

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, December 9, 2009 beginning at 9:07 a.m. at the CNSC Headquarters, 14th floor, 280 Slater Street, Ottawa, Ontario. The meeting was adjourned at 6:45 p.m. on Wednesday, December 9 and reconvened on Thursday, December 10, 2009 at 9:05 a.m. at the same location. The public meeting was adjourned again at 12:37 p.m., reconvened at 3:32 p.m. and closed at 4:05 p.m.

Present:

M. Binder, President  
A. Graham  
C.R. Barnes  
A. Harvey  
R.J. Barriault  
M. J. McDill

M. Leblanc, Secretary  
J. Lavoie, Senior General Counsel  
P. Reinhardt, Recording Secretary  
M. Young, Recording Secretary

CNSC staff advisors were: P. Webster, F. Rinfret, P. Elder, K. Lafrenière, T. Schaubel, B.R. Ravishankar, L. Desaulniers., J. Schmidt, M. Ilin, J. Jaferi, G. Cherkas, S. Lei, M. Rinker and D. Werry

Other contributors were:

- Atomic Energy Canada Limited: W. Pilkington and A.J. White
- Bruce Power Inc.: F. Saunders
- Hydro-Québec: C. Gélinas
- University of Alberta: G. Pavlich and M. J. M. Duke
- Ecole Polytechnique de Montréal: G. Kennedy, G. Marleau and C. Chilian
- Royal Military College of Canada: K. Nielsen and R. Weir
- Saskatchewan Research Council: J. Muldoon, Y. Wo and W. Yuen
- Ontario Power Generation Inc.: M. Elliott and R. Leavitt,
- Province of Ontario: S. Imbrogno
- Cameco Corporation: A. Thorne, C. Astles, A. Oliver, D. Clark, J. Degraw, K. Vektor, R. Peters, A. Kodarin, M. Longinov, T. Rouse and M. Garrard
- NB Power Nuclear: G. Thomas, D. Parker and R. Eagles
- Municipality of Port Hope: L. Thompson

### Adoption of the Agenda

1. The agenda, CMD 09-M46.C was adopted as published.

### Chair and Secretary

2. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and P. Reinhardt and M. Young, Recording Secretaries.

### Constitution

3. With the notice of meeting, CMD 09-M45, having been properly given and a quorum of Commission Members being present, the meeting was declared to be properly constituted.
4. Since the meeting of the Commission held November 5, 2009, Commission Member Documents CMD 09-M45 to CMD 09-M65 were distributed to Members. These documents are further detailed in Annex A of these minutes.

### Minutes of the CNSC Meeting Held November 5, 2009

5. The Commission Members approved the minutes of the November 5, 2009 Commission Meeting as presented in CMD 09-M47.

### STATUS REPORTS

#### Early Notification Reports

##### *Hydro-Québec: Gentilly-2 November 18<sup>th</sup> 2009 Sector Alert*

6. With reference to CMD 09-M48, Hydro-Québec presented information regarding the Early Notification Report cited above. Hydro-Québec described the reasons for the chlorine leak, the small quantity of chlorine leaked and the actions taken to mitigate the consequences of the event.
7. The Commission asked Hydro-Québec if the valve responsible for the chlorine leak was still in place. Hydro-Québec responded that the valve was still in place and that the circuit would be disconnected in the presence of the company that owns the gas cylinder. Hydro-Québec confirmed that this repair is carefully planned to ensure that no further mistakes will be made. Hydro-Québec noted that the repair would be completed before the spring of 2010 when the chlorine gas cylinders would have to be used again for water treatment at Gentilly-2.

8. The Commission asked for more information about the employee affected by the chlorine gas. Hydro-Québec responded that the employee felt some irritation of the respiratory tract, but did not need to be hospitalized.
9. In response to further questioning from the Commission on respiratory masks, Hydro-Québec explained that there was a fit testing program in place, but that the cause for the improper fit was the fact that the employee was not freshly shaved as required.
10. The Commission asked Hydro-Québec if it would continue to operate until the start of the refurbishment scheduled for March 2011. Hydro-Québec responded that an outage was planned for the spring of 2010 and that the reactor would be restarted again and operated up to its refurbishment in spring of 2011. Hydro-Québec added that it was presently preparing to appear before the Commission in August and November 2010 for its licence renewal.

*Atomic Energy of Canada Limited: Moisture Found in Fissile Solution Storage Tank (FISST) Thermowell #3 - Impact #OPS-09-31613*

11. With reference to CMD 09-M48, Atomic Energy of Canada Limited (AECL) presented information regarding the Early Notification Report cited above.
12. CNSC staff reported that this event was a repeat of earlier events and that the issue was in the process of being resolved. CNSC staff added that it had increased the number of inspections and communication with AECL in order to facilitate the resolution of this type of events.
13. AECL confirmed that a similar event happened on June 23, 2006; AECL had found contamination on a thermocouple that had been removed for routine replacement and it had subsequently determined that two of the three thermowells were flooded with Fissile Solution Storage Tank (FISST) solution. AECL added that an investigation was performed and that it demonstrated that FISST tank components were fit for service. AECL reported that the cause of the leaks was the use of incorrect material for the thermowell end caps and that corrective actions had been taken to solve the problems in December 2008. Leak detectors were also installed in October 2009. AECL confirmed that it still has adequate redundancy, but that when the root cause analysis is completed, corrective actions will be taken.

14. AECL reported that, during the installation of the leak detectors on October 23, 2009, a second incident happened in the Thermowell Number 3 leading to concerns that the FISST solution would rise in the thermowell and spill out. AECL added that immediate action was taken to cease activities and that it continued to monitor the temperature of the FISST contents via a three-element thermocouple. AECL added that a temporary plug was installed and that all actions to continue the investigation and to resume the routine operations are performed safely.
15. The Commission asked about the effect of the retrieval of Thermowell #2 on the overall safety of the system. AECL responded that a design modification was done to Thermowell #1 to get a duplicate measurement at the mid-level of the tank. CNSC staff responded that it was closely monitoring the remaining thermowells to ensure that AECL continue to be capable to measure the temperature. CNSC staff added that it was comfortable with the fact that, since 2006, AECL was measuring the temperature at various levels in the tank using one single thermowell and one backup. CNSC staff confirmed that AECL has to solve the recent problem to ensure that the system could be maintained safely in the long term.

*Bruce Power Inc.: Bruce-B Nuclear Generating Station - Unit 6 Boiler Feedline Lower Pressure Trip*

16. With reference to CMD 09-M48, Bruce Power Inc. (Bruce Power) presented information regarding the Early Notification Report cited above. Bruce Power noted that it had not yet found the cause for the trip signal being sent, and that an investigation was ongoing.
17. CNSC staff added that the Nuclear Generating Power Station had responded to the incident as per design and that Bruce Power staff had followed the prescribed corrective actions. CNSC staff added that it agrees with Bruce Power's conclusions to date and that an investigation is currently being conducted to find the root cause of the incident.
18. In respect with the faulty switch involved in the incident, the Commission asked Bruce Power how frequently that sort of switch was inspected. Bruce Power responded that the frequency of inspections was based on industry practices and standards and that Bruce was following the best practice. Bruce Power added that it would obtain the answer to the question and forward it to the Secretariat of the Commission.

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*Ontario Power Generation Inc.: Pickering A, Unit 4 – Liquid Zone Control Issues*

19. With reference to CMD 09-M48.A, Ontario Power Generation Inc. (OPG) presented information regarding the Early Notification Report cited above.
20. The Commission asked why an incident that happened on July 24, 2009 was only reported in December 2009. CNSC staff responded that the early notification was for the shut down of the reactor and that the problem itself was not reportable until the reactor was shut down.
21. OPG reported that the problem was unique and that it had not been experienced before in other CANDU reactors either. OPG added that, this fall, it had looked at everything external to the zone, including all the tubing, the electronics, the flows and the inside of the tubing to ensure that there was no blockage. OPG confirmed that the next step would be to look internally and make the repair.
22. The Commission asked if, taking into account that this problem has never been experienced, the results of the investigation would be shared with other CANDU reactors owners around the world. CNSC staff responded that any new operating experience found by a licensee was transmitted to other licensees via the CANDU Owners Group, and that CNSC staff was monitoring the implementation of the corrective action programs at each station.

Status Report on Power Reactors

23. With reference to CMD 09-M49, which includes the Status Report on Power Reactors, CNSC staff presented updates on the following:
  - for Bruce A: Unit 4 is at 91.5 % of full power;
  - for Bruce B: Unit 6 is at 60 % and Unit 8 at 90% of full power;
  - for Pickering A, Unit 4 shut down on December 4, 2009 due to a forced outage until a solution for Zone 2 issues is determined.

There has been no change to the other Nuclear Generating Power Stations status.
24. The Commission asked CNSC staff to add estimated refurbishment dates as appropriate for all power reactors.
25. The Commission asked for reasons why Bruce A Unit 4 was at 69.7% full power. CNSC staff answered that the fuelling machine malfunctioned, which prevented appropriate refuelling. CNSC staff added that the reactor is currently at full power.

**ACTION**

Updates on items from previous Commission proceedings

*SRB Technologies (Canada) Inc. (SRBT): SRBT Status on meeting its financial commitments for the period of October 21 to November 24, 2009*

26. With reference to CMD 09-M65, CNSC staff confirmed that SRBT had met its financial commitments for the period of October 21 to November 24, 2009.

Status Report on four non-power SLOWPOKE-2 reactor facilities

27. CNSC staff stated that while separate CMDs have been prepared for each facility, it would present its status reports in a single presentation. CNSC staff also added that since Dalhousie University SLOWPOKE-2 reactor facility is in the process of decommissioning, it would not be included in the presentation.

*University of Alberta, Ecole Polytechnique de Montréal, Royal Military College of Canada and Saskatchewan research Council*

28. With reference to CMD 09-M50.1 and CMD 09-M50, University of Alberta, CNSC staff provided information regarding the implementation of corrective actions in the area of Training and Quality Assurance (QA), ageing management of the components and systems, and succession planning of workers, as requested by the Commission following the presentation of the mid-term performance report at a Commission public meeting held on October 9, 2008.
29. With reference to CMD 09-M51.1 and CMD 09-M51, CMD 09-M52.1 and CMD 09-M52 and CMD 09-M53.1 and CMD 09-M53, the University of Alberta, l'Ecole Polytechnique de Montréal, the Royal Military College of Canada (RMC), the Saskatchewan Research Council (SRC), and CNSC staff provided information regarding the same issues as requested by the Commission at the October 9, 2008 public meeting.
30. CNSC staff reported that, over the past year, all facilities have revised and submitted their Training and QA Programs. CNSC staff reported that it is satisfied with the progress made by the licensees. Three out of four licensees have completed their documentation for both the Training and QA Programs: the University of Alberta, l'Ecole Polytechnique de Montréal and the Royal Military College of Canada. CNSC staff noted that SRC has submitted its Training and QA Programs, and that these were being reviewed by CNSC staff. CNSC staff added that some comments were provided to the SRC and that SRC has committed to address

them before the end of 2009. CNSC staff further added that SRC submitted a revised QA Program for review in early December, and the review should be completed by the end of 2009. CNSC staff reported that it is satisfied with SRC's commitments.

31. CNSC staff reported that, regarding the SLOWPOKE-2 reactors ageing components, the licensees have worked on this issue since last year in order to find common solutions such as, for example, establishing a spare parts inventory. CNSC staff reported to be satisfied with the licensees' work. CNSC staff also indicated that all licensees are developing succession planning for workers at their facilities. CNSC staff added that it was also working in coordination with the International Atomic Energy Agency (IAEA) on the principles of ageing management of research reactors and that it will be developing a guidance document for the SLOWPOKE licensees to clarify the expectations with respect to aging management. CNSC staff's expectation is that the licensees have formalized an acceptable approach to ageing management for their research reactors before their licence application renewal in 2013.
32. The Commission asked CNSC staff for more information about the guidance document it will prepare to help the SLOWPOKE-2 Facilities to establish an ageing management program. CNSC staff responded that some IAEA guidance documents were already available but that they were very broad and applied to research reactors in general. CNSC staff added that it was planning to refer to the revised version of appropriate sections of the IAEA guidance document on ageing management to be published in 2010.
33. The Commission asked the SLOWPOKE-2 facilities for information on the fuel life in the reactors knowing that the reactor was designed to use the same fuel for extended periods. The representative from l'Ecole Polytechnique de Montréal responded that the fuel had been changed after 21 years of service. University of Alberta described the actions taken for neutron economy and parts replacement. The RMC representative responded that it was anticipating replacing its fuel in 8 to 12 years, and the SRC representative anticipated 15 to 20 years.
34. The Commission asked about the current demand for the use of SLOWPOKE-2 reactors. The RMC representative responded that, in its case, the reactor was busy because most of the work was performed for the Department of Defence and could not be done anywhere else. RMC representative added that another significant part of its work was teaching related. The University of Alberta representative responded that, with additional resources in the lab, there will be a capacity to do more analytical work in support of

teaching and research, and he added that he was of the opinion that all of the facilities have increased the amount of work over the last decade to support the industry. Ecole Polytechnique de Montréal responded that it was reducing its research activities and was trying to get more outside contracts from outside to use the reactor.

35. The SRC noted that it had thought of decommissioning due to the high fees requested for licensing but that due to the increasing exploration and the economic boom, it had been able to keep the reactor going. He also added that there has been an increased demand for using the reactor as an education tool due to the needs of the University of Saskatchewan and University of Regina. He pointed out that SRC would request a reduction in the licensing portion of its fees, given the fact that the reactor was more dedicated to education.
36. The Commission further asked if the SLOWPOKEs have a decommissioning plan in place to accumulate sufficient funds for decommissioning. CNSC staff responded that they all have decommissioning plans and that the financial guarantees currently in place are reviewed every five years. The Commission also asked if Dalhousie University had sufficient funding to complete the decommissioning safely. CNSC staff responded that the Board of Governors had approved the decommissioning and that the money was available for the project.
37. The Commission asked if all the SLOWPOKEs were meeting together regularly to share their needs. The representative of the University of Alberta responded in behalf of the others that they had a meeting last year which was considered productive, and that they would like to hold further regular meetings, possibly every year.
38. The Commission asked if it was required that an operator be present on site 24 hours a day at a SLOWPOKE reactor even when it was not in operation. CNSC staff responded that SLOWPOKE reactors had been designed to be operated without an operator in the room and sometimes they operate overnight without any operators but still under remote surveillance. CNSC staff added that this type of reactor is inherently safe because of its small size and because the reactivity coefficient is negative, which means that it is a self-limiting reactor.
39. The Commission asked if the security aspect of each of the facilities had been evaluated and if CNSC staff was satisfied. CNSC staff responded that there are routine inspections on that matter and that appropriate arrangements are in place.

40. The Commission asked SRC if it had planned additional supervision if the number of students was increasing. SRC responded that it had procedures in place. CNSC staff added that it does not have any concerns on this topic because it is already common at other facilities and well-managed.
41. The Commission asked CNSC staff what would be required if a licensee was planning to make changes to the design of its reactor. CNSC staff responded that the licensee would have to provide the details of the engineering drawings and the project to verify if the planned changes are outside the safety envelope.

### DECISION ITEM

#### *Ontario Power Generation Inc. (OPG)- OPG's Consolidated Financial Guarantee*

42. With reference to CMD 09-M54, OPG and CNSC staff provided information regarding OPG's Consolidated Financial Guarantee, which is comprised of two trust funds and a Provincial Guarantee, for the decommissioning of its Class I nuclear facilities in Ontario. OPG's financial guarantee was approved by the Commission in 2007<sup>1</sup>. OPG explained that, due to poor market performance, OPG's financial guarantee will have a shortfall in 2009 that is expected to continue through to 2012. OPG stated that it is proposing to increase the Provincial Guarantee to make up the shortfall. OPG stated that the Ontario Financing Authority is in agreement with OPG's proposal and provincial staff is preparing to take the request to the Ontario Minister of Finance for decision.
43. CNSC staff stated that if the increase to the Provincial Guarantee is approved by the Minister of Finance, the *CNSC Financial Security and ONFA Access Agreement* between the CNSC, the Province of Ontario and OPG will be required to be amended, as will the *Provincial Guarantee Agreement* between the CNSC and the Province of Ontario. CNSC staff noted that the licence condition referring to the agreements in OPG's operating licences will have to be revised in the event that the agreements are amended. CNSC staff further stated that if the Minister of Finance decides not to approve a new *Provincial Guarantee Agreement*, OPG will be expected to pursue an alternate arrangement to ensure adequate funding of the financial guarantee. CNSC staff stated that it will provide an update to Commission if that is the case.

**ACTION**

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<sup>1</sup> Refer to the Record of Proceedings on the *Financial Guarantee and Licence Amendment for OPG's Class I Nuclear Facility Licences in Ontario*, hearing date November 1, 2007.

44. CNSC staff stated that it reviewed OPG's proposal, including draft versions of the agreements, and found it to be consistent with the guidance set out in CNSC Regulatory Guide G-206, *Financial Guarantees for the Decommissioning of Licensed Activities*.
45. The Commission sought clarification regarding the proposed Provincial Guarantee, including contingencies for inflation. CNSC staff confirmed that the proposed Provincial Guarantee is for \$1.545 billion annually from 2009 to 2012 and has built-in contingencies for inflation.
46. The Commission inquired about CNSC staff's future updates to the Commission on this matter. CNSC staff responded that if the proposed Provincial Guarantee is accepted, the update to the Commission in fall 2010, requested in 2007, will no longer be required. CNSC staff noted that the preliminary decommissioning plan and financial guarantee will be reviewed and presented to the Commission in the fall of 2011, in accordance with the 5-year period established in 2007.
47. The Commission sought further information regarding the role of the Ontario Minister of Finance. The Assistant Deputy Minister with the Ontario Ministry of Finance stated that the proposed Provincial Guarantee will be presented to the Minister of Finance for his consideration and approval if the Commission agrees to it.
48. The Commission sought further information regarding the possibility of future shortfalls. CNSC staff stated that OPG's financial guarantee is reviewed on an ongoing basis and the CNSC has the authority to ask for a new financial guarantee if one is needed. CNSC staff noted that in that event, OPG will be required to address any future shortfalls through its own funding or the Provincial Guarantee.
49. The Commission asked whether the Province of Ontario could change the Provincial Guarantee without the Commission's approval. CNSC staff responded that once the agreement is in place, it is a formal agreement between the CNSC and the province, and it cannot be changed unilaterally.
50. The Commission agrees in principle with OPG's proposed Provincial Guarantee. The Commission notes that the agreements must be formally approved and signed before they are effective.

**ACTION****DECISION**

### Mid-Term Status Reports

*Cameco Corporation (Cameco): Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Refining Facility in Blind River, Ontario*

51. With reference to CMD 09-M55.1, CMD 09-M55.1A, CMD 09-M55 and CMD 09-M55.A, Cameco and CNSC staff provided information regarding the mid-term performance report on Cameco's nuclear fuel refining facility in Blind River, Ontario. Cameco discussed its performance in the areas of safety, radiation protection, environmental protection and public information. CNSC staff provided an assessment of Cameco's performance and stated that Cameco's performance during the licence period is in compliance with CNSC regulatory requirements and meets CNSC expectations.
52. The Commission sought information regarding Cameco's use of the hazardous waste incinerator. Cameco responded that it incinerates contaminated combustible material from Cameco's Blind River facility and Cameco's Port Hope nuclear fuel conversion facility. Cameco stated that the incinerated materials comprise paper, boots, gloves and filter bags. Cameco noted that it has a pollution control system in place. Cameco further stated that it is proposing to operate the incinerator 24 hours a day to make up the backlog resulting from the incinerator not operating for a year.
53. The Commission inquired about Cameco's proposed 24-hour incinerator operation. Cameco responded that if the proposal is accepted, it expects that it will take one to two years to make up the backlog. CNSC staff stated that it is currently reviewing Cameco's proposal, including whether the 24-hour operation will be temporary or long-term. CNSC staff also noted that it will continue to review the waste coming from the Port Hope facility.
54. The Commission, noting that Cameco's uranium emissions are well below the licensed limit, sought further information regarding the licence limit. CNSC staff explained that the licence limit is based on the derived release limit, which is equivalent to the public dose limit of one millisievert per year (1 mSv/y). CNSC staff noted that more stringent administrative controls, or action levels, based on the performance of the plant, are in place to ensure that the plant is operating safely. CNSC staff further noted that it is currently undertaking a project to determine whether to update the levels in the operating licence.

55. The Commission inquired about Cameco's dose trends. Cameco responded that the gamma dose is small and that its fluctuation over the licence period can be attributed to normal variation. CNSC staff concurred with Cameco and noted that the dose to the public is a small percentage of the regulatory limit. CNSC staff stated that the variation is close to the detection limit. The Commission requested that, in the future, CNSC staff and Cameco should include the range of uncertainty in the measurements provided in such tables.
56. The Commission noted that the sum of the maximum individual annual doses received by Cameco's workers over five years may be close to the regulatory limit of 100 mSv/5 years. The Commission sought further information regarding Cameco's radiation protection program. CNSC staff responded that employee doses are tracked individually in the national dose registry. CNSC staff stated that each individual's 5-year average dose is monitored to ensure that the individual is not exposed to radiation in excess of regulatory limits. Cameco noted that if an individual receives an elevated annual dose, that person will be assigned work in less dose-intensive areas in subsequent years. Cameco stated that no worker has received a dose in excess of the regulatory annual or five-year period limits.
57. The Commission sought further information regarding the lung dose received by Cameco's workers over the period 2004 to 2009, noting that it has increased since 2006. Cameco stated that the doses are in a relatively stable range and there is a decreasing trend for 2009.
58. The Commission asked if Cameco's proposal to increase production from 18,000 tonnes of uranium to 24,000 tonnes will require a licence amendment and an adjustment to the financial guarantee for the decommissioning of the facility. CNSC staff responded that the proposed increase will require a licence amendment but that it is not expected to substantively affect the decommissioning costs for the facility. CNSC staff noted that an environmental assessment has been conducted regarding the proposed production increase and that Cameco is currently undertaking a comprehensive engineering analysis to ensure that the equipment systems can handle the increase. The Commission, taking into consideration the proposed increases in production and incineration, noted that air emissions from the facility must remain at levels safe for persons and the environment.
59. The Commission asked about the population of Blind River and the number of First Nations people employed at the facility. Cameco responded that the population of Blind River is approximately 3,500, including 350 Mississagi First Nation people. Cameco stated

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that 17 of its 160 employees are members of the Mississagi First Nation. Cameco noted that it has a joint partnership with the Mississagi First Nation to provide training.

60. The Commission inquired about the metal drums used on-site. Cameco responded that it uses a process involving grit blasting, which is similar to sand blasting, in order to strip the drums down to bare metal. Cameco stated that the metal is checked to ensure that it is not contaminated and then it is crushed and shipped to a scrap dealer in Sault Ste. Marie. Cameco noted that uranium dust is removed and recovered in this process.
61. The Commission sought further information regarding wastes that do not have a pathway for disposal in Cameco's waste management plan. CNSC staff responded that it has asked Cameco to revise its waste management plan in order to address this issue. Cameco stated that it is working on updating its waste management plan.
62. The Commission asked Cameco if it compares its facility's performance to other similar facilities. Cameco stated that it takes part in a consortium of uranium refiners on a yearly basis to discuss issues such as safety culture. Cameco further stated that it has recently joined the CANDU Owners Group to share lessons learned and operating experience.
63. The Commission inquired about the expected lifespan of the facility. Cameco stated that it hopes to continue operations for at least 25 years. CNSC staff stated that the financial guarantee for decommissioning is revised every five years in order to be updated as necessary.
64. The Commission asked Cameco if it posts its environmental monitoring information on its Web site. Cameco stated that it does. CNSC staff noted that it will monitor the information to ensure that it is posted on a routine basis.

*Cameco Corporation (Cameco): Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario*

65. With reference to CMD 09-M56.1, CMD 09-M56.1A, CMD 09-M56 and CMD 09-M56.A, Cameco and CNSC staff provided information regarding the Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario. Cameco discussed its performance in the areas of safety, radiation protection, environmental protection and public information. Cameco also provided updates regarding significant changes during the first half of the licence period,

including the remediation of contamination beneath the uranium hexafluoride (UF<sub>6</sub>) plant. CNSC staff provided an assessment of Cameco's performance and stated that Cameco's performance during the licence period is in compliance with CNSC regulatory requirements and meets CNSC expectations.

66. Three intervenors were permitted to submit written submissions on this matter, CMD 09-M56.2 from the Municipality of Port Hope, CMD 09-M56.3 from the Port Hope Community Health Concerns Committee and CMD 09-M56.4 from John Miller.
67. The Commission sought further information regarding soil concentrations. Cameco responded that the contradiction between its data and CNSC staff data is due to Cameco reporting the average concentration from each sampling zone. CNSC staff noted that some of the measured values were in excess of the Canadian Council of Ministers of the Environment guideline of 23 micrograms per gram (µg/g). CNSC staff stated that these levels are considered to be historic contamination and do not result from Cameco's operation.
68. On the subject of the measurements of neutron radiation, the Commission inquired about the detection limits for Cameco's neutron dosimeters. Cameco responded that it uses two different types of dosimeter and the detection limits are 200 µSv and 100 µSv, respectively.
69. The Commission asked about Cameco's safety performance. Cameco stated that 2009 has been one of its safest years, and although the UF<sub>6</sub> plant was shut down due to the contamination, the work performed during this timeframe was non-routine construction work, which is considered to be higher-risk. Cameco stated that the eight minor events that occurred between August and October 2009 did not result in injuries or any impact on the environment. Cameco noted that it has identified the root cause of these events and that it has developed measures to address them. CNSC staff and the Commission expressed concerns regarding the frequency of these events.
70. The Commission sought further information regarding Cameco's progress with its Vision 2010 project. Cameco responded that it is working with the Port Hope Area Initiative project to remove contaminated soils and all buildings that are no longer in use. Cameco noted that it is re-evaluating whether the construction of new buildings will continue to be part of the project at this time.

71. The Commission sought further information regarding groundwater monitoring in bedrock. Cameco responded that there are 17 monitoring wells installed in bedrock, and nine of them are in the vicinity of Building 50 of the UF<sub>6</sub> plant. Cameco stated that these wells are monitored on an annual basis and that the monitoring information is reviewed annually as part of the annual groundwater monitoring report.
72. The Commission asked about the bags used to store soil. Cameco responded that the soil bags are durable and are stored in a separate warehouse facility<sup>2</sup>.
73. The Commission sought further information regarding the contamination in the Port Hope harbour. Cameco responded that it has a pump-and-treat system surrounding the UF<sub>6</sub> plant to capture the groundwater in the area around the harbour. Cameco further stated that the clean-up of contamination in the harbour is part of the Port Hope Area Initiative and is not part of the Vision 2010 project.
74. The Commission sought further information regarding the plumes going into the harbour. Cameco stated that it has conducted a site-wide risk assessment and has determined that the current ongoing operations of the facility are not significantly impacting the harbour area. Cameco further stated that its site-wide environmental management plan will address any plumes that are currently reaching the harbour. Cameco stated that the dredging of the Port Hope Harbour is expected to be carried out from the mid-summer through to fall of 2015, and that will give Cameco ample time to implement the site-wide environmental management plan and address any issues associated with the conversion facility. The Commission stressed the need to ensure that the harbour is not re-contaminated following the completion of the Port Hope Area Initiative.
75. The Commission considered the input of the Mayor of the Municipality of Port Hope. The Mayor stated that all historical waste is to be cleaned up, as per the legal agreement with Natural Resources Canada and the Port Hope Area Initiative project. The Mayor further stated that the Waterfront Implementation Steering Committee, which involves staff from the Port Hope Area Initiative, from the Municipality of Port Hope and from Cameco, is to ensure that all of the clean-up in the waterfront is consolidated and dealt with. CNSC staff stated that it wants to see the detailed plan on how the committee is going to interact to ensure that this issue is resolved in the right way.

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<sup>2</sup> Site #2 of the Cameco facility

76. The Commission asked about the fate of the Centre Pier buildings in regards to the Port Hope Area Initiative or Vision 2010 projects. Cameco stated that the Port Hope Harbour Commission has instructed Cameco to demolish those buildings, and that the project description has been submitted to CNSC staff for review. CNSC staff noted that this should be considered as part of the environmental assessment for the Vision 2010 project, which will allow for further public consultation.
77. The Commission sought further information regarding the financial guarantee for the facility. CNSC staff stated that Cameco will submit its revised preliminary decommissioning plan and financial guarantee in 2010, which will then be reviewed by CNSC staff. CNSC staff stated that it will bring the matter before the Commission when CNSC staff is ready to make a recommendation on the new guarantee.
78. The Commission asked Cameco about its performance in the area of fire protection. Cameco responded that it was compliant with previous fire codes but further upgrades were required in order to be compliant with NFPA 801<sup>3</sup>. Cameco stated that all of the Fire Hazard Analysis deviations, except for one, have been completed and that the remaining one will be completed by the end of 2009<sup>4</sup>. Cameco also provided information regarding its emergency vehicle storage buildings, which are not compliant with regulatory requirements. Cameco stated that it has taken measures to ensure that these buildings have an acceptable level of fire safety. CNSC staff concurred that these buildings meet the intent of the applicable codes and standards. CNSC staff noted that these buildings are scheduled to be removed as part of the Vision 2010 project.
79. The Commission asked about the transportation of UF<sub>6</sub> cylinders from Cameco's plant. CNSC staff responded that the Municipality of Port Hope has designated the route that Cameco must follow when transporting UF<sub>6</sub> cylinders or any other hazardous materials. CNSC staff further stated that the transportation of dangerous goods is regulated by Transport Canada. CNSC staff stated that the UF<sub>6</sub> cylinders meet regulatory requirements and are not a safety concern.
80. The Commission inquired about the movement of the harbour wall. Cameco responded that it is monitoring this issue and is currently awaiting a report from a third-party consultant. Cameco noted that it

**ACTION**

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<sup>3</sup> *National Fire Protection Association, NFPA-801: Standard for Fire Protection for Facilities Handling Radioactive Materials, 2003 edition.*

<sup>4</sup> CNSC staff has confirmed that the work to upgrade a wall in Building 24 to meet the required fire separation was completed by Cameco on December 10, 2009.

will share the results of this report with the Municipality of Port Hope and CNSC staff. CNSC staff stated that it is monitoring this issue but does not have any concerns at this time.

81. The Commission inquired about a hydrofluoric acid (HF) leak that was referred to by an intervenor. Cameco responded that there was no release of HF during the period specified by the intervenor. Cameco stated that it has completed its investigation of an earlier HF release and has taken corrective measures.
82. The Commission requested further information regarding Cameco's emission reduction taskforce. Cameco stated that it has committed to complete its emission reduction strategy by mid-2010. The Commission expects an update on this matter once CNSC staff has completed its review of the emission reduction strategy.
83. The Commission inquired about the Nuclear Energy Agency Workshop on Ageing Management of Fuel Cycle Facilities conference held from October 5 to 7, 2009 in Paris, France and attended by Cameco and CNSC staff. CNSC staff stated that, during the conference, Cameco presented information regarding the groundwater contamination issue and the lessons learned from a technical viewpoint and CNSC staff provided information from a regulatory viewpoint.
84. The Commission sought further information regarding the emissions from the uranium dioxide (UO<sub>2</sub>) plant. Cameco stated that it has conducted audits of its emission monitoring and reporting and that it has refined its emission calculations for 2009. CNSC staff stated that the manual stack sampling, conducted according to the Stack Sampling Code established by the Ontario Ministry of the Environment, indicated that Cameco's daily monitoring had been under-reported. Cameco stated that it has established a correction factor to address this discrepancy. CNSC staff noted that the emissions remain well below regulatory limits.
85. The Commission inquired about the materials that Cameco sends to Blind River for incineration. Cameco responded that it does not bring in materials from other facilities for incineration and it only sends its own material to Blind River.
86. The Commission inquired about the assessment of lift packs at the end of 2010. Cameco responded that the manager of the materials handling group is responsible for this item. CNSC staff stated that it will follow-up on this matter through CNSC staff's action tracking process.

**ACTION**

87. The Commission sought clarification regarding a comment from an intervenor concerning the storage of UF<sub>6</sub> sludge at Site #2. Cameco responded that there is no storage of UF<sub>6</sub> sludge at the location identified by the intervenor<sup>5</sup>.
88. The Commission inquired about Cameco's emergency response. Cameco responded that it is upgrading its emergency response capabilities, adding more source capacity and updating equipment, including self-contained breathing apparatus. Cameco further stated that its emergency response program is linked with the Port Hope Fire Department.
89. The Commission asked for more information concerning Cameco's intent to increase safety awareness in the UF<sub>6</sub> plant. Cameco stated that it has implemented interim measures, including increased management and leadership presence on the plant floor. Cameco further stated that it is ensuring that it has the adequate controls and oversight needed for these interim measures.
90. The Commission sought clarification regarding an issue raised by an intervenor concerning Cameco selling uranium-contaminated ammonium nitrate as a farmland fertilizer. Cameco responded that ammonium nitrate, a by-product from the uranium dioxide production process, is purified and sold to a local organization. Cameco stated that the ammonium nitrate by-product program has been reviewed by both CNSC staff and Agriculture Canada and has been determined to be safe.

*Cameco Corporation (Cameco): Mid-Term Performance Report on  
Cameco Corporation's Class IB Nuclear Fuel Manufacturing  
Facility in Port Hope, Ontario*

91. With reference to CMD 09-M57.1, CMD 09-M57 and CMD 09-M57.A, Cameco and CNSC staff provided information regarding the Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario. Cameco discussed its performance in the areas of safety, radiation protection, environmental protection and public information. Cameco also provided updates regarding significant changes during the first half of the licence period, including an ongoing worker strike. CNSC staff provided an assessment of Cameco's performance and stated that Cameco's performance during the licence period is in compliance with CNSC regulatory requirements and meets CNSC expectations.

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<sup>5</sup> CNSC staff confirmed after the Meeting that the term "UF<sub>6</sub> sludge" is not correct and UF<sub>6</sub> sludge does not exist. UF<sub>6</sub> exists in a solid, liquid or gaseous form. The cylinders stored at Site #2 are clean and contain no residual UF<sub>6</sub>.

92. Two intervenors were permitted to submit written submissions on this matter, CMD 09-M57.2 from the Municipality of Port Hope and CMD 09-M57.3 from the Port Hope Community Health Concerns Committee.
93. The Commission asked whether the striking workers had expressed any concerns regarding the safety of the facility. Cameco responded that they have not.
94. The Commission asked CNSC staff when it was expecting to complete its review of Cameco's fire hazard analysis that was submitted in June 2009. CNSC staff responded that it plans to complete its review by mid- to late-January 2010 and has a site visit planned for February. CNSC staff noted that it has some questions that will require a meeting with Cameco before they can be resolved.
95. The Commission sought information regarding the impact of soil erosion. Cameco responded that, as part of its groundwater and surface soil sampling program, it has implemented a soil and stability program to mitigate the potential for soil erosion. Cameco stated that it plans to conduct surface water sampling in order to understand any surface migration of any water on the surface. CNSC staff stated that it has not yet received Cameco's report on the matter, but will provide comments once it has. CNSC staff noted that it expects Cameco to submit the report in the next year.
96. The Commission inquired about Cameco's groundwater characterization plan. CNSC staff responded that the groundwater characterization plan will be used to perform a risk assessment on the site.
97. The Commission sought further information regarding an incident where a visitor's badge had received a dosage in excess of regulatory limits. Cameco responded that the visitor badge in question had been used on a quarterly basis by various visitors to the site. Cameco stated that the conclusions from its investigation indicated that the usage of the badge over that time period was not directly related to one individual wearing the badge. Cameco explained that its investigation looked at all of the visitors to the site, what their job functions were and where they were located, and it found that work was not being performed in a location where uranium was present. Cameco stated that it has implemented personal alarming dosimeters to record the doses to individual visitors. CNSC staff stated that Cameco has adequately investigated the incident.

98. The Commission inquired about the soil concentrations of uranium and other contaminants around the site. CNSC staff responded that the soil concentrations around the facility are low, and all are below the Canadian Council of Ministers of the Environment's guidelines, for both industrial areas and residential areas. Cameco concurred with CNSC staff's assessment of Cameco's sampling results.
99. The Commission sought further information regarding fugitive emissions. Cameco stated that it has refined the modelling for estimating fugitive emissions and has conducted tests to verify the modelling. Cameco stated that the preliminary results of its tests have shown a 15 percent drop in the actual values compared to the estimates. Cameco explained that this means that it has been over-reporting fugitive emissions by 15 percent. CNSC staff concurred with Cameco's preliminary assessment.
100. The Commission asked CNSC staff if it has any concerns regarding the changes in Cameco's organizational structure. CNSC staff responded that it does not have any concerns and that it will continue to monitor Cameco's performance at the organizational level.
101. The Commission requested an update on the status of Cameco's financial guarantee for the decommissioning of the facility. CNSC staff responded that the preliminary decommissioning plan and financial guarantee were accepted in 2007 and are in place as required.
102. The Commission inquired about the status of the facility due to the strike. Cameco responded that, as a result of the strike, the facility is not operating but there are no security issues.

### INFORMATION ITEMS

#### *New Brunswick Power Nuclear (NB Power): Update on the status of the Point Lepreau Refurbishment Outage*

103. Commission Member A. Graham recused himself from this meeting item.
104. With reference to CMD 09-M58.1 and CMD 09-M58.1A, NBPN presented an update on the status of the Point Lepreau nuclear generating station (NGS) Refurbishment Outage. NBPN provided information regarding the status of retubing and the status of the activities listed in Appendix J of NBPN's power reactor operating licence, PROL 17.10/2011. NBPN stated that, in general, all pre-reactor refuelling commissioning activities are expected to be

completed by the end of March 2010, and NBPN plans to have the plant online by February 2011. NBPN also provided information concerning its performance in the areas of health, safety and environment and public information.

105. The Commission sought further details regarding the damaged turbine rotors. NBPN stated that approximately 100 turbine rotor blades were replaced and metallurgical analysis has shown that they are fit for service. NBPN noted that the new rotors will be replaced by 2016.
106. The Commission, noting that there has been increased media attention on NBPN due to business interest from Hydro-Québec, asked whether the increased media attention is a potential distraction that may result in safety risks. NBPN responded that it has communicated with its employees to ensure that they are focused on the refurbishment project.
107. The Commission asked whether Hydro-Québec has become involved with any facet of the refurbishment activities. NBPN responded that Hydro-Québec has not.
108. The Commission asked if CNSC staff has sufficient resources to provide adequate oversight once the refurbishment is complete. CNSC staff responded that it has upgraded its staffing levels and will be capable of providing the necessary oversight. CNSC staff noted that, in the event that Hydro-Québec becomes the licensee responsible for the Point Lepreau NGS, reviews and/or operating licence reform.
109. The Commission expressed concerns regarding the timing of the end of the refurbishment outage and the potential Hydro-Québec takeover. NBPN stated that it is committed to ensuring that the refurbishment is completed.
110. The Commission sought further information regarding injuries to workers. NBPN stated that there were two recent injuries, one to a contractor and one to a NBPN employee. NBPN stated that it is investigating the injuries and noted that neither incident was related to work in critical areas.
111. The Commission asked whether NBPN has been able to maintain an adequate workforce throughout the refurbishment project. NBPN stated that it has. NBPN noted that during delays the workforce worked on procedures and infrastructure. NBPN stated that it has ongoing training programs in place to ensure that employees are able to make the transition to normal operations once the refurbishment project is complete.

