Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, November 5, 2008 (technical briefing session, beginning at 9:00 a.m.) and Thursday, November 6, 2008 (beginning at 2:00 p.m.) in the Public Hearing Room, CNSC Offices, 280 Slater Street, Ottawa, Ontario.

Present:

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

M.A. Leblanc, Secretary
J. Lavoie, Senior General Counsel
S. Dimitrijevic, Recording Secretary

CNSC staff advisors were: P. Elder, D. Howard, J. Mecke, G. Rzentkowski and T. Schaubel

Other contributors were:

- Atomic Energy of Canada Limited (AECL): J. Miller
- Nuclear Waste Management Organisation (NWMO): K. Shaver
- Ontario Power Generation Inc. (OPG): K. Mombourquette, M. Elliot, M. Ranburger, R. MacEacheron and F. King
- Hydro Québec (H-Q): N. Sawyer and P. Desbiens
- New Brunswick Power Nuclear (NB Power): L. Comeau
- AREVA Resources Canada Inc. (AREVA) and Cameco Corporation: J. Jarrell, A. Oliver, D. Workman, A. Thorne, K. Vetor and B. Pollock
- Low Level Radioactive Waste Management Office (LLRWMO): R. Zelmer

Adoption of the Agenda

1. The revised agenda, CMD 08-M72.A, was adopted as presented.

Chair and Secretary

2. The President chaired the meeting of the Commission, assisted by M. A. Leblanc, Secretary and S. Dimitrijevic, Recording Secretary.

Constitution

3. With the notice of meeting, CMD 08-M71, 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 October 9, 2008, Commission Member Documents CMD 08-M71 to CMD 08-M77 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Minutes of the CNSC Meeting Held October 9, 2008

5. The Commission Members approved the minutes of the October 9, 2008 Commission Meeting as outlined in CMD 08-M73 with minor editorial changes to paragraphs 32 and 36.

INFORMATION ITEMS

Technical Briefing: Management of Radioactive Waste in Canada

6. With reference to CMD 08-M74, a joint presentation related to different aspects of the radioactive waste management in Canada has been prepared by CNSC staff, industry representatives and other government agencies.

7. CNSC staff prepared a general introduction and the sections on regulatory framework and initiatives. The Atomic Energy of Canada Ltd. (AECL) prepared sections on management of used fuel and radioactive waste in Canada and on management of historic radioactive waste in Canada. The Nuclear Waste Management Organisation (NWMO) prepared the section on the long-term management of used nuclear fuel, while the section on interim storage of used fuel and the management of radioactive waste from nuclear power plants has been prepared jointly by the Ontario Power Generation (OPG), New Brunswick Power (NB Power) and Hydro-Québec (H-Q). AREVA Resources Canada Inc. (AREVA) and Cameco Corporation (Cameco) prepared the section on management of uranium mines and mills and fuel processing wastes. The section on national policy and strategy for radioactive waste management in Canada has been written by Natural Resources Canada.

8. Main topics considered and discussed by the Commission encompassed the issues related to processing and treatment of used fuel, and public perception and communication strategy regarding management of waste having different levels of radioactivity. The Commission also considered long-term safe disposal of radioactive waste, and comparison of regulatory framework and technical solutions considered for application in Canada with the efforts of other countries with developed nuclear industry.

9. The Commission sought more information on Canada's potential to reduce the amount of low-level radioactive waste (LLW) and on the research in recycling of used fuel. In response, NB Power and H-Q informed the Commission on their ability to reduce the amount of waste, taking into account the existing practices, and OPG stated that the technologies that it uses to minimize LLW are well developed and widely available. With respect to recycling, NWMO stated that different countries have different approaches to this issue and that Canada does not have plans, at this time, to recycle or reprocess used fuel.

10. The Commission asked for a more detailed explanation on the increase in the amount of stored waste projected for the period ending in 2012. OPG explained that the presented figures represent cumulative amount of waste that is correlated to the dynamics of loading of the power reactors, storage in the pools and the projected amount of spent fuel that would be transferred to the dry storage containers (DSC).

11. The Commission sought more information on the life span of the waste containers in use and on the differences in their design. OPG, H-Q and NB Power explained that all the containers are based on the same principles, although they may differ in design, shape and size. The containers have been designed and constructed with a projected life span of 50 years, but based on the experience of their exploitation it is expected that they could be used for a prolonged period of time with proper maintenance and regular monitoring. It has been noted that the content could be easily repacked if needed.

12. Responding to the Commission's question about the time that used fuel spends in the pool to cool-down before being transferred to the dry storage, OPG and H-Q pointed out that the time in question depends on the amount of heat generated by the used fuel and released from the package. The waste can be transferred into the DSC when the generated amount of heat is low enough and can be safely dissipated by the container. The ability of the container to dissipate the generated amount of heat depends on its design and thickness, so that the type of the DSC to be used will also have an impact on the time that used fuel has to spend in the pool.

13. The Commission stressