Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on November 10, 2016

Canada

November 10, 2016

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Thursday November 10, 2016 beginning at 8:30 a.m. at the Town Park Recreation Centre in Port Hope, Ontario.

Present:

M. Binder, President
R. Velshi
Dr. S. McEwan

M. Leblanc, Commission Secretary
L. Thiele, Senior General Counsel
P. McNelles, Recording Secretary

CNSC staff advisors were: R. Jammal, H. Tadros, M. Santini, D. Cox, J. LeClair, N. Tran, K. Murthy, G. Smith, J. Thelen, M. Rinker, K. Sauvé, C. Ducros, L. Posada, B. Prieur, A. Levine, R. Buhr, A. McAllister, A. Rupert, M. Jones, J. Amalraj, S. Lei, C. Dodkin, C. Purvis, R. Dwyer, A. McLay, Z. Bounagui, I. Erdebil, K. Glenn, M. Broeders, M. Vesely

Other contributors were:

- OPG: B. Vulanovic
- CNL: N. Mantifel, K. Kehler, C. Hebert, B.R. Ravishankar, S. Faught, G. Case, M. Galanter, S. Anderson, G. Faaren, M. Kapitan, J. Benson, B. Tyers
- Lake Ontario Waterkeeper: P. Feinstein, W. Ruland
- Environment and Climate Change Canada: N. Ali
- Ontario Ministry of the Environment and Climate Change: D. Bradley, J. Degraw
- Cameco: T. Smith, D. Jensen, C. Astles
- GE Hitachi Nuclear Energy Canada Inc.: M. Ward, S. Forsey, D. Snopek
- SRB Technologies Inc.: S. Lévesque, J. MacDonald
- Nordion Canada Inc: R. Beekams, R. DeCaire
- Best Theratronics Ltd: S. Mason
- Saskatchewan Research Council: J. Muldoon, D. Chorney, J. Zimmer, J. Smith-Windsor
- McMaster University: C. Heysel
- University of Alberta: J. Duke
- École Polytechnique de Montréal: C. Chilian
- TRIUMF : A. Trudel, J. Mildenberger
- Royal Military College of Canada: P. Chan

<u>Constitution</u>

1. With the notice of meeting CMD 16-M-01 and CMD 16-M-02 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 September 21 and 22, 2016, Commission member documents CMD 16-M43 to CMD 16-M43.4, CMD 16-M44 to CMD 16-M44.8, CMD 16-M60, CMD 16-M62 and CMD 16-M63 were distributed to members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 16-M61.A, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary, and P. McNelles, Recording Secretary.

Minutes of the CNSC Meeting Held September 21 and 22, 2016

5. The Commission members approved the minutes of the September 2 and 22, 2016, Commission meeting as presented in CMD 16-M62.

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 16-M63, which includes the Status Report on Power Reactors at Canadian Nuclear Generating Stations (NGS), CNSC staff provided the following corrected information:

   - Unit 1 at the Pickering NGS was derated to 91% of full power (FP) due to lack of fuelling. An unplanned outage of a fuelling machine occurred in order to complete the repair.

   - Unit 5 at the Pickering NGS was derated to 99% of FP due to the high temperature of a heat transport pump seal, with no target date for the unit's return to FP.

   - Unit 2 at the Darlington NGS continues to undergo the defuelling process, and as of November 9, 2016, 31% of the reactor core had been defueled.

7. The Commission complimented CNSC staff on the quality of this status report.

   Pickering

8. Asked about the estimated date for the return of Unit 1 to 100% of FP, CNSC staff reported that Unit 1 was expected to return to 100% of FP by November 18, 2016.

Darlington

9. Asked about refurbishment work to be performed on Unit 2 once the defuelling process is complete, CNSC staff responded that a bulkhead will be installed to isolate Unit 2 from the rest of the Darlington units, with this work starting in February 2017. The OPG representative reported that the target date for the completion of the defuelling is February 6, 2017. The OPG representative added that the next phase in the refurbishment process entails the dewatering and dismantling of the reactor and the replacement of reactor components.

Canadian Nuclear Laboratories Limited: Status Report on the Fitness for Service for the Chalk River Laboratories

10. With reference to CMD 16-M60, which includes the Status Report on Fitness for Service for Chalk River Laboratories (CRL), CNSC staff presented to the Commission an update on CNL's progress regarding the fitness for service for CRL. In the Record of Decision for the renewal of the CRL licence[1], the Commission requested CNSC staff to report on the status of the fitness for service Safety and Control Area (SCA) at each Commission meeting, until an overall rating of satisfactory is obtained. CNSC staff reported that the CRL site, except for the National Research Universal (NRU) reactor, has progressed to a satisfactory rating in the fitness for service SCA. However, there remains additional work to be performed before the NRU reactor itself can obtain a satisfactory rating for that SCA. This CMD represents the fourth status update on this matter.

11. The Commission commented that they found this status report to be well-written and helpful in understanding the work that is being performed on the NRU.

12. Asked about the desktop review with regards to the specific area "M4-Implement the system health program", CNSC staff explained that CNL has confirmed that work on this item was completed, and CNSC staff is reviewing the documentation submitted by CNL. CNSC staff stated that CNL is preparing the system health report, and is ensuring the timely delivery of these reports. CNSC staff added that the work would not be affected by production changes.

13. Commenting on the overdue preventative maintenance (PM) jobs, CNSC staff explained that the main objective of this specific area

[1]Canadian Nuclear Safety Commission Record of Decision – *Application to Renew and to Amend the Nuclear Research and Test Establishment Operating Licence for Chalk River Laboratories*, April 6, 2016, Canadian Nuclear Laboratories Limited.

was to ensure that the number of overdue PM jobs remains below the target. CNSC staff is performing a final review on the remaining overdue PM jobs. CNSC staff added that it is not uncommon to have some overdue PM jobs in a maintenance program, and that the most important aspect is that these overdue PM jobs do not stay open for an extended period of time and are not safety-significant.

14. Regarding the planned target completion date of December 31, 2016, for several actions, CNSC staff explained that specific areas M4 and M5 are undergoing a final review, and CNSC staff is confident that these reviews will be completed on time and will be included in the next status report. CNSC staff also reported that other items had their target date moved to December 31, 2016. The CNL representative stated that the change in the target date was due to the need for additional engineering, testing and installation work. The CNL representative also reported that they are confident that these items will be completed by the revised December 31, 2016, target date.

15. Asked about the improved inspection coverage of CNL's new inspection tool, the CNL representative stated that the new inspection tool will improve the inspection coverage and reduce the time required to complete the inspections during outages. The CNL representative noted that the new tool will not increase the area inspected during the reactor vessel in-service inspection program, but will increase the area inspected in a single deployment of the inspection tool.

16. The Commission asked if the NRU is on standby and in the appropriate condition in case isotope production needs to be restarted. The CNL representative clarified that isotope production from the NRU is on standby, but the NRU is still running and continues to be used to perform experiments.