112. The Commission inquired about the difficulties NBPN has had in completing the project on time. NBPN responded that one of the issues was that the work schedule was not realistic. NBPN explained that the operating experience on which the work schedules were based ended up not being applicable for the Point Lepreau NGS. NBPN further stated that the large infrastructure at the site has contributed to process delays. NBPN stated that its revised schedules are more realistic and it expects to complete the remaining work on schedule.
113. The Commission asked about the budget and funding for the project. NBPN stated that the project costs have not yet exceeded the budget and NBPN expects that, once completed, the project will be approximately 20 percent over-budget. NBPN noted that it has the funding support of its board of directors.
114. The meeting was adjourned at 6:45 PM until 9:00 AM, December 10, 2009.

#### Mid-Term Status Reports

##### *Atomic Energy of Canada Limited (AECL)*

115. With reference to CMD 09-M59.1, CMD 09-M59.1A, CMD 09-M59.1B and CMD 09-M59.1C and CMD 09-M59 and CMD 09-M59.A, AECL and CNSC staff provided information regarding the Interim report on Chalk River Laboratories (CRL) regulatory performance under the Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence.
116. AECL provided an overview of the CRL site, the Research Technology Operations Organization, CRL's environmental management, the status of the NRU Reactor outage, CRL's operating performance, community relations and improvement programs.
117. CNSC staff noted that during the review period of August 2006 to August 2009, AECL has operated the site in compliance with its operating licence. CNSC staff added that despite some instances of non-compliance outlined in the presentation, AECL continues to follow up and correct any actions raised by CNSC staff. CNSC staff reported that AECL has provided a plan to address all remaining actions. CNSC staff did not note any program areas with decreasing performance trends; CNSC staff reported stable trends in the following safety areas: operating performance, emergency preparedness, radiation protection and safeguards and non-proliferation. CNSC staff also reported increasing performance trends in performance assurance and environmental protection.

118. The Commission asked CNSC staff how the two areas that have been rated C in 2006, environmental protection and performance assurance, would be rated today. CNSC staff responded that ratings are not attributed for an interim report, but that significant improvements have definitely been observed in these areas.
119. The Commission asked AECL if it was committed to resolve the remaining outstanding issues before the next licensing period. AECL responded that it had put in place new programs to implement a cultural change at the site. These programs will serve to identify low-level events and to enable the implementation of necessary corrective actions. AECL noted that measurable improvement should be observed before the renewal of the licence in 2011. AECL added that it had also become a temporary member of the World Association of Nuclear Operators (WANO) and that this will permit AECL to get independent assessment from outside. Finally, AECL added that new funding was now available from the Project New Lease Program and the Isotope Supply Reliability Program to enhance its capacity to hire new human resources and to improve equipment.
120. The Commission asked if the funding was also available to resolve the legacy issues at the CRL site. AECL responded that many of these legacy issues were addressed under the Nuclear Legacy Liability Program established in 2005-2006 and that this program was proportional to AECL's capacity to manage the funding and the work to be done. AECL added that other specific issues such as the NRU Rod Bay are taken care of under the Isotope Supply Reliability Program and are part of the protocol established with CNSC staff in preparation for the licence renewal in 2011.
121. The Commission asked for the dates of completion of some of the remedial actions started at CRL. AECL responded that the Commission should be aware that, in many cases, the engineering on these projects is unique and cannot be benchmarked to construction projects or remediation projects that have been done around the world, which means that these dates are not fixed and need to be re-evaluated.
122. The Commission inquired about AECL's commitments to find a solution for the NRU fire detection system that has been declared obsolete by CNSC staff. The Commission also expressed its deep concerns with respect to the numerous extensions of deadlines for resolving this issue. AECL responded that it will meet the proposed December 15, 2009 deadline<sup>6</sup> to submit the plans and the October 2011 licence renewal deadline for their implementation.

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<sup>6</sup> CNSC staff confirmed after the Meeting that it had received the plans by the December 15, 2009 deadline.

123. The Commission asked AECL to elaborate on the potential benefits from its recent WANO membership. AECL responded that it felt that the NRU reactor had been isolated from the world community and from benefiting from operating experience and from external peer review against standards of nuclear excellence. AECL added that this is a trial membership because the NRU is the only non-utility reactor in North America to be a member of WANO and that this trial could lead to a full-time membership in the future. AECL added that this membership leads to many other benefits in terms of exposure to world-class performance, for the training and development of the staff which can be sent to assist to other peer-review and also in terms of operating experience.
124. The Commission asked AECL the reason for the increased numbers of reportable events. AECL responded that, with the new safety culture in place, events with a lower level of significance have to be reported to be compliant with the newly introduced S-99<sup>7</sup> requirements. CNSC staff confirmed that it had noted a definite improvement in the manner AECL reports the events and how it deals with them after they are reported. CNSC staff noted that AECL was starting to adopt the best nuclear industry practices.
125. The Commission asked about CNSC staff general conclusion on CRL site performance. CNSC staff responded that there were several longer term issues that still needed to be addressed on the site. CNSC staff added that now that the Nuclear Legacy Liability Program exists, AECL will be able not only to characterize the environmental risks but also to deal with them and reduce them. CNSC staff noted that AECL was starting to make real progress on some of the issues identified, but that AECL still needs to be supervised closely by CNSC staff.
126. The Commission asked if any sample of water taken along the river was exceeding 7,000 Becquerels per litre for tritium. AECL responded that the level of tritium in the Ottawa River was far below 7,000 Becquerels per litre. AECL added that the highest level recorded is in the order of several hundreds of Becquerels per litre at Pointe au Baptême, which is the large sand spit along the CRL property.
127. The Commission asked if AECL was taking samples of drinking water. AECL responded that it does take measurements (composite samples) at the town of Petawawa's drinking water intake.

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<sup>7</sup> Reporting Requirements for Operating Nuclear Power Plants  
[http://www.suretenucleaire.gc.ca/pubs\\_catalogue/uploads\\_fre/S99en.pdf](http://www.suretenucleaire.gc.ca/pubs_catalogue/uploads_fre/S99en.pdf)

128. The Commission further asked AECL if some farming communities along the river were drawing their drinking water from the river or if their animals were drinking water from the river. AECL responded that this had been considered when the Derived Release Limits (DRLs) had been established for the site and that it was respecting the DRLs.
129. The Commission asked AECL what was the most common type of illness reported for the CRL site. AECL responded that the most frequent injuries were slips, falls, and hand injuries. AECL added that the contribution of illness in its injury statistics was very small. The Commission recommended that AECL provide in future submissions a breakdown of injuries and work-related illnesses in its statistics.
130. The Commission asked for details regarding the gap analysis conducted on the Canadian Standard Association (CSA) standard N291<sup>8</sup> for nuclear power plants, and its potential applicability to the shielded modular above-ground buildings (SMAGS). AECL responded that it has had several discussions with CNSC staff on this. AECL added that its chief nuclear engineer had taken an action to get a ruling from the CSA on the applicability of this standard to the SMAGS, and that AECL would respond accordingly. CNSC staff added that each SMAG is built according to the National Building Code.
131. The Commission asked for information on the former tritium plume that was coming from the NRX building fuel storage basin that had been drained in 2006. AECL confirmed that there was a tritium plume, as well as a strontium plume, associated with the leakage of the NRX basin. AECL added that the tritium was largely removed from the system but that the strontium had accumulated outside the bays and adhered to the soil and was continuing to migrate by infiltration into the groundwater.
132. The Commission asked CNSC staff how it will ensure that the safety-significant deficiencies related to the seven requested upgrades are resolved. CNSC staff responded that it has asked AECL to submit a list of all the corrective actions for each of the requested upgrades so that they can be tracked and then followed-up by regular inspections. AECL confirmed that it will submit to CNSC staff a comprehensive report on all the deficiencies before the restart of the NRU reactor. CNSC staff noted that, when it comes before the Commission for the approval of the NRU restart, it will assess the safety significance and provide an update on the status of the seven requested upgrades.

