the 24-month timeline for an environmental assessment (EA) with the present CEAA 2012. CNSC staff added that provisions were in the proposed Bill for the Minister to extend the timelines up to 600 days if needed.

Closure of the Public Meeting

100. The meeting closed at 12:20 p.m.

Charles Moreau — Recording Secretary — 14-12-2018 — Date

Ryan Moore — Recording Secretary — 14-12-2018 — Date

Recording Secretary — 14-12-2018 — Date

Secretary — 14-12-2018 — Date

APPENDIX A

18-M50	2018-09-05	5627006
Notice of Commission Meeting		
18-M51	2018-09-19	5624265
Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on Wednesday and Thursday, October 3 and 4, 2018, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario		
18-M52	2018-09-26	5641685
Draft Minutes of the Meeting of the Canadian Nuclear Safety Commission held on August 22 and 23, 2018		
18-M49	2018-09-26	5641233
Information Item Nuclear Substances in Canada: Technical Briefing Presentation from CNSC Staff		
18-M37	2018-08-02	5603922
Information Item Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2017 Submission from CNSC Staff		
18-M37.A	2018-09-26	5642087
Information Item Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2017 Presentation from CNSC Staff		
18-M37.1	2018-08-29	5623192
Information Item Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2017 Submission from the Canadian Radiation Protection Association		
18-M38	2018-09-03	5582892
Information Item Overview of the Institutional Control Program for Decommissioned Mine and/or Mill Sites in Saskatchewan Submission from CNSC Staff		
18-M38.A	2018-09-26	5581921
Information Item Overview of the Institutional Control Program for Decommissioned Mine and/or Mill Sites in Saskatchewan Presentation from CNSC Staff		

CMD		
18-M53	2018-09-27	5643953
Status Report Status Report on Power Reactors Submission from CNSC Staff		
18-M54	2018-09-26	5642368
Information Item Regulatory Framework Update 2018 Presentation from CNSC Staff		
18-M40	2018-09-18	5622817
Information Item CNSC Regulatory Safety Oversight Culture Assessment Submission from CNSC Staff		
18-M40.A	2018-09-26	5638056
Information Item CNSC Regulatory Safety Oversight Culture Assessment Presentation from CNSC Staff		