17. On the issue of the appropriate condition of the isotope processing facilities, CNSC staff explained that maintenance across the entire CRL site is considered, and that isotope production remains on standby. The CNL representative stated that all aspects and systems of the NRU reactor remain operational, and all facilities, systems and equipment outside of the NRU necessary for isotope production are maintained.

STATUS UPDATE

Canadian Nuclear Laboratories: Progress Update – Port Hope Area Initiative

18. With reference to CMD 16-M44.1, CNL presented the progress update for the Port Hope Area Initiative (PHAI). The PHAI is a Government of Canada project to manage historic low-level radioactive waste from the municipalities of Port Hope and Clarington, Ontario. The PHAI consists of two separate projects: the Port Hope Project and the Port Granby Project, under separate CNSC licences, both held by CNL. In the Record of Decision for the October 24, 2012 licensing action, the Commission requested updates on the progress of PHAI activities[2]. Regarding the Port Granby project, CNL representatives presented information on the completed projects from 2012 to 2016 and the overall project schedule from 2012 to 2020. Considering the Port Hope project, the CNL representative provided information on the projects completed from 2010 to 2016, as well as the project schedule from 2011 to 2022. The CNL representatives stated that the Port Hope Area Initiative is meeting all obligations under legal agreements, environmental assessments and CNSC licences. Additionally, CNL will continue to collaborate with external stakeholders.

19. With reference to CMD 16-M44 and CMD 16-M44.A, CNSC staff presented on the progress update for the PHAI. CMD 16-M44 provides an overview of the status, recent developments and regulatory activities associated with the PHAI since the last update to the Commission in December 2014. CNSC staff notes that CNL has made significant advancements in the Port Hope and Port Granby projects, and CNSC staff have increased their regulatory oversight and compliance activities, such as inspections and desktop verification, to reflect the additional activities taking place at the Port Hope and Port Granby sites. CNSC staff notes that CNL has met its licence requirements and the regulatory requirements associated with the PHAI activities.

    Oral Intervention from Lake Ontario Waterkeeper (CMD 16-M44.8)

20. In its intervention, the Lake Ontario Waterkeeper (LOW) raised a number of matters that were considered by the Commission. Those matters are reported on below.

[2] Canadian Nuclear Safety Commission Summary Record of Decision – *Application for Amendment of Waste Nuclear Substance Licence for the Port Hope Long-Term Low-Level Radioactive Waste Management Project*, October 24, 2012, Atomic Energy of Canada Limited.

Action Levels and Release Limits

21. On the issue raised by LOW regarding the adequacy of action levels and release limits of effluent from the wastewater treatment plant, CNSC staff responded that the licences granted to the Port Hope project and the Port Granby project by the Commission include design objectives as part of their licensing basis. These design objectives are currently in place, and the licensees are reporting frequently (weekly) on effluent releases. CNSC staff stated that action levels will be established based on the operating performance of the Port Granby WWTP. CNSC staff added that a licence condition has been included for CNL to propose action levels within one year of the start of operations. CNSC staff expects those action levels to include all constituents listed in the design objectives. CNSC staff stated that the design objectives are based on the levels that are protective of the environment and are used as enforceable limits in the interim. CNL would not be allowed to have effluent releases above those design objectives, and release limits from previous facilities such as the previous Port Granby waste management facility remain in effect.

22. CNSC staff clarified that there are two separate items being considered: the action levels and the release limits. CNSC staff stated that the action levels will be much lower than the design objectives. These action levels will be the primary tool to ensure the effluent releases are low. The release limits themselves will be similar to the design objectives, and in certain cases the release limits may be the same as the design objectives. The Commission is satisfied that the release limits would not exceed the design objectives without the proper justification being presented to the Commission.

Uranium Discharge

23. Considering the uranium discharge, the LOW provided a recommendation of 0.15 milligrams per litre as an effluent limit for uranium discharges from the older Port Granby and Welcome Waste Management facilities. CNSC staff stated that they are in agreement with that limit as it meets the Canadian Council of Ministers of the Environment (CCME)[3] criteria for aquatic environments. The Commission is satisfied with the recommendation for the uranium discharge limit proposed by the LOW.

[3] Canadian Council of Ministers of the Environment (CCME) – *Canadian Environmental Quality Guidelines*, 2014. < http://www.ccme.ca/en/resources/canadian_environmental_quality_guidelines/>

24. On the issue of enforcing release limits for uranium for the Welcome WMF in Port Hope, CNSC staff explained that, as part of the licence for the Port Hope project, the Commission directed CNSC staff to ensure that, if any contaminants are released, those contaminants will be monitored and protection measures would be taken. CNSC staff stated that uranium effluents are monitored at both facilities without an actual limit dictated by the licence, and that testing had shown that there was no impact on the environment. The Commission is satisfied with the uranium monitoring procedures at the aforementioned waste management facilities.

25. Regarding the establishment of formal action levels for uranium effluent, CNSC staff explained that the new water treatment plant would be operational in a matter of weeks. It would therefore not be practical to establish release limits for a facility that would stop operations in the near future. The Commission concurs with the explanation provided by CNSC staff, and notes it would not be practical to establish any release limits for the facility at this phase of its lifecycle.

Heavy Metal Monitoring

26. LOW raised awareness regarding the monitoring of heavy metals downstream from the Port Granby Long Term Waste Treatment Facility (LTWTF), CNSC staff noted that there is a long list of heavy metals and other constituents that are monitored as part of CNL's environmental monitoring plan. The CNL representative stated that the Port Granby site has multiple wells that are used to monitor the groundwater, including the downstream component, and additional wells will be installed if necessary. This data is published in the annual compliance report. Summaries of these reports are posted on the organization's website and the annual report is available to the public upon request.

27. The Commission suggested that, as the remediation project progresses, the data should be published more frequently than once per year. The CNL representative stated that they will take the Commission's suggestion under advisement, and added that CNL strives to be as proactive and transparent as possible with the water monitoring data.

28. LOW commented that the CNSC staff documentation describing the monitoring program at the Port Granby site does not explicitly state which heavy metals will be monitored at the surface. The CNL representative stated that CNL does report the monitoring of a detailed list of contaminants; however, the environmental monitoring plan is still being updated and does not explicitly list all

of the monitored contaminants at this stage. The Commission notes that CNL will monitor all contaminants, and will report those monitoring results to CNSC staff as part of its compliance reporting.

Environmental Monitoring Plan

29. Regarding the regulatory levels in the Port Hope Environmental Monitoring Plan, CNSC staff explained that CNL is required to have an environmental monitoring plan under the Port Hope and Port Granby project licences once action levels are set. CNSC staff monitors these levels, and CNL is required to report this data to CNSC staff as part of their compliance reporting. CNSC staff added that the environmental monitoring program will be continually updated, as guidance from CSA standards is implemented.

Effluent Monitoring Program

30. Regarding the effluent monitoring program at the Port Hope Waste Water Treatment Plant (WWTP), CNSC staff explained that both sites (Port Hope and Port Granby) perform ongoing effluent monitoring on a weekly basis for a long list of contaminants, and the new treatment plant (to be operational in the near future) will monitor all contaminants specified in the design objectives, as well as any other contaminants that require treatment. The CNL representative noted that, once the new WWTP is operational, CNL will attain the results of the treated effluent for the complete list of contaminants and will include other contaminants for monitoring as necessary.