**ACTION**

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<sup>8</sup> CSA Standard N291-08, Requirements for Safety-Related Structures for CANDU Nuclear Power Plants, 2008

133. The Commission asked for an update on the status of the Dedicated Isotope Facilities (DIF). CNSC staff responded that the Maple 2 was already defueled before the cancellation of the program and that its pool has been emptied. CNSC staff added that Maple 1 was defueled after the cancellation and AECL had emptied the pool and put a shielding on its top in order to minimize occupational doses in the building. With respect to the New Processing Facility (NPF), CNSC staff noted that the NPF never received any isotope which means it is not a concern for radiological hazards. CNSC staff also noted that AECL has applied to put the facilities in a guaranteed shutdown state and that this application would be submitted for the Commission's approval.
134. AECL explained that the only systems remaining in service for these buildings were those necessary to do monitoring and maintenance and that this state, called the extended shutdown state, is deeper than a guaranteed shutdown state. AECL added that the facilities will remain in that condition in the long term until a decision to decommission the buildings is made.
135. The Commission requested details on the length of time the new recently available funding will be expected to continue. AECL responded that the Nuclear Legacy Liability Program was a five-year funded program and that it was presently working with Natural Resources Canada (NRCan) to continue the program for another five years. AECL added that with respect to the Project New Lease Program, the first significant funding was given in 2007, and that this program has built up over time.
136. The Commission further requested from AECL information on how it plans to meet the different challenges at CRL and the expectations of the different programs. AECL responded that there was a program management in place and that independent reviews of the programs were conducted by both AECL and NRCan in order to improve these programs and to implement them. The Commission expressed its expectation to see reasonable progress in these programs by the end of the current licence. CNSC staff commented that most of the programs cannot be implemented quickly, but that some changes can be made rapidly.
137. The Commission asked AECL to elaborate on the low enthusiasm of its staff to take the Senior Reactor Shift Engineer (SRSE) training program. AECL responded that the lack of interest can be explained by the uncertainty on the life expectation of the NRU, compensation issues (that have been solved) and the quality of the training program (which has been improved). AECL noted that since the NRU outage, the culture has been changing, new people have been hired, things are getting done and an improvement in the standards has been observed.

138. CNSC staff confirmed that it was satisfied that AECL had adopted a systematic approach for the SRSE training program in place. CNSC staff added that three new SRSEs had been certified at AECL.
139. The Commission asked AECL about its plan in respect with NRU outage for the coming year. AECL responded that, when the NRU will be back in service, a normal operating cycle lasts 28-day and is followed by five days of maintenance. AECL added that, in the future, it was planning an annual outage in order to do maintenance and inspections that cannot be carried out during these normal cycle five days of maintenance. AECL noted that improved communications with the other isotope suppliers in the world permits this annual outage without putting the supply of isotopes in jeopardy. AECL added that, even if all the work requested to permanently stop the NRU vessel corrosion will not be completed during the current shutdown, the reactor will be fit for return to service. AECL added that additional remediation to improve the conditions of the J-Rod annulus and to stop future corrosion is still needed. AECL stated that there was a potential outage scheduled for the fall of 2010, starting in mid-September, and an alternate outage scheduled later, in February 2011. AECL confirmed that these annual outages will last about four weeks and will be coordinated with other isotope supplying reactors.
140. The Commission asked to be reassured that the SMAG buildings that are going to be built in 20 years will use the codes of that time. CNSC staff confirmed that the licences to construct always refer to the most recent version of the building codes.
141. The Commission asked CNSC staff to comment on the site airborne emissions from CRL, which represent 13% of the DRLs. CNSC staff responded that most of the emissions come from the NRU and, more specifically, from Argon-41. AECL added that the emission of this radioisotope is due to the NRU particular design. CNSC also added that, as long as NRU is operational, this emission will remain at this level. CNSC staff noted that argon is an inert gas which cannot be filtered that does not bind to anything, which means it does not accumulate anywhere; it disperses and decays.
142. The Commission asked AECL if it will put new coupons in the vessel to monitor its condition. AECL responded that no decision has been made but that the actual position was to maintain vigilance on the vessel condition by examination of the vessel as opposed to using coupons, because of the challenge in providing similar conditions for the coupons as in the vessel.

143. The Commission asked AECL if it has a procedure in place to prevent re-occurrence of radiation exposure incidents exceeding the action levels like the two cases reported in its report. AECL summarized the events and actions taken to prevent them. AECL added that health physics personnel follow a protocol for engaging the staff and educating them. CNSC staff confirmed it is comfortable with AECL's action plan because corrective actions are taken before employees could get a dose of radiation above the regulatory limits.
144. The Commission asked for some clarification with respect to redundancy of measurements. CNSC staff responded that it considers that there is sufficient redundancy with the measurements, but that it was concerned with the overall ageing of the infrastructure and the reliability in the long-term. AECL responded that it has currently adequate funding to make improvements to the system.
145. The Commission asked for an update on the welding work on the NRU. AECL responded that all of the important prerequisites to start repair at the first site were completed and that the first repair weld will be done later in the current week. CNSC staff added that it was closely monitoring the activities.
146. The Commission insisted that, at the time AECL comes back before the Commission for the NRU start-up, it clearly outlines its long-term maintenance strategy. The Commission also expressed the view that the NRU will need appropriate maintenance for a facility of this age to continue to operate safely for the licence term AECL intends to request at its licence renewal.
147. The Commission asked for an update on the Riverbed Sediment Project initiated in 2001. AECL responded that it was updating CNSC staff on the status of this project regularly as part of their environmental protection quarterly meetings. AECL summarized the recent work done, and gave results from sampling of the sediments. AECL also added that it was updating the Environmental Stewardship Council regularly. The Commission asked AECL if the reports from this project are posted on AECL's Web site. AECL responded that it has sent them to CNSC staff and to the Environmental Stewardship Council, which makes them available to the public.
148. The Commission expressed its frustration with the lack of information on this project in AECL's submission. In response to comments requested by the Commission, CNSC staff said that it

**ACTION**

noted the comment, and committed to make the information available in the future. CNSC staff also stated that it will review the risk assessments for the next licence renewal.

**ACTION**

149. The Commission expressed its concerns with respect to the maintenance of the NRU when it returns to service. AECL confirmed that it has taken the outage opportunity to accelerate the Master Equipment Lists (MELS). AECL added that many repairs and maintenance have been done, but that the NRU reliability was still a challenge. The Commission suggested that when AECL comes back before the Commission, it would be important that all the pieces of equipment that require further repair and the risks associated with reliability be clearly outlined in order to point out the priorities and explain the strategy for the planned outages.

**DECISION ITEMS – REGULATORY DOCUMENTS**

**Regulatory Document RD-327, *Nuclear Criticality Safety***

150. With reference to CMD 09-M64 , CNSC staff presented Regulatory Document RD-327 on Nuclear Criticality Safety for approval to proceed to public consultation. CNSC staff also presented the associated Guidance Document GD-327 for reference and additional information to support RD-327.
151. CNSC staff noted that the key principles and elements of RD-327 and GD-327 are consistent with national and international standards. CNSC staff added that RD-327 and GD-327 outline CNSC's expectation regarding the physical constraints and limits on fissionable materials that licensees must take into consideration when developing programs to ensure nuclear criticality safety during the construction, operation or decommissioning of a licensed facility. The two documents also provide criteria for the prevention of criticality accidents, and the handling, storage, processing and transportation of fissionable materials.
152. CNSC staff noted that RD-327 requirements are consistent with CNSC regulatory requirements and Canada's international obligations to the IAEA.
153. The Commission asked CNSC staff how RD-327 will oblige the licensee to report to the CNSC with respect to fissionable material. CNSC staff responded that RD-327 contains a list of documents that the licensee has to submit to the CNSC before being authorized to handle any fissionable material. CNSC staff added that RD-327 will be referred to as a licence condition in any licence dealing with that type of material and will, because of this reference, be legally enforceable.

154. CNSC staff noted that the licensees are already in compliance and familiar with the clauses of the document presently listed in the licence, but if RD-327 is approved it will be possible to use it as a reference in the licence.

155. The Commission approved Document RD-327 on Nuclear Criticality Safety and the associated Guidance document GD-327 to proceed to public consultation for a period of 90 days.

