Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Thursday, December 15, 2011

Canada

December 15, 2011

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Thursday, December 15, 2011 beginning at 9:05 a.m. at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario.

Present:

M. Binder, President
A. Harvey
R.J. Barriault
D.D. Tolgyesi
M. J. McDill

K. McGee, Assistant Secretary
L. Thiele, General Counsel
D. Carrière, Recording Secretary

CNSC staff advisors were: R. Jammal, G. Rzentkowski, R. Lojk, J.-B. Robert, P. Thompson, A. Du Sautoy, M. Rickard, T. Barr, P. Webster, K. Heppell-Masys, R. Awad, B. Valpy, A. Régimbald, I. Tremblay, K. Murthy, H. Rabski, P. Fundarek, S. Faille, R. Obuchi, P. Elder, J. LeClair, J. Glover, S. Eaton, M. Rinker and R. Goulet

Other contributors were:

- Bruce Power: F. Saunders
- National Dosimetry Services: B. Pieterson, B. Ahier and M. Kumar
- Ontario Power Generation: G. Jager and L. Swami
- NB Power Nuclear: B. Kennedy and W. Parker
- Cameco Corporation: L. Mooney and M. Webster
- Ministry of Environment: D. Kristoff

Constitution

1. With the notice of meeting, CMD 11-M66, having been properly given and a quorum of Commission Members being present, the meeting was declared to be properly constituted.

2. Since the meeting of the Commission held September 15, 2011, Commission Member Documents CMD 11-M66 to CMD 11-M74 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 11-M67.B, was adopted as presented.

Chair and Secretary

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

Secretary.

Minutes of the CNSC Meeting Held September 15, 2011

5. The Commission Members approved the minutes of the September 15, 2011 Commission Meeting as presented in CMD 11-M68.

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 11-M69, which includes the Status Report on Power Reactors, CNSC staff presented updates on the following:

   - Bruce A, Unit 3 West Shift project is being reviewed by CNSC staff for health and safety implications and work details;
   - Gentilly-2 is being restarted and is at four percent of full power operation;
   - Pickering A, Units 4 and 6 are returning to service from planned maintenance outage and are in a critical state; and
   - Point Lepreau reported a minor release of light water containing hydrazine at low concentration.

7. CNSC staff provided further details regarding the Bruce A, Unit 3, West Shift project. CNSC staff explained that the project consists of shifting the pressure tubes westward beyond their original location to mitigate the elongation of the pressure tubes which has occurred due to the effects of the high radiation environment. The Commission enquired about the need for a shift in pressure tubes and the related safety implications. Representatives from Bruce Power stated that the current reactor design does not accommodate pressure tube elongation since it was originally thought that the pressure tubes would require replacement before elongation occurred. Representatives from Bruce Power also stated that analyses have shown that the required shift of the pressure tubes and the elongation of the pressure tubes do not compromise safety and the pressure boundary of the system. CNSC staff echoed Bruce Power's statement that there are no known safety issues associated with the West Shift and stated that the pressure tube elongation phenomenon is well understood.

8. The Commission enquired about the length of time Unit 3 has been in operation and about the approximate size of the shift. CNSC staff responded that Unit 3 has been in operation for approximately 20 years and that the size of the shift, required to compensate for the elongation of the pressure tubes, is 95.5 millimetres westerly. The Commission also inquired about the likelihood of a shift in

pressure tubes occurring at other CANDU units. CNSC staff explained that the configuration of other CANDUs is different and that Unit 3 is the only unit that requires this type of pressure tube shift. Representatives from Bruce Power explained that the pressure tube elongation is a well-known phenomenon and that the proposed change is within the safety case for the reactor.

9. The Commission enquired about the leak of light water containing hydrazine at the Point Lepreau Nuclear Generating Station (NGS). CNSC staff responded that the water was leaked to the environment but that this release poses a negligible risk to the environment. The Commission asked if the root cause of this event was known. CNSC staff responded that an investigation into the root cause will not be performed because the event was minor and did not meet the S-99 reporting criteria for mandatory reporting. CNSC staff added that their site inspectors will perform a follow-up of this event. **ACTION due March 2012**

10. In response to a question from the Commission regarding the aging effects that are causing the Darlington units to be de-rated, CNSC staff explained that OPG made an operational decision to de-rate the units in order to reduce spurious alarms caused by aging detectors.

11. The Commission asked if the Bruce B units will be de-rated indefinitely or if corrective actions could increase the power level back to 100% full power. CNSC staff explained that the units at Bruce B are currently de-rated to maintain adequate safety margin to prevent large loss of coolant accidents. CNSC staff added that they are analysing and testing fuel behaviour under accident conditions to determine if the issues at Bruce B, causing the units to be de-rated, can be resolved.

12. The Commission enquired about the Gentilly-2 annual shutdown, asking if problems were encountered which prevented the scheduled return to service of the unit. CNSC staff explained that, since the unit is nearing its end of life, more work is required during shutdowns to allow the unit to continue to operate safely. CNSC staff added that additional inspections and reports were requested from Hydro-Québec before they could return the unit to service, which added to their shutdown workload. CNSC staff also explained that Hydro-Québec encountered minor non-safety related issues and delays during the scheduled shutdown. CNSC staff stated that full power operation and synchronisation to the electrical grid is expected by December 17, 2011.

13. With regards to Pickering B, Unit 6, the Commission enquired about the start-up status of this unit. CNSC staff responded that the unit is currently at low power operation.

Early Notification Reports

Health Canada's National Dosimetry Service: Calculation error discovered in the dosimetry management system used to determine the wrist and ring dosimeter doses

14. With reference to CMD 11-M70 regarding the calculation error discovered in the dosimetry management system used to determine the wrist and ring dosimeter doses, CNSC staff presented their preliminary findings, the chronology of actions performed and the licensing and compliance activities performed in response to this event. Representatives from Health Canada's National Dosimetry Service (NDS) also presented their preliminary findings, recommendations received from third-party reviews, the status of their investigation, the chronology of actions taken and planned activities.

15. In response to a question from the Commission regarding the licensee, CNSC staff clarified that the licence holder is Ms. Glenda Yeates, the Deputy Minister of Health Canada.

16. The Commission requested further information regarding the cause of the calculation error. Representatives from the National Dosimetry Services (NDS) responded that their findings show that elements of the initial change request to update the dose calculation software, revise the blind test procedures and complete the documentation related to the change were incomplete. The Commission asked if procedures were followed during the implementation of this change and also asked how the implementation was verified. Representatives from the NDS explained that changes within the NDS are performed under a quality assurance regime that includes the requirement to document procedures and the requirement to track changes. Representatives from the NDS also explained that changes to the dose algorithm software are verified by comparing calculations obtained by the algorithm against offline calculations.

17. Further to the discussion about the cause of the calculation error, CNSC staff explained that the NDS procedure document outlining the change control process was reviewed and approved during the NDS licence application. CNSC staff stated that the change control process submitted to CNSC staff by NDS at the time of the licence application was not implemented as outlined in the procedure document. Representatives from the NDS explained that an external third party reviewed their quality assurance program and that they will address the weaknesses identified by this third party review to ensure a similar event does not reoccur.

18. With regards to the third party review, the Commission asked if the report from this review has been submitted to CNSC staff. CNSC staff responded having received reports from Health Canada related to the third-party review and stated that, among the issues identified in the review, failures in management oversight and failures in the performance of the blind test were identified.

19. The Commission asked whether NDS employs sufficient experts and technical specialists to implement changes of the type discussed in this event report. Representatives from the NDS confirmed that it had and continues to have sufficient scientific and technical resources and a deep knowledge base to deal with the complex challenges faced by large-scale dosimetry operations.

20. The Commission requested information regarding who performs blind tests for in-house validation of doses calculated by the dose algorithm software. Representatives from the NDS responded that, until all causes of this event are known, they are unable to confirm if the blind tests should be validated by staff other than those involved in the dose calculation operation. CNSC staff explained that there are several types of performance tests, such as the routine performance test which is performed blind by the facility, as well as independent tests conducted by third parties. CNSC staff stated that their preliminary findings show that the NDS failed to implement a performance test appropriately, since the blind tests were being conducted outside of the process, and were therefore unable to detect errors in the dose calculations.

21. The Commission asked whether other institutions perform blind tests. Representatives from the NDS responded that the NDS is one of several licensed dosimetry service providers in Canada and that all dosimetry licensees undertake these types of performance tests as part of their operation.

22. With regards to the first root cause analysis completed by the NDS that did not meet CNSC staff's expectations, the Commission asked if the NDS employs root cause analysis experts. Representatives from the NDS responded that the first root cause analysis was completed internally by the NDS' Radiation Protection Bureau staff members and that some of these members received root cause analysis training. Representatives from the NDS stated that they have engaged outside expertise for the second root cause analysis. The Commission asked the NDS if they have a clear understanding of CNSC staff's expectations regarding the requirements of the root cause analysis. Representatives from the NDS stated that they have received the required information from CNSC staff. CNSC staff explained their efforts in communicating their expectations in relation to the root cause analysis to the NDS, and stated that, despite their efforts, the NDS' first submission was

deficient.

23. The Commission enquired about the status of the NDS licence. CNSC staff responded that they have not yet re-authorized the NDS to report doses for ring and wrist dosimeters. CNSC staff reported having validated the NDS whole body dosimetry service and reported that no errors or other issues were found in the algorithm; therefore the whole-body dosimetry service was allowed to continue. CNSC staff also reported that they do not believe it is appropriate to revoke or suspend the NDS licence at this time and will await NDS' detailed root cause analysis and corrective action plans to determine whether further enforcement actions are required.

24. The Commission asked how the NDS and the CNSC plan on instilling confidence in the industry following this event. Representatives from the NDS reported being confident in the data they produce for their other services, as validated by a third-party review. Representatives from the NDS also reported being confident in their findings regarding the dose algorithm errors for the extremities. CNSC staff reported that there are serious issues with the NDS in terms of reliance on the quality of their services. CNSC staff stated that compliance activities as well as enforcement activities will be performed, as required, to ensure the results provided by the NDS are reliable. CNSC staff noted that the dosimetry service is not the only line of defence to protect workers, but is an important service which validates radiation protection programs.

25. The Commission expressed concerns regarding this error, which was left undiscovered by both the licensee and CNSC staff for three years, and stated that changes are required with the NDS and with the CNSC to prevent this type of event from reoccurring. CNSC staff responded that they are in the process of changing compliance processes from information obtained through international benchmarking. CNSC staff also stated that it is ultimately the licensee's responsibility to meet regulatory requirements.

26. The Commission stated that it expects the NDS to ensure it has the right expertise for their operations. The Commission also directed that this error be fixed in a timely manner to ensure workers affected by this service do not lose confidence in the industry.

27. The Commission requested a clarification regarding doses which apparently exceeded the limits. CNSC staff clarified that of the three individuals whose doses were found as being above the 500 milliSievert regulatory limit, one dose change requested was submitted for a dose that was recorded on a dosimeter that was not

worn by the individual at the time of the dose exceedence. CNSC staff explained that dose corrections are being made which is the reason behind the use of the term “apparently” for doses having exceeded the limits.

Ontario Power Generation: Employee Dismissals for Code of Conduct Violations – Pickering Nuclear Generating Station

28. With reference to CMD 11-M71 regarding the dismissal of employees for Code of Conduct violations at the Pickering Nuclear Generating Station (NGS), CNSC staff presented a description of the event and stated that the dismissals were on administrative grounds. Representatives from Ontario Power Generation (OPG) stated that they were in agreement with CNSC staff’s description of the event and reported that they treat violations of their Code of Business Conduct very seriously. Representatives from OPG also reported that no fitness for duty or safety-related issues resulted from this event.

29. The Commission asked if this event was the first event relating to an infraction of OPG’s Code of Business Conduct. Representatives from OPG responded that they have had infractions of their Code of Business Conduct in the past, for which investigations and disciplinary actions were applied. Representatives from OPG added that the media and community stakeholders are always informed of these types of events and that the media and community stakeholders are reassured regarding the fitness for duty of the station staff.

30. The Commission asked if this was OPG’s first time reporting an event of this type to the CNSC and enquired about CNSC staff’s response to such events, since they are not safety significant. CNSC staff responded that this was the first time OPG reported this type of event and that they responded by evaluating the impact on safety and the fitness for duty of the station.

31. In response to a question from the Commission regarding the status of this event, CNSC staff stated that they are awaiting a detailed report from OPG before closing the event.

32. The Commission enquired about how certain OPG is that there are no more than 11 people involved in this breach of the Code of Business Conduct. Representatives from OPG stated that they have concluded their investigation and that evidence was only gathered on those 11 individuals. Representatives from OPG also stated that they have a program in place which continually evaluates all personnel working in the power plant or associated with the power plant through a continuous behaviour observation program.

33. The Commission asked if OPG and the CNSC are entertaining the idea of substance abuse testing of employees at nuclear power stations. Representatives from OPG stated that they are confident in their current continuous behaviour observation program which looks into drug and alcohol abuse and other types of fitness for duty concerns, such as fatigue and stress. Representatives from OPG explained that supervisors are trained to be able to detect these types of behaviour. Representatives from OPG also stated that if the CNSC were to implement a policy for drug and alcohol testing they would support and implement requirements. CNSC staff responded that they have performed numerous reviews and are in the process of proposing a policy paper on the fitness for duty. CNSC staff added that they find OPG to be very compliant with the current CNSC requirements with respect to fitness for duty and the strength of that program lies with behaviour observation. Representatives from OPG described their continuous behaviour observation program and the various levels of behaviour observation to the Commission.

34. The Commission asked when this event was first discovered and when was it determined that there were no safety issues. CNSC staff responded that they were informed of the incident approximately two months after the event had occurred, because of the criminal investigation and the sensitivity of the situation. CNSC staff added that they obtained the information they required and requested that the CNSC site staff investigate further to ensure there were no safety concerns. Representatives from OPG added that as soon as they became aware of the situation, law-enforcement authorities in the Durham region were notified and an investigation was initiated. Representatives from OPG also stated that individuals involved in this incident were immediately removed from the protected area of the site while the investigation was ongoing.

35. The Commission asked if the employees removed from their duties in the protected area were replaced by new employees in order to ensure a sufficient number of employees to safely operate the plant. Representatives from OPG responded that the individuals removed from their duties in the protected area were in a support role and that they were able to either replace them or accommodate for this in their work program or reschedule items accordingly where that support is required. Representatives from OPG stated that they also drew on their resources to accommodate the absence of those individuals.

36. The Commission asked if further reporting is required or if the matter can be considered closed. CNSC staff responded that they do not consider this case to be closed and are requesting a more detailed report from OPG. Representatives from OPG stated that

ACTION
due
May 2012

they are available to report to the Commission to provide a further update, pending litigation and privacy concerns.

New Brunswick Power Nuclear: Small Spill of Heavy Water at Point Lepreau Nuclear Generating Station on December 13, 2011

37. With reference to CMD 11-M74 regarding a small spill of heavy water at the Point Lepreau Nuclear Generating Station (NGS) on December 13, 2011, CNSC staff presented a description of the event and stated that the leak presented a negligible risk to the environment with no worker or public health implications. CNSC staff indicated that preliminary conservative calculations indicate an airborne release of tritium of less than 0.3 percent of the weekly derived emission limit and less than three percent of the more conservative action level. CNSC staff also indicated that the highest maximum dose to a member of the cleanup crew was estimated at 0.09 milliSievert, which is less than 0.5 percent of the station administrative level. Representatives from New Brunswick Power Nuclear (NB Power) stated that they are in agreement with CNSC staff's description of the event and stated that the event did not occur as a result of human error.

38. The Commission enquired about the status of this event at the time of the Meeting. Representatives from NB Power responded that the moderator fill activities were on hold pending the investigation.

39. The Commission asked if the event was discovered through radiation alarms. Representatives from NB Power responded that their control room was informed of increasing tritium levels moments before alarm setpoints were reached. Representatives from NB Power stated that the reactor building was evacuated safely, as per procedures. CNSC staff added that CNSC site employees were in the control room within 15 minutes of the radiation alert and noted that the radiation program in place at Point Lepreau NGS was followed during the event. CNSC staff stated that they are satisfied with NB Power's response to the event and that they are only concerned with the cause of the spill.

40. The Commission asked why a new batch of detritiated heavy water is not being used to refill the moderator system. CNSC staff explained that the tritiated heavy water was stored onsite and is now being returned to the system untreated because there is no tritium removal facility on-site. CNSC staff also explained that it was determined, through the overall risk assessment, that it is safer to reuse the tritiated moderator heavy water than to transport the heavy water to a tritium removal facility in Ontario. Representatives from NB Power added that they reviewed various options and concluded that the risks associated with reusing the heavy water in storage were manageable.

41. The Commission enquired about the amount of heavy water that was leaked to the environment during this event. Representatives from NB Power stated that the spilled heavy water was collected and that an airborne release of tritium of less than 0.3% of the weekly derived release limit was observed.

42. The Commission asked if the gas chromatograph was part of the refurbishment activities. Representatives from NB Power responded that the gas chromatograph unit was replaced as an upgrade during the refurbishment but was not part of refurbishment activities.

43. The Commission asked if the gas chromatograph or associated equipment will be replaced. Representatives from NB Power stated that they will be completing a root cause analysis to understand why the equipment failed before deciding if replacement of the equipment is necessary. CNSC staff added that they will be reporting on their findings upon completing their investigation. **ACTION due March 2012**

44. The Commission asked if there are other zones within the reactor system that could encounter a similar problem. Representatives from NB Power stated that they have done extensive testing on equipment being returned to service and that they will apply lessons learned from this event. Representatives from NB Power also explained that they ensured the equipment was ready for service prior to the start of moderator fill activities.

45. The Commission expressed concerns regarding events that have occurred at Point Lepreau. CNSC staff explained to the Commission that this event occurred during a non-routine activity and that NB Power employees responded appropriately to minimize consequences. Representatives from NB Power stated that they focus on safety and quality and that they consider this event as serious; they will therefore be looking further into this issue.

Updates on items from previous Commission proceedings

Cameco Corporation: Annual Update of the Beaverlodge Decommissioned Mine and Mill Site

46. With reference to CMD 11-M73 and CMD 11-M73.1, representatives from Cameco and CNSC staff presented an annual update of the Beaverlodge decommissioned mine and mill site.

47. The Commission enquired about the use of the term “justifiable risk” in CNSC staff’s CMD to describe residual risk regarding the transfer of the Beaverlodge properties into the Institutional Control

Program. CNSC staff responded that, once Cameco presents its cost-benefit analysis for the properties associated with Beaverlodge, CNSC staff will determine if the site will require on-going monitoring based on residual risks which include factors such as the remoteness of the site. Representatives from Cameco also responded that the province will take responsibility of the site via the institutional control program, once it can be shown that a property is stable and recovering. The Commission asked if the Saskatchewan Ministry of Environment (MOE) has well-defined criteria for which such properties can been accepted into institutional control. A representative from the Saskatchewan MOE stated that there are no limits for residual risk but that a risk management framework must be in place before a property is accepted into the institutional control registry.

48. The Commission enquired about the level of remediation required to turn the property over to institutional control. CNSC staff explained that, at the next licence renewal in 2012, Cameco should have the knowledge to present remedial options and residual risks associated with them along with a clear indication of the end objectives. In this regard, representatives from Cameco stated that they expect to meet the milestones set in their three-year plan during the year 2012.

49. The Commission asked if all the opened boreholes have been located at the Beaverlodge site. Representatives from Cameco responded that a third-party review of available records was conducted to identify boreholes on the property. CNSC staff stated that they examined this third-party review and found it to be an extensive assessment of available information.

50. The Commission requested information about the method used to seal the boreholes. Representatives from Cameco explained that they sealed the boreholes with grout according to the provincial guidance on sealing boreholes, to a depth of 30 metres from the collar where possible. Representatives from Cameco added that the three boreholes (of a total of 14) that were not successfully sealed in 2011 have temporary packers or plugs in place.

51. The Commission asked why the remaining three boreholes could not be permanently sealed in 2011. Representatives from Cameco responded that they had unsuccessful attempts at sealing the three remaining boreholes, mainly due to flow issues. Representatives from Cameco added that they are working with a contractor to develop a different sealing method, which they are confident can be implemented in 2012. CNSC staff informed the Commission that Cameco has been actively working towards sealing all of the boreholes on the property. In response to a question from the Commission regarding the flow issues, representatives from

Cameco explained that flow rates could not be determined for two of the three boreholes in question since the boreholes are located underwater.

52. The Commission enquired about the potential impact on ground water flow of sealing the boreholes. Representatives from Cameco responded that ground water flow conditions were monitored prior to permanently sealing the boreholes. Representatives from Cameco stated that they do not believe sealing all boreholes will have an adverse affect on groundwater flow.

53. The Commission enquired about the sudden increase in the ambient radon activity concentration at Marie Lake. CNSC staff explained that the large increase in radon activity concentration at Marie Lake for 2010 is due to a single sample, which is being re-sampled. However, CNSC staff explained their view to the Commission that the risk associated with this elevated reading is low.