Monitoring After Closure

31. Asked about the projected lifespan of the Port Hope and Port Granby WWTPs, as well as the prospect of longer-term downstream water monitoring after the eventual closure of those facilities, the CNL representative responded that the environmental monitoring will continue for the long term, and that the environmental monitoring program will be designed to facilitate the continued monitoring and reporting of potential environmental impacts as the initiative progresses. On a target end-of-life date for these facilities, as well as a target date to transfer the projects to institutional control, CNSC staff explained that environmental monitoring is a requirement of the project licences and would remain as long as monitoring data is required. CNSC staff added that ending this monitoring would entail a change in the environmental monitoring program.

Dredging and Treatment of Contaminated Water

32. LOW also raised concerns regarding the dredging and treatment of contaminated water in the harbour/ CNSC staff clarified that environmental monitoring of the surface water in the harbour is a requirement of the Port Hope project licence. The CNL representative responded that the material will be removed in a controlled environment and provided details about the planned activities. The CNL representative stated that the plan for the harbour dredging process was already developed and published.

33. Asked about the sampling frequency of the water flowing into Lake Ontario from the harbour, the CNL representative responded that the CNL water sampling program would be focused on the quality of the water being returned to the harbour, and that CNL currently does not sample the Lake Ontario water downstream from the harbour. CNSC staff stated that there are mitigation measures to prevent harbour contaminants from reaching Lake Ontario, and that the water quality of the lake is protected. CNSC staff added that enhanced environmental monitoring pre and post remediation will occur to ensure that all contaminants are collected and removed from the harbour.

34. CNSC staff noted that, during the harbour remediation project, CNL is required to conduct environmental monitoring to ensure that Lake Ontario does not become contaminated during this operation. CNSC staff stated that the Independent Environmental Monitoring Program (IEMP) is currently sampling water at the mouth of the harbour, as well as upstream and downstream from the Port Hope Conversion Facility. CNSC staff added that the IEMP will be tailored to the remediation activities.

35. The CNL representative stated that the general design concepts and processes for the remediation project are well-developed, and that greater design detail will be included in the contractor requirements as the project nears its start date in 2018. CNSC staff stated that they will continue to verify that monitoring is being performed and the environment is being protected, and will inform the Commission of those regulatory activities.

36. The intervenor expressed concern over the state of the plan to monitor Lake Ontario downstream from the harbour, and asked to be provided with a copy of the plan for their review. The Ministry of Environment and Climate Change (MOECC) representative agreed that a robust environmental monitoring program would need to be in place, and that the MOECC would want to review the plans for the dredging program, before the work starts. The MOECC representative added that the dredging project may need

approval under the *Ontario Water Resources Act*[4]. The CNL representative responded that the dredging project would fall under the jurisdiction of the Department of Fisheries and Oceans (DFO). CNSC staff concurred with the MOECC and CNL representatives. The CNL representative provided details on the DFO involvement in this project. The Commission commented that DFO might also set up some requirements for the dredging project.

37. Addressing the interaction of regulatory agencies, CNSC staff explained that the MOECC and Environment and Climate Change Canada (ECCC) are both involved in regulatory oversight of the PHAI. CNSC staff added that all three regulators will work co-operatively to ensure all conditions that were stated in the project licences are met.

38. On the respective expectations of the MOECC and ECC regarding the PHAI projects, the MOECC and ECC representatives provided details on their involvement with the project. CNSC staff noted that the regulatory oversight reports from CNSC staff will contain any major findings or issues faced by these joint regulatory groups, and that co-operation between the regulatory bodies will continue as the PHAI project progresses.

Publication of Environmental Monitoring Results

39. Regarding the request from LOW about publishing the results of environmental monitoring, the CNL representative stated that dust monitoring results are published weekly on the PHAI website, along with summaries of the annual compliance reports, with the results from those reports being made available to the public upon request. The Commission asked if reportable incidents are posted on the PHAI website in a timely manner. The CNL representative responded that, if an incident requires public disclosure under the Public Disclosure Policy, it will be posted with a delay of no more than four days.

40. The Commission acknowledges the quality of the intervention from the LOW, and the importance of its contribution to this process.

Written Intervention from the Municipality of Port Hope (CMD 16-M44.5)

41. Regarding the intervention from the Municipality of Port Hope (CMD 16-M44.5) on dispute resolution methods between Cameco, CNL and the Municipality with regards to the West Beach area, the

[4] Ontario Water Resources Act, R.S.O. 1990, c. O.40

CNL representative stated that there are regular meetings and the sharing of information between the stakeholders. The CNL representative provided details on the West Beach area.

42. Regarding the issue of dispute resolution between CNL and the Municipality of Clarington (Port Granby), the CNL representative stated that the same dispute resolution measures that apply to Port Hope also apply to Clarington as both municipalities are part of the legal agreement with the Government of Canada. The CNL representative stated that, currently, there are no ongoing disputes between CNL and the Municipality of Clarington.

43. Considering the matter of the remediation of industrial waste sites that do not contain low-level radioactive waste, the CNL representative reported that CNL is in discussion with the Municipality regarding the scope and scale of the remediation for those properties, and CNL expects that those remediation projects will be completed within the overall time frame of the Phase 2 PHAI program.

44. On the issue of possible undiscovered sites that contain significant low-level radioactive waste, the CNL representative stated that the likelihood of this is very low, as an extensive air and ground survey of the area was performed and no new sites were found. Regarding the possibility of undiscovered sites containing industrial waste, the CNL representative stated that the legal agreement considers five specific industrial sites, which are all included in the PHAI remediation.

45. With regards to the issue of the PHAI remediation project conforming to provincial industrial remediation requirements, the MOECC representative stated that the remediated sites may fall under the MOECC record of site condition regulation, a very prescriptive process for site investigation, mediation and verification that must be applied before the sites may be redeveloped.

46. Considering the traffic and road safety aspects of the PHAI, CNSC staff explained that complying with the follow-up program is a licence condition. AECL then reviews and forwards the socio-economic information to CNSC staff, who presents that information, along with the biophysical aspects of the project, to the Commission. In the most recent review performed by AECL, CNL was meeting all traffic and safety requirements set out in the follow-up program.

47. On the matter of which organization certifies that a property is free from radioactive contamination, CNSC staff reported that a letter

would be issued by CNL. The CNL representative stated that it is known as a compliance letter, and it is issued after a radiological survey determines that there is no historic low-level waste on the property, or when property remediation is complete.

Interventions – Other Written Submissions

48. Regarding the intervention from Cameco Corporation (CMD 16-M44.3), on the issue of potential disagreements between Cameco and CNL with regards to PHAI projects, the CNL representative stated that CNL and Cameco have a positive working relationship. The CNL representative added that there are specific agreements between Cameco and the Government of Canada regarding the PHAI, and as further agreements are finalized, they will include dispute resolution mechanisms. With regards to a formal dispute resolution process between CNL and Cameco and CNL and the Municipality, the CNL representative stated that CNL has a framework established to collaborate, interact and communicate with Cameco. With respect to the Municipality of Port Hope, the CNL representative stated that a dispute resolution process is a component of the legal agreement between the Crown and the Municipality.

49. Regarding the written submission from J. Morand (CMD 16-M44.7), the CNL representative commented that they do not consider the noise from the trucks stated by the intervenor to be realistic, and that the noise calculations will be based on daytime averages over 12-hour periods (7 a.m. to 7 p.m.).

General

50. On the potential issue of leaching or contamination of the lake from the bluffs due to the removal of waste material at the Port Granby site, the CNL representative stated that CNL has a bluffs monitoring program in place, and that the contractor work programs include provisions for ongoing stability measurements. The CNL representative stated that the removal of contaminants from the area will greatly reduce the contamination in the groundwater. The CNL representative added that the contractor has detailed water management plans, including the prevention of water movement and that water will be collected and treated at the WWTP. CNSC staff stated that there is the expectation that the contractor and CNL will collect and treat all contaminated water.

51. With regards to the record-keeping process for the radiological surveys of Port Hope properties, the CNL representative explained that CNL (and formerly AECL) conducted extensive data-gathering and maintains extensive records dating back several

decades. The CNL representative stated that all records, reports and radiological survey results since the 1970s are maintained. CNSC staff explained that the records of the long-term waste management facilities are inspected, and that record-keeping is part of the quality program that is a requirement of the Port Hope project licence. CNSC staff added that the maintenance of homeowner records is beyond the scope of the CNSC licence for the Port Hope project. The Commission instructed staff to monitor and report back findings, as appropriate, as part of a regulatory oversight report.

52. On the schedule for the five campaigns included in the property radiological survey, the CNL representative confirmed that the campaigns will be conducted starting with the properties with the highest radiological risk, and moving to the properties with the lowest radiological risk. The CNL representative further confirmed that, as these campaigns progress, CNL expects to continually find fewer properties in need of remediation. The CNL representative provided details on the radiological surveys and the extent of the contamination.

53. On whether CNSC staff will validate CNL's radiological survey data and remediation results, CNSC staff responded that they do not verify each property within Port Hope. CNSC staff verifies that sites have been remediated and that the records are correct. Regarding the random sampling of Port Hope properties to confirm the CNL data, CNSC staff responded that there is no current program for random sampling, but would take that suggestion under consideration. Addressing the issue of CNSC staff observing and monitoring CNL's radiological survey and remediation efforts, CNSC staff reported that this could be implemented as part of the IEMP.

54. The CNL representative reported that a trial remediation was performed on one Port Hope property, resulting in important lessons learned regarding the characterization of the properties, the number of boreholes needed, and the documentation of the pre-remediated site.

55. On the issue of expedited remediation of select properties in the event of particularly high LLRW, the CNL representative stated that there is a mechanism in the waste program for artefact removal and storage if a significant amount of waste is located at a specific property. If immediate remediation is required, the temporary storage sites could be a temporary repository for some of that material.

56. Addressing the end state of the existing waste management facilities once the waste has been relocated, the CNL representative stated that, at the Port Hope and Port Granby LTWMFs, the facilities will be capped and the surface will be vegetated. The CNL representative added that the cap system is designed to keep animals from burrowing into the waste and to ensure the radiation level at the surface will be the same as background radiation.

57. Regarding licence requirements for enhanced security and monitoring at the LTWMFs, with respect to fence breaches, CNSC staff stated that those events are not recent and the licensee implemented additional security patrols as a result of those events. The CNL representative stated that increased fence line inspections occurred after these breaches, and since the waste transfer activities have started at Port Granby, the contractor has implemented a number of security enhancements at the facility.

58. Addressing the time taken to discover the reportable events (acid leak and pipe break), the CNL representative noted that the pipe break was both identified and repaired within 24 hours. CNSC staff added that these events were reported to CNSC staff and shared on both the public PHAI website and the public CNSC website.

59. The Commission noted that the PHAI projects have achieved several significant milestones, and enquired about the biggest challenges to the PHAI as the projects progress. The CNL representative described what they believed are the four biggest challenges that the PHAI will face:

    - Conventional safety risks on-site
    - Completion of major construction work at the Port Hope LTWMF
    - Remediation of small-scale sites
    - Removal of contaminants from the Port Hope harbour

60. CNSC staff described the biggest challenges and priorities of the PHAI from a regulatory perspective:

    - Ensuring all regulatory requirements are met with respect to the two licenses
    - Interactions with other regulatory bodies
    - Setting of release limits and action levels for the new WWTF
    - Transfer from annual, routine inspections to inspections that are tied to key project milestones
    - Environmental Assessment (EA) follow-up program

61. Asked about the inspection planning around key PHAI project milestones, CNSC staff explained that CNL does inform them in

advance about when these milestones will occur, and CNSC staff is able to plan inspections accordingly. CNSC staff has been able to accommodate schedule changes and have not missed any inspections. CNSC staff added that further inspections may be required before CNL can move to the next phase of the projects.

62. On the results of the archeological survey, CNL reported that the survey in the Port Granby area showed a pioneer-type homestead, and that no historic artefacts of significance from Indigenous peoples were found.

63. Addressing the issue of road remediation, the CNL representative explained that CNL is working with the Municipality regarding road improvements, repair and maintenance, and on improving traffic safety due to the changes in traffic patterns from the increased presence of trucks. On the issue of the spread of dust, the CNL representative reported that they have a dust management program and described the measures taken. The Commission is satisfied with the implementation of the dust management program by CNL.

64. Addressing the availability of the radiological survey results, the CNL representative responded that the survey data from each property will be made available to the property owner upon request.

65. On the issue of roadway contamination, the CNL representative stated that there is approximately 22 kilometres of roadway in the Port Hope area where contamination may exist, and that the investigation into roadway contamination is ongoing.

66. The Commission found the information from all participants to be useful, and asked to be updated annually on the progress of the PHAI as part of an annual regulatory oversight report to be presented in the context of a Commission proceeding.

INFORMATION ITEMS

Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class 1B Accelerator Facilities: 2015

67. With reference to CMD 16-M43 and CMD 16-M43.A, CNSC staff presented the annual Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class 1B Accelerator Facilities: 2015 (ROR) to the Commission. This report provides information on the results of CNSC staff's analysis of the safety performance of uranium and nuclear substance processing

facilities, small research reactors, and Class 1B accelerator facilities. This report focuses on three safety and control areas (SCA): radiation protection, environmental protection, and conventional health and safety. This report also includes information on regulatory requirements and expectations, significant events, licence changes, major developments and the overall performance in the 14 SCAs. This is the first year in which small research reactor facilities and Class 1B accelerator facilities are included in the same report as the uranium and nuclear substance processing facilities.