**DECISION**

156. The public portion of the meeting closed at 4:09 p.m.

157. In a closed session, the Commission made amendments to the following regulations:

- the *Class II Nuclear Facilities and Prescribed Equipment Regulations*;
- *Certain Regulations Made Under the Nuclear Safety and Control Act (Miscellaneous Program)*; and
- the *Nuclear Non-proliferation Import and Export Control Regulations*.

These regulations will be published in the Canada Gazette Part II and promulgated at a later date.

**DECISION**

Regulatory Document RD-336, *Accounting and Reporting of Nuclear Material*

158. With reference to CMD 09-M63, due to time constraints, the Commission decided to report this item to the January 13, 2010 Public Meeting agenda.

**NO  
DECISION**

  
Recording Secretary

January 19, 2010  
Date

  
P. REINHARDT  
Recording Secretary

19/1/10  
Date

  
Secretary

19/1/10  
Date

## APPENDIX A

CMD	DATE	File No
09-M45	2009-11-09	(6.02.01)
Notice of Meeting of December 9 and 10, 2009		
09-M46	2009-11-25	(6.02.02)
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 9 and 10, 2009, in the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
09-M46.A	2009-12-03	(6.02.02)
Updated Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 9 and 10, 2009, in the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
09-M46.B	2009-12-07	(6.02.02)
Updated Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 9 and 10, 2009, in the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
09-M46.C	2009-12-08	(6.02.02)
Updated Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, December 9 and 10, 2009, in the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
09-M47	2009-12-07	(6.02.03)
Approval of Minutes of Commission Meeting held November 5, 2009		
09-M48	2009-11-24	(6.02.04)
Early Notification Reports:		
- <b>Hydro-Québec:</b> Gentilly-2 November 18th, 2009 Sector Alert		
- <b>Atomic Energy of Canada Limited:</b> Moisture Found in Fissile Solution Storage Tank (FISST) Thermowell #3 - Impact #OPS-09-31613		
- <b>Bruce Power:</b> Bruce B Nuclear Generating Station - Unit 6 Boiler Feedline Lower Pressure Trip		
09-M48.A	2009-12-08	(6.02.04)
Early Notification Reports:		
<b>Ontario Power Generation Inc.:</b> Pickering A, Unit 4 – Liquid Zone Control Issues		
09-M49	2009-11-24	(4.11.02)
Status Report on Power Reactors Units as of November 23, 2009		

09-M50 2009-11-18 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** University of Alberta, located in Edmonton, Alberta – Oral presentation by CNSC Staff

09-M50.1 2009-11-19 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** University of Alberta, located in Edmonton, Alberta – Oral presentation by University of Alberta

09-M50.1A 2009-12-02 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** University of Alberta, located in Edmonton, Alberta – Oral presentation by University of Alberta – Supplementary Information

09-M51 2009-11-18 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** École Polytechnique de Montréal, located in Montréal, Québec – Oral presentation by CNSC Staff

09-M51.1 2009-11-19 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** École Polytechnique de Montréal, located in Montréal, Québec – Oral presentation by École Polytechnique de Montréal

09-M51.1A 2009-12-02 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** École Polytechnique de Montréal, located in Montréal, Québec – Oral presentation by École Polytechnique de Montréal – Supplementary Information

09-M52 2009-11-18 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Royal Military College of Canada, located in Kingston, Ontario – Oral presentation by CNSC Staff

09-M52.1 2009-11-19 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Royal Military College of Canada, located in Kingston, Ontario – Oral presentation by Royal Military College of Canada

09-M52.1A 2009-12-02 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Royal Military College of Canada, located in Kingston, Ontario – Oral presentation by Royal Military College of Canada – Supplementary Information

09-M53 2009-11-18 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Saskatchewan Research Council, located in Saskatoon, Saskatchewan – Oral presentation by CNSC Staff

09-M53.1 2009-11-19 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Saskatchewan Research Council, located in Saskatoon, Saskatchewan – Oral presentation by Saskatchewan Research Council

09-M53.1A 2009-12-02 (6.02.04)

**Status reports on four non-power SLOWPOKE -2 reactor facilities:** Saskatchewan Research Council, located in Saskatoon, Saskatchewan – Oral presentation by Saskatchewan Research Council – Supplementary Information

09-M54 2009-11-20 (6.02.04)

**Ontario Power Generation Inc.:** OPG's Consolidated Financial Guarantee – Written submission from CNSC staff

09-M55 2009-11-24 (4.02.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Refining Facility in Blind River, Ontario – Oral presentation by CNSC staff

09-M55.A 2009-11-24 (4.11.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Refining Facility in Blind River, Ontario – Contains prescribed security information and is not publicly available

09-M55.1 2009-11-19 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Refining Facility in Blind River, Ontario – Oral presentation by Cameco Corporation

09-M55.1A 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Refining Facility in Blind River, Ontario – Oral presentation by Cameco Corporation – Supplementary Information

09-M56 2009-11-24 (4.02.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario – Oral presentation by CNSC staff

09-M56.A 2009-11-24 (4.11.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario – Contains prescribed security information and is not publicly available

09-M56.1 2009-11-19 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario – Oral presentation by Cameco Corporation

09-M56.1A 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario – Oral presentation by Cameco Corporation – Supplementary Information

09-M56.2 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario –Written submission from the Municipality of Port Hope

09-M56.3 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario –Written submission from the Port Hope Community Health Concerns Committee

09-M56.4 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Conversion Facility in Port Hope, Ontario –Written submission from John Miller

09-M57 2009-11-24 (4.02.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Oral Presentation by CNSC staff

09-M57.A 2009-11-24 (4.11.02)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Contains prescribed security information and is not publicly available

09-M57.1 2009-11-19 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Oral Presentation by Cameco Corporation

09-M57.1.A 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Oral Presentation by Cameco Corporation – Supplementary Information

09-M57.2 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Written submission from the Municipality of Port Hope

09-M57.3 2009-12-02 (6.02.04)

**Cameco Corporation:** Mid-Term Performance Report on Cameco Corporation's Class IB Nuclear Fuel Manufacturing Facility in Port Hope, Ontario – Written submission from the Port Hope Community Health Concerns Committee

09-M58.1 2009-11-19 (6.02.04)

**NB Power Nuclear:** Update on the status of the Point Lepreau Refurbishment Outage – Oral presentation by NB Power Nuclear

09-M58.1A 2009-12-02 (6.02.04)

**NB Power Nuclear:** Update on the status of the Point Lepreau Refurbishment Outage – Oral presentation by NB Power Nuclear – Supplementary Information

09-M59 2009-11-24 (6.02.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Oral presentation by CNSC staff

09-M59.A 2009-11-20 (4.11.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Contains prescribed security information and is not publicly available

09-M59.1 2009-11-19 (6.02.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Oral presentation by Atomic Energy of Canada Limited

09-M59.1A 2009-11-19 (6.02.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Contains prescribed security information and is not publicly available

09-M59.1B 2009-12-01 (6.02.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Oral presentation by Atomic Energy of Canada Limited – Supplementary Information

09-M59.1C 2009-12-02 (6.02.04)

**Atomic Energy of Canada Limited:** Interim report on Chalk River Laboratories regulatory performance under Canadian Nuclear Safety Commission Nuclear Research and Test Establishment Operating Licence – Oral presentation by Atomic Energy of Canada Limited – Supplementary Information

09-M60 2009-11-18 (6.02.04)

Amendment to the *Class II Nuclear Facilities and Prescribed Equipment Regulations* - Contains Cabinet Confidence documents and is not publicly available

09-M61 2009-11-18 (6.02.04)

*Regulations Amending Certain Regulations Made Under the Nuclear Safety and Control Act (Miscellaneous Program)* - Contains Cabinet Confidence documents and is not publicly available

09-M62 2009-11-24 (6.02.04)

*Regulations Amending the Nuclear Non-proliferation Import and Export Control Regulations* - Contains Cabinet Confidence documents and is not publicly available

09-M64 2009-11-19 (1-8-8-336)

Regulatory Document **RD-327**, *Nuclear Criticality Safety* (for approval to proceed to public consultation)

09-M65 2009-11-24 (6.02.04)

**SRB Technologies (Canada) Inc. (SRBT):** SRBT Status on meeting its financial commitments for the period of October 21 to November 24, 2009