54. The Commission asked if there is a sense in urgency in completing the country food study, since the local population continues to consume locally harvested products. Representatives from Cameco responded that there is a sense of urgency but that they also want this study to be properly conducted. Representatives from Cameco explained that country food harvesting by the local residents is not common on the licenced Beaverlodge properties and that fish advisories are posted at Beaverlodge Lake and Martin Lake advising against the consumption of fish. Representatives from Cameco further explained that, from numerous public consultation efforts, those two lakes are not considered prime fishing areas. CNSC staff added that the local population prefers to fish at other lakes, such as Lake Athabasca, where fish can be consumed regularly.

55. The Commission asked if the population will be immediately notified of abnormal findings in the country food study. CNSC staff stated that they expect immediate disclosure of abnormal results to the population. Representatives from Cameco responded that they would notify the population of abnormal findings and that the regional health authority, who has been engaged throughout the country food study, would accompany them in reviewing results with the local community.

56. The Commission enquired about the status of the long-term activities proposed during the 2009 licence renewal hearing. Representatives from Cameco and CNSC staff both responded that all activities are on schedule as per the original plan in 2009. CNSC staff added that information is still being gathered to determine the current state of the properties and downstream

environment, to identify what, if any, further remediation can reasonably be done, and to review performance objectives. The Commission asked if endpoints will be known at the next licence renewal hearing. CNSC staff stated that they believe they will then have enough information to make recommendations for a decision.

57. The Commission enquired about the status of the conceptual site model development. CNSC staff clarified that the basic conceptual site model, which identifies pathways that contaminants are transferred to the food chain, was completed in 2010 and the Quantitative Site Model, which contains the actual calculations and predictions, will be finalized early in 2012.

58. The Commission requested that a list of all 62 properties and the status of their transition into institutional control be available to Commission Members at the next licence renewal hearing. The Commission also requested that a list of decommissioning close-out parameters be tabulated to clearly show what Cameco is working towards. **ACTION due November 2012**

59. With regards to the Joint Regulatory Group, the Commission enquired about the role of the Aboriginal community. CNSC staff explained that Aboriginal groups in the area provide input to the Joint Regulatory Group by representing the local community's interests in workshops.

60. The Commission requested information about tailing boils. CNSC staff explained that a tailing boil occurs when tailings penetrate through the cover to the surface, which could result in erosion, dispersion of the tailings, and exposure of the tailings. The Commission asked if sand wash due to the absence of vegetation on the engineered tailings cover at Fookes Lake has been observed. CNSC staff responded that they have not observed sand wash at any of their annual inspections to date.

61. The Commission asked if there is a net fishing enterprise in the winter on the lakes in and around the Beaverlodge site. Representatives from Cameco stated that they are not aware of such activities in the area and stated that Lake Athabasca is the most popular choice for fishing for residents of Uranium City.

62. With regards to financing, the Commission asked if Canada Eldor Inc. is involved in Cameco's work plan. Representatives from Cameco responded that Canada Eldor Inc. has two subject matter experts working with them on the development of the Quantitative Site Model as well as on other site activities relating to ongoing work. Representatives from Cameco stated that Canada Eldor Inc. does not approve the plan but has input into proposed activities. CNSC staff stated that Canada Eldor will be invited to the licence

renewal hearing to acknowledge the agreement or the plan being proposed.

63. With regards to public consultation, the Commission asked if the results of the public consultation polls are available on the Cameco Web site. Representatives from Cameco responded that the results of the polls are not specifically presented on the Beaverlodge or Cameco Web sites but that they will look into the possibility of adding them.

64. The Commission requested information regarding the safe level of selenium in drinking water. CNSC staff responded that the Canadian Council of Ministers of the Environment's (CCME) Water Quality Guideline for the Protection of Aquatic Life is one microgram per litre and stated that this value is a guideline, not a limit. The representative from the Saskatchewan MOE added that they are aware that the guideline value for selenium has not been met, which is why the Saskatchewan MOE has conducted additional selenium studies, fish health studies and have implemented a fish advisory. The representative from the Saskatchewan MOE also stated that they will not require the selenium concentration to be below the guideline value before transferring the land into institutional control, planning instead on managing the risk appropriately.

65. The Commission asked if the Quantitative Site Model is tested in order to ensure the data it contains is replicable. Representatives from Cameco stated that they are currently going through the testing phase and plan on meeting with CNSC staff in January to go through the model.