General Comments from the Commission

Public Participation at Commission Meetings

68. Addressing the lack of public participation at this Commission meeting and potential means to improve public engagement, CNSC staff responded that the PFP is potentially misunderstood by the public, as one is allowed to apply for funding under the PFP for meetings and hearings, and not just hearings. The GEH-C and Cameco representatives provided an overview of their public consultation and outreach programs.

69. CNSC staff provided an overview of the advertising process for the RORs and for the Port Hope proceedings. CNSC staff added that there are requirements set out in RD/GD 99.3[5] for licensees to engage and provide information to the stakeholder community, including gathering information on how stakeholders would prefer to be informed. CNSC staff noted that they concur with the Commission's position that more stakeholder participation would be beneficial. The Commission commented that, as the shift towards longer-term licences occurs, it is especially important to encourage stakeholder involvement.

Suggested Improvements to the ROR

70. The Commission suggested that future iterations of this ROR be divided into four separate CMDs as each section is distinct and combining all four sections into one CMD complicates the review of the report.

71. The Commission commented that future CMDs should augment the data on contaminant concentrations and releases with toxicity numbers, to provide additional clarity to the Commission and to the

[5] Canadian Nuclear Safety Commission – RD/GD 99.3 *Public Information and Disclosure*, March 2012.

public. This includes adding action levels to the graphs in the ROR. The Commission also commented that more explanations regarding the units used would be useful.

Part 1. Uranium Processing Facilities

72. With regards to the uranium processing facilities, CNSC staff reported that, through its evaluations, it was of the opinion that these facilities operated safely in 2015 and met the performance expectations for the health and safety of workers, the protection of the environment, and Canada's international obligations. All of these facilities received at least a satisfactory performance rating in each of the 14 SCAs, with Cameco's Blind River Refinery (BRR) receiving a fully satisfactory rating in the conventional health and safety SCA. CNSC staff review the annual compliance submitted by the licences as part of the CNSC staff's regulatory oversight program, to verify that the licensees are operating safety and are in compliance with the regulatory requirements. CNSC staff compliance activities confirmed that the radiation protection programs at all facilities adequately controlled the radiation exposure, the environmental protection programs at all facilities were effective at protecting the environment, and that the conventional health and safety programs at all facilities continue to protect the workers.

Comments from Licensees

73. With reference to CMD 16-M43.1, the Cameco Corporation (Cameco) representative presented on the ROR for Cameco Fuel Manufacturing Inc. (CFM.) The Cameco representative reported that Cameco is committed to ensuring its operations remain safe, clean and reliable, as well as protective of the safety of the public. In addition, the Cameco representative summarized Cameco's efforts on community engagement, operating performance, as well as improvements in safety performance and in their fuel fabrication technology.

74. With reference to CMD 16-M43.2, the Cameco representative presented on the ROR for the BRR. The Cameco representative reported that Cameco is committed to ensuring its operations remain safe, clean and reliable, and highlighted its commitment to public engagement. The Cameco representative also summarized the operating performance of the facility, the continuous improvement in safety performance, and notable achievements of the facility, such as the recycling and disposal of waste products.

75. With reference to CMD 16-M43.3, the GE Hitachi Nuclear Energy Canada Inc. (GEH-C) representative presented on the ROR, for the

two GEH-C fuel processing facilities in Toronto and Peterborough, operating under the same licence. The GEH-C representative summarized the effectiveness of GEH-C's safety programs and its compliance with CNSC regulations. The GEH-C representative reported that there were no environmental issues or impacts to the environment or the public throughout the licence period.

Interventions – Written Submission from Northwatch (CMD 16-M43.4)

76. Northwatch submitted an intervention raising several issues and making a number of recommendations. The matters raised in that intervention are reported below.

Aboriginal and Public Engagement

77. On the details of engagement with the Mississauga First Nations (MFN) with respect to the BRR, CNSC staff explained that there have been several meetings between BRR representatives and MFN community members, and several CNSC staff members were also involved. CNSC staff provided an overview of their interactions with the MFN. Addressing the importance of the continued relationship between CNSC staff and the MFN, CNSC staff responded that the relationship is very important to CNSC staff, and that funding is provided to the MFN to attend Commission proceedings through the Participant Funding Program (PFP).

78. Addressing the shipments of nuclear waste as part of the Adaptive Phase Management (APM) initiative, CNSC staff clarified that this is a separate project, and is unrelated to the BRR. CNSC staff stated that the APM involves the shipment of high-level waste by the Nuclear Waste Management Organization (NWMO), and added that the public and Aboriginal groups are kept informed of the APM project as well.

Environmental Monitoring Programs

79. Regarding the robustness of the statistical analysis used in the IEMP and the prospect of third party review, CNSC staff responded that the IEMP is meant to complement compliance activities, not replace the licensees' environmental monitoring program. The IEMP is intended to provide a baseline reading for major facilities as it is not performed frequently enough to establish trends with the sampling data. CNSC staff added that they are always open to improvements to the IEMP based on feedback from intervenors and Indigenous groups.

80. Asked about what would occur if the IEMP results showed a high value, CNSC staff provided a recent example when the licensee was required to augment their environmental monitoring at one location when the IEMP produced an inconsistent data point.

81. On the comparison between the IEMP and the environmental monitoring performed by the MOECC, CNSC staff explained that the air and foliage monitoring program carried out by the MOECC is performed once a year for the purpose of background trending. CNSC staff stated that they will be working with the MOECC and using the MOECC data to improve upon the data used for background levels.

82. With regards to the frequency of the MOECC sampling at the BRR facility, the Cameco representative stated that the MOECC performs soil sampling at the facility approximately once every five years, with the most recent sampling performed in 2012. It is expected that the next sampling will occur in 2017. CNSC staff added that the most recent results of the MOECC sampling program were published in 2013 and confirmed CNSC staff's findings with regards to uranium in the soil around the BRR site.

83. Addressing the availability of the MOECC environmental compliance reports to the public, the Cameco representative explained that these are called emission summary dispersion monitoring reports where there is a provincial requirement to make these reports available to members of the public on request. The Cameco representative added that Northwatch did not file a request with Cameco for this report. The Commission notes that these reports are available upon request.

SCA Ratings

84. On the process for determining the SCA ratings, CNSC staff responded that the definitions of all SCAs are provided in CMD 16-M43, and provided an overview of the SCA determination process. CNSC staff provided an example of how the rating for environmental protection SCA for GEH-C was changed to satisfactory, after being rated fully satisfactory, upon the discovery of unmonitored stack emissions. CNSC staff gave a detailed description of the events and CNSC staff's inspection that led to the change in the SCA rating. CNSC staff clarified that a single event or action level exceedance rarely results in a below expectations SCA rating; rather, it is a pattern of non-compliance that would yield such a rating. The Commission requested that CNSC staff provide more information to the public to clearly explain the SCA system, as well as how the ratings are determined for the licensees.

85. The Commission acknowledges the contribution of the intervenor to this process and invite CNSC staff to carefully consider the two recommendations stated on page 20 of CMD 16-M43.4, regarding additional content in future regulatory oversight reports.

Groundwater Contamination at BRR

86. Addressing the safety of the groundwater plume that is migrating towards the river and lake, CNSC staff reported that both CNSC staff and the licensee monitor the groundwater at the BRR facility, and that CNSC staff perform detailed reviews on the annual reports provided by the licensee. CNSC staff stated that there are locations at the site with higher uranium readings, however the groundwater at those locations is not moving as part of the ground plume.. CNSC staff added that the uranium concentration in the groundwater in that location was seen to be decreasing.

87. Regarding potential uranium contamination of the water downstream from the BRR facility, CNSC staff explained that there are boreholes for monitoring the water flow both upstream and downstream from the BRR facility, and that those monitoring results do not show any increase in uranium concentration. CNSC staff stated that the increased uranium concentration in the area specified in the intervenor's submission is the result of a decontamination project for used uranium drums.

Cameco Fuel Manufacturing Inc.(CFM)

Lost Time Injuries and Dose Targets

88. Addressing the Lost Time Injury (LTI) caused by contractor management practices resulting in a head injury to a contractor, the CFM representative reported that a failing of the contractor managers to identify hazards resulted in this lost time injury. The CFM representative added that hazard identification was the underlying cause for this lost time injury.

89. Addressing the radiation exposure incident where a contractor received a radiation dose due to an improperly fitting respirator, the CFM representative detailed the issue with the previous facial hair policy, and confirmed that the revised policy conforms to the CSA Z94.4[6] standard. CNSC staff stated that licensees are expected to comply with this standard and noted that, in this case, the licensee identified and corrected deficiencies with this policy. CNSC staff added that an inspection was performed on the licensee's corrective

[6] CSA Group – CSA Z94.4 - *Selection, Use and Care of Respirators*, 2016.

actions and found these actions to be appropriate, along with the identification of additional areas of improvement.

90. Regarding the inspection of respiratory protection programs, CNSC staff stated that all three of Cameco's fuel services divisions were inspected in 2016, and confirmed that they aligned with the CSA Z94.4 standard.

91. On the incorrect dosimeter reading due to its pre-exposure (contamination), which resulted in a worker dose exceeding the action level, the CFM representative stated that the dosimetry supplier will enter the corrected value into the National Dose Registry (NDR). CNSC staff added that, after it was determined that a portion of the dosimeter reading was self-contaminating, the licensee proposed a conservative dose estimate which was reviewed and accepted by CNSC staff.

92. On the missed ALARA dose targets, CNSC staff reported that CFM established these annual ALARA objectives and dose targets which are in accordance with the CNSC radiation protection program. However, CNSC staff does not have direct input on these targets. CNSC staff stated that two of the targets were not achieved, and that both were due to a single acute uptake incident. The CFM representative stated that CFM has an ALARA group composed of a cross-functional team of employees to work towards reducing the overall doses to CFM employees. The Commission commented that more information regarding the reasons for the missed ALARA targets should be included in future reports to the Commission.

Soil Sampling

93. Addressing the frequency of soil monitoring at the CFM site, CNSC staff responded that the CMD provides both average and maximum values for constituents in the soil, and that there will be some variation depending on the location and the time of the year. CNSC staff stated that the average values are used as the main indicator of soil quality, and that those values are all lower than the CCME guidelines. CNSC staff added that there is still legacy radioactive contamination at the site that may affect the sampling readings.

GE Hitachi Nuclear Energy Canada Inc. (GEH-C)

Emissions Monitoring

94. Regarding the issue of the discovery of unmonitored emissions from thee of the stacks GEH-C's Toronto facility, the Commission

asked about the length of time for which the stacks at were not monitored. CNSC staff responded that that data was never included in the annual compliance reports. This information was confirmed by the GEH-C representative.

95. The Commission expressed concern over how these additional releases were not discovered in previous inspections. Addressing this issue, CNSC staff responded that GEH-C did include those stacks in their dispersion modelling, and every three years GEH-C performs batch sampling to ensure that their modelling basis remains valid. CNSC staff stated that this modelling and sampling provided the necessary assurance that there were no unknown emissions that would impact human health and safety or the environment. CNSC staff added that these stacks will be monitored from this point forward, and that the net result of all emissions was still below the licence limit. The Commission is satisfied with the proposed additional monitoring.

96. Asked if air emission monitoring at the Peterborough facility was required, CNSC staff responded that the air emissions from that facility are low enough that they conform to the MOECC standard at the stack where emission monitoring does occur, so no further ambient air monitoring at that facility is required.

97. Regarding the issue of radiological or toxicological limits for beryllium (Be), CNSC staff reported that action levels and release limits for Be were not set at the Peterborough facility since airborne Be releases are below the MOECC ambient air standard[7] and liquid Be releases are below the GEH-C internal control levels, which are comparable to international drinking water standards. CNSC staff added that new release limits are being developed for that facility due to a recent incident of unmonitored stacks (discussed earlier in these minutes). The Commission commented that including guidance on release limits would improve public understanding regarding the level of safety for those releases.

98. CNSC staff explained the process for the inclusion of dilution effects in the effluent release limits, using the release limits for uranium releases into the water as an example. CNSC staff added that the release limits are based on the provincial standards, and the dilution factors are applied to provide for the protection of aquatic life. The Commission suggested that more information regarding these dilution effects should be included in future reports to the Commission.

[7] Ontario Ministry of the Environment and Climate Change – *Ontario's Ambient Air Quality Criteria*, April, 2012.

Public Consultation

99. The Commission recommended that GEH-C perform public opinion surveys to obtain more information from the public on their views of the GEH-C facilities, and pointed out that public opinion surveys are a standard practice for other licensees. The GEH-C representative stated that they will take that recommendation under advisement and will make a proposal to the new management team once the licence transfer to BWXT occurs.

Part 2. Nuclear Substance Processing Facilities

100. Considering the nuclear substance processing facilities, CNSC staff reported that it was of the opinion that these facilities operated safely in 2015 and met the performance expectations for the health and safety of workers, the protection of the environment, and Canada's international obligations. All of these facilities received at least a satisfactory performance rating in each of the 14 SCAs, except for Best Theratronics Limited (BTL), which received a below satisfactory rating in the emergency management and fire protection SCA. Additionally, SRB Technologies Canada Inc. (SRBT) received a fully satisfactory rating in the fitness for service and conventional health and safety SCAs, while Nordion Canada Inc. (Nordion) received a fully satisfactory rating in the environmental protection and security SCAs.

SRB Technologies (Canada) Inc.

101. Addressing the issues of a potential tritium groundwater plume moving towards the Muskrat River, CNSC staff confirmed that the groundwater flow pattern is towards the river, but that the tritium concentrations in the groundwater are very low. CNSC staff stated that comprehensive studies were conducted on the groundwater behaviour, and analytical models were used to predict the variation in tritium concentration at a certain well that showed a high tritium concentration. CNSC staff added that the behaviour of the tritium variation is in line with CNSC staff's predictions.

102. Asked if the high tritium levels in certain wells would reduce over time, CNSC staff responded that there is some replenishment of the tritium in those specific wells during the normal operation of the facility. CNSC staff stated that their estimations for the tritium concentrations are at approximately 35,000 Becquerels per litre, and that, by the time the groundwater reaches the river, the tritium concentration is below the detectable limit. The SRBT representative provided additional

clarification that there are approximately 20 wells in that area that monitor the water at different depths, and that the other wells at the boundary of the site were seen to have very low tritium concentrations.

103. Addressing why extremity doses were not used for tritium monitoring, the SRBT representative stated that the effective way to measure tritium doses is through urinalysis, with all staff members being monitored every week or every second week. CNSC staff stated that extremity dosimeters are not the appropriate method for measuring tritium doses and confirmed that tritium doses are ascertained through urinalysis.

104. Asked about the liquid effluent release limits, CNSC staff responded that these limits include dilution effects. CNSC staff stated that the release limits were based on the protection of the groundwater, which ensures that the release limits will be well below the dose limits for a member of the public. The SRBT representative stated that the release limits were based on one fifth of the values stated in IAEA TECDOC-1000[8] and were developed in conjunction with CNSC staff. The SRBT representative added that on-site measurements are performed to ensure that effluent concentrations in the releases remain below the drinking water requirements. The Commission commented that the reference to that IAEA document should be added to future reports to the Commission.

Nordion (Canada) Inc.

105. Addressing the missed target for the newly established internal thyroid monitoring program, the Nordion representative reported that, each year, Nordion establishes safety goals. The Nordion representative stated that this new program was intended to measure and improve safety culture and safety compliance, however, it was not intended to be an indication of the occupational health and safety of employees. The Nordion representative added that the program has achieved its target monitoring goals in 2016. CNSC staff stated that Nordion is meeting the requirements of its monthly monitoring program, and that CNSC staff will continue to monitor this new program as it progresses.

106. The Commission noted that the occurrence of three LTIs at Nordion in 2014 caused the conventional health and safety SCA to move from a fully satisfactory to a satisfactory rating, and

[8] International Atomic Energy Agency – IAEA-TECDOC-1000 *Clearance of materials resulting from the use of radionuclides in medicine, industry and research*, 1998.

enquired into why the rating change was not changed again in 2015 when no LTI's occurred. CNSC staff reported that LTI's are one indicator for this SCA. However, other measures such as the licensee's staff's awareness of health and safety, as well as the initiatives and programs in place, also factor into the rating for this SCA. CNSC staff stated that the increase in LTIs in 2014 was not part of an overall trend.

107. Asked how safety awareness is evaluated, CNSC staff provided an overview of the indicators used to provide an overall assessment of safety awareness and stated that the employee awareness and participation programs are reviewed and inspected by CNSC staff to ensure these programs meet the licensee's internal requirements and the requirements of the *Labour Code of Canada Part II*[9]. The Nordion representative stated that the organization was disappointed with the occurrence of the three LTI's and that improvements have been made in terms of safety reporting and the overall safety culture.

108. Regarding the protective guidelines for the Nordion release limits, CNSC staff responded that these limits are based on the derived release limits from the CSA N288.1 standard[10]. Addressing the action levels used by Nordion, the Nordion representative stated that these are established in agreement with CNSC staff and are based on releases that would indicate a loss of control at the facility.

Best Theratronics Ltd.

109. The Commission congratulated CNSC staff on the inspection that identified BTL's non-compliance with the *National Fire Code of Canada*[11]. CNSC staff stated that this non-compliance was identified through the review of the BTL fire hazard analysis and the ensuing inspection, and that an order was issued to stop using the dust collector until it was in compliance with the fire code. Addressing the requirement for third-party audits, CNSC staff responded that there is a requirement for annual third-party review of this facility, and CNSC staff receives a copy of the auditor's report.

110. On the root cause of this non-compliance, CNSC staff responded that the amount of dust and the overall state of the carpentry shop was deemed to be unacceptable. CNSC staff stated that BTL

[9] Canada Labour Code (R.S.C., 1985, c. L-2)
[10] CSA Group – CSA N288.1, *Guideline for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, 2014.
[11] National Research Council Canada – *National Fire Code of Canada 2015*, 2015. < http://www.nrc-cnrc.gc.ca/eng/publications/codes_centre/2015_national_fire_code.html>

hired a consultant to provide recommendations for improvement, and that all of the recommendations, including the replacement of the dust collector system, have been implemented. The shop now meets regulatory requirements. CNSC staff clarified that the report of the fire hazard assessment plan that was reviewed by CNSC staff originated from the third party auditor, and that the licensee's action plan was deemed to be insufficient, prompting the CNSC staff inspection.

111. Addressing the expectations of BTL with respect to the results of the fire hazard assessment report, CNSC staff reported that BTL has a problematic compliance history. CNSC staff stated that, in general, the licensee is allowed to implement improvements specified in third-party reports. However, due to the compliance history of BTL, CNSC staff felt they needed to obligate BTL to take immediate action and to closely monitor BTL's progress. The BTL representative acknowledged the organization's compliance issues with respect to the fire code and stated that the carpentry shop had not been identified as an area of high priority, which was an incorrect assessment.

112. Asked about the disposal of sealed sources, the BTL representative noted that the transportation of these sources to Nordion for their disposal is progressing quickly, and that the number of sources being disposed of exceeds the requirements set out in the order. CNSC staff noted that approximately half of the sealed sources have been disposed of or sold off, and CNSC staff is reviewing the preliminary decommissioning plan from BTL based on the updated sealed source inventory.

Part 3. Small Nuclear Research Reactor Facilities

113. Regarding the small nuclear research reactor facilities, CNSC staff reported that it was of the opinion that these facilities operated safely in 2015 and met the performance expectations for the health and safety of workers, the protection of the environment, and Canada's international obligations. All of these facilities received at least a satisfactory performance rating in each of the 14 SCAs, with the McMaster Nuclear Reactor (MNR) receiving a fully satisfactory rating in the security SCA.

Comments from Licensees

114. The Commission invited the licensees to provide any additional comments on the ROR and the questions posed by the Commission. The Royal Military College of Canada (RMCC) representative commented that the use of a graded approach for licensing is beneficial to SLOWPOKE licensees due to the

limited number of staff at these facilities.

McMaster Nuclear Reactor (MNR)

115. Asked about the need to amend the MNR operating licence once the additional facilities are commissioned, CNSC staff responded that these new facilities are already captured within the existing licence. CNSC staff added that, if a change was required, it would be associated with the Licence Condition Handbook for which changes are made by CNSC staff.

116. Addressing decommissioning plans for the MNR, the McMaster representative reported that the reactor is operating as normal, and that there is currently no planned shutdown date.

117. Addressing the event regarding the inoperable shim rods, the McMaster representative reported that this event was caused by a power surge in a sub-circuit resulting in a guide tube failure, and that there was no issue with the control system or safety system. The McMaster representative added that a root cause analysis was performed on this event and corrective actions were implemented.

Slowpoke-2 Facilities

118. Addressing the plans to refuel the SLOWPOKE reactor at RMCC, the RMCC representative reported that they are preparing a business plan to request funding from the Department of National Defence to refuel the reactor, and the target date to have the reactor back to 100% of FP is December 2018, as the reactor is currently running at approximately 50% of FP. The RMCC representative added that the reactor could be run at 50% of FP until about 2020.

119. Asked if there was a forum for all SLOWPOKE licensees to share experiences and best practices, the RMCC representative responded that, while there is no official working group, the licensees do communicate when it is practical through e-mail and at conferences, and would consider the Commission’s suggestion that the sharing of operational experience be more systematic. The Saskatchewan Research Council (SRC) representative stated that there was a SLOWPOKE users group that would meet infrequently, but it did not have formally scheduled meetings and there have been no recent meetings.

120. Regarding decommissioning plans for the SLOWPOKE facilities, the licensees provided the following information:

- The University of Alberta representative stated that the application for a licence to decommission the SLOWPOKE would be submitted to the CNSC shortly, with the planned decommissioning to occur in 2017.

- The SRC representative stated that the decision on decommissioning will be discussed over the next 12 to 18 months. The SRC representative confirmed that the use of highly enriched uranium (HEU) is a factor in this decision, and that refuelling the reactor with low-enriched uranium (LEU) is also an option.

- The RMCC representative stated that there is a decommissioning plan in place. However, the current plan is to refuel the reactor and run it for another 30 years.

- The École Polytechnique representative stated that the current plan is to run the reactor until 2032 and that the licensee may apply to extend that date until 2036, based on the availability of components. The École Polytechnique representative added that there is a decommissioning plan in place for the facility.

121. Asked about the new decommissioning plan and financial guarantee for the SLOWPOKE reactor at École Polytechnique, CNSC staff responded that they are reviewing the new decommissioning plan for École Polytechnique to perform the decommissioning themselves, as well as reviewing the adjusted financial guarantee based on that plan. The Commission commented that the sharing of information on the decommissioning process between SLOWPOKE licensees would be beneficial.

Part 4. Class 1B Particle Accelerator Facilities

122. With consideration of the Class 1B accelerator facilities, CNSC staff reported that it was of the opinion that these facilities operated safely in 2015 and met the performance expectations for the health and safety of workers, the protection of the environment, and Canada's international obligations. Both of these facilities received at least a satisfactory performance rating in each of the 14 SCAs, with the exception of Canadian Light Source Inc. (CLS), which received a rating of below expectations for the human performance management SCA. The TRIUMF

Accelerators Inc. (TRIUMF) facility received a rating of fully satisfactory in the radiation protection and safeguards and non-proliferation SCAs, while CLS received a rating of fully satisfactory in the safety analysis, physical design, fitness for service, radiation protection, environmental protection, waste management, security and packaging and transport SCAs.

TRIUMF Accelerators Inc. (TRIUMF)

123. Asked about TRIUMF's performance with respect to the four LTIs, the TRIUMF representative responded that they performed an internal review of their safety program, and that they are in the process of implementing the safety improvements based on the plan developed during that review. The TRIUMF representative added that the organization is continually looking to improve staff awareness with regards to safety. The Commission commented that four LTIs is unacceptably high, which should have been reflected in the report.

124. Addressing the rubidium target release and subsequent worker dose, the TRIUMF representative explained that this release occurred during the commissioning of a new target and could have potentially resulted in a dose to a member of the public of approximately ten nanosieverts (in comparison, the maximum allowable dose to members of the public is one millisievert).

125. Regarding the production of medical radioisotopes from the TRIUMF facility, the TRIUMF representative stated that medical radioisotopes have been produced, and TRIUMF is capable of supplying the lower mainland area of B.C. The TRIUMF representative added that they are close to completing patient trials for Technetium-99m, for which approval from Health Canada is required.

Canadian Light Source Inc. (CLS)

126. Asked about the lack of progress with regards to the Systematic Approach to Training (SAT) findings and potential enforcement actions, CNSC staff responded that CLS was afforded a two-year period to transition to the new requirements published in 2014 in REGDOC 2.2.2[12], and that this transition included an approved timeline and deliverables. CNSC staff stated that there were significant deviations from the approved schedule resulting in a directive being issued to move CLS back to compliance, with a further compliance inspection scheduled for 2017.

[12] Canadian Nuclear Safety Commission Regulatory Document - REGDOC-2.2.2 *Personnel Training*, August 2014.

Closure of the Public Meeting

127. The meeting closed at 6:19 p.m..

Recording Secretary — Date: Feb. 1, 2017

Secretary — Date: 01-02-2017

APPENDIX A

2016-M-01	2016-03-31	6.02.01
Notice of Participation at a Commission Meeting and Participant Funding Update on the status of the Port Hope Area Initiative (PHAI)		
2016-M-02	2016-03-31	6.02.01
Notice of Participation at a Commission Meeting and Participant Funding Regulatory Oversight Report for Nuclear Processing Small Research Reactor and Class IB Accelerator Facilities: 2015		
16-M61	2016-10-12	6.02.02
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Thursday, November 10, 2016 at the Town Park Recreation Centre in Port Hope, Ontario		
16-M61A	2016-11-01	6.02.02
Update Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Thursday, November 10, 2016 at the Town Park Recreation Centre in Port Hope, Ontario		
16-M62	2016-11-02	6.02.04
Approval of Minutes of Commission Meeting held on September 21 and 22, 2016		
16-M63	2016-11-02	6.02.04
Status Report on Power Reactors		
16-M60	2016-11-04	6.02.04
Status Report on Fitness for Service for the Chalk River Laboratories Submission from CNSC Staff		
16-M44.1	2016-10-03	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from the Canadian Nuclear Laboratories		
16-M44.1A	2016-10-25	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Presentation from the Canadian Nuclear Laboratories		
16-M44	2016-09-02	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from CNSC Staff		
16-M44.A	2016-11-10	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Presentation from CNSC Staff		

CMD	Date	File No.
16-M44.7	2016-10-03	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from John Morand		
16-M44.8	2016-10-03	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Presentation by Lake Ontario Waterkeeper		
16-M44.2	2016-09-29	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from the Port Hope & District Chamber of Commerce		
16-M44.3	2016-09-30	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from Cameco Corporation		
16-M44.4	2016-10-06	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from Canadian Nuclear Association		
16-M44.5	2016-10-03	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from the Municipality of Port Hope		
16-M44.6	2016-10-03	6.02.04
Progress Update on the Port Hope Area Initiative (PHAI) Submission from the Northumberland County		
16-M43	2016-09-02	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Submission from CNSC Staff		
16-M43.A	2016-11-10	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Presentation by CNSC Staff		
16-M43.1	2016-09-02	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Presentation by Cameco Fuel Manufacturing Inc.		

CMD		
16-M43.2	2016-09-02	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Presentation by Cameco Blind River Refinery		
16-M43.3	2016-09-02	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Presentation by GE Hitachi Nuclear Energy Canada Inc.		
16-M43.4	2016-10-04	6.02.04
Information Item Regulatory Oversight Report for Nuclear Processing, Small Research Reactors and Class IB Accelerator Facilities: 2015 Submission from Northwatch		