66. The Commission requested information regarding the behaviour of radium concentration in Fulton Creek. CNSC staff responded that they are currently investigating the long-term stability of radium in the environment. CNSC staff briefly explained their hypotheses and current findings and stated that they expect the radium that settled in Fulton Creek to eventually remobilize. CNSC staff said they will continue to examine current research and current tailings management practices regarding this natural phenomenon.

INFORMATION ITEMS

Nuclear Substances in Canada: A Safety Performance Report for 2010

67. With reference to CMD 11-M72, CNSC staff presented the safety performance report entitled *Nuclear Substances in Canada: A Safety Performance Report for 2010*. The presentation provided an overview of the core processes applied in regulating the use of nuclear substances in Canada. The Commission expressed its

satisfaction with respect to the value and quality of the report, and commended staff for their efforts in preparing it.

68. The Commission asked if CNSC staff is entertaining the idea of using the same performance rating system for all sectors of the nuclear industry regulated by the CNSC. CNSC staff responded that they will eventually move towards standardizing the rating system but that time is required to make the change in order to inform licensees of the new rating system and in order to update the licensing database.

69. With regards to stereotactic teletherapy in the medical sector, the Commission asked how risks to the public are mitigated and how the equipment is certified for use. CNSC staff explained the various controls and emergency systems and stated that a technician, a medical doctor and a physicist are all present when treatments are administered and can respond to system issues as they arise. CNSC staff also explained that Health Canada and the CNSC must independently approve the equipment for use before licensing the equipment and that the CNSC must conduct regular inspections to ensure the equipment is operating as intended and as approved by both government agencies.

70. The Commission noted that every year there are 10 to 15 percent of all licensees who are issued “C”, “D” or “E” performance ratings and asked if this trend is due to the same licensees underperforming each year. CNSC staff responded that licensees are not inspected every year because there is an established inspection frequency, depending on the sector. However, CNSC staff said that the inspection frequency can be increased depending on inspection findings.

71. The Commission requested that CNSC staff present performance ratings individually in future reports since the significance of each rating differs greatly from the next. The Commission also requested that CNSC staff include examples of non-compliances that have led to the issuance of those performance ratings.

72. The Commission requested information regarding the total number of sites under the academic and research sector. CNSC staff responded that there are approximately 4,500 academic and research facilities consolidated into 290 licences. The Commission asked if CNSC staff inspects each of these facilities. CNSC staff responded that they do not inspect all facilities under a licence during each inspection but that, depending on the size of the institution, they judge compliance on a sample of facilities. CNSC staff also added that they ensure licensees have a comprehensive inspection program to inspect their own operations within their institution.

73. The Commission asked if the events presented in the report are individual events or if some events presented were events that occurred during other events. CNSC staff responded that they ensure there is no double counting of events by reporting each event individually and that they are characterized by the worst element of the event. CNSC staff added that, for classification purposes, they use one category but that they investigate and act upon all the contributing factors of an event.

74. The Commission asked why orders are not always issued to licensees who get unacceptable ("E") performance ratings during inspections. CNSC staff responded that some licensees with "E" performance ratings were not issued orders because they ceased operation on their own initiative instead.

75. The Commission asked why doses to workers in the portable gauges sub-sector are increasing every year. CNSC staff responded that the increase in doses throughout the years could be a result of companies reducing their workforce or increased workload.

76. The Commission enquired about the decreasing number of licences between 2008 and 2010 in each of the four sectors presented in the report. CNSC staff explained that the reduction in the number of licences is the result of efforts over the last couple of years in consolidating licences, and of amendments to the *Nuclear Substances and Radiation Devices Regulations*[1] which removed several low-risk licensees from the requirement of holding a licence. However, CNSC staff expects the number of licensed facilities in certain sectors to increase.

77. The Commission enquired about the validity of CNSC's sector-to-sector comparisons, noting that the number of licensees differ greatly from one sector to the next. CNSC staff responded that sector-to-sector comparisons are only to show how each sector generally compares to the industry.

78. The Commission enquired about the periodicity of inspection at facilities and requested that this information be presented in future performance reports. CNSC staff responded that each licensee is inspected at least once every five years but that, depending on the level of risk, they may be inspected more frequently.

79. The Commission requested more information regarding the use of representative samples of workers to examine the performance of sectors in relation to occupational exposures to radiation associated with the CNSC-licensed activities. CNSC staff explained that

[1] Statutory Orders and Regulations (SOR)/2000-207

representative samples of workers are produced by randomly selecting ten percent of annual compliance reports submitted in a sector and tabulate doses using the values presented in these selected compliance reports.

80. The Commission enquired about CNSC enforcement activities related to missing nuclear substances, as well as the associated risk. CNSC staff responded that they consider the missing devices as being low-risk with very low dose rates. CNSC staff added that relevant authorities and the metal recycling industry are informed of these missing devices and that it is the responsibility of the licensee to recover the sources. CNSC staff noted that information regarding risk and enforcement activities will be listed in the performance report.

81. The Commission also requested that information regarding regulatory oversight of medical accelerators operating below 10 megavolts be included in future reports. CNSC staff noted that information regarding this regulatory initiative will be added.

82. The Commission asked how CNSC staff determines the amount of oversight required for each sector. CNSC staff stated that they view dose levels as a clear indicator of safety, and that inspection schedules are established according to the level of risk to both the workers and the public.

83. The Commission enquired about the appropriateness of naming exposure device operators who were decertified in the performance report. CNSC staff stated that the names of these individuals were already posted on the CNSC's public Web site and in the DNSR Newsletter. CNSC staff noted that they are taking the same approach as other regulatory bodies who make public the names of persons who lose their accreditation.

Closure of the Public Meeting

84. The meeting closed at 3:36pm.

Recording Secretary — Date: 2012-02-22

Secretary — Date: 2012-02-20

APPENDIX A

CMD DATE File No

11-M66 2011-11-15 (Edocs 3840083)
Notice of Meeting of December 15, 2011

11-M66.A 2011-11-18 (Edocs 3841682)
Revised Notice of Meeting of December 15, 2011

11-M67 2011-11-30 (Edocs 3846028)
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Thursday, December 15, 2011, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

11-M67.A 2011-12-08 (Edocs 3850248)
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Thursday, December 15, 2011, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

11-M67.B 2011-12-14 (Edocs 3853230)
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Thursday, December 15, 2011, in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

11-M68 2011-12-08 (Edocs 3850228)
Approval of Minutes of Commission Meeting held September 15, 2011

11-M69 2011-12-08 (Edocs 3850368)
Status of power reactor units as of December 11, 2011

11-M70 2011-10-24 (Edocs 3825539)
Early Notification Report – Health Canada's National Dosimetry Service: Calculation error discovered in the dosimetry management system used to determine the wrist and ring dosimeter doses – Written submission from CNSC staff

11-M70.A 2011-12-06 (Edocs 3849074)
Significant Development Report – Health Canada's National Dosimetry Service: Calculation error discovered in the dosimetry management system used to determine the wrist and ring dosimeter doses – Supplementary written submission from CNSC Staff

11-M70.1 2011-12-07 (Edocs 3850064)
Early Notification Report – Health Canada's National Dosimetry Service: Calculation error discovered in the dosimetry management system used to determine the wrist and ring dosimeter doses – Written submission by Health Canada's National Dosimetry Service

11-M71 2011-12-08 (Edocs 3850327)
Early Notification Report – Ontario Power Generation: Employee Dismissals for Code of Conduct Violations – Pickering Nuclear Generating Station – Written submission from CNSC Staff

11-M72 2011-11-30 (Edocs 3845973)
Nuclear Substances in Canada: A Safety Performance Report for 2010 – Oral presentation by CNSC staff

11-M73 2011-11-29 (Edocs 3829235)
Cameco Corporation - Annual Update on the Beaverlodge Decommissioned Mine/Mill Site – Written submission from CNSC staff

11-M73.1 2011-11-24 (Edocs 3845473)
Cameco Corporation - Annual Update on the Beaverlodge Decommissioned Mine/Mill Site – Written submission from Cameco Corporation

11-M73.1A 2011-12-07 (Edocs 3849940)
Cameco Corporation - Annual Update on the Beaverlodge Decommissioned Mine/Mill Site – Oral presentation by Cameco Corporation – Supplementary Information

11-M74 2011-12-14 (Edocs 3853189)
Early Notification Report – NB Power Nuclear: Small spill of heavy water at Point Lepreau Nuclear Generating Station on December 13, 2011 – Written submission from CNSC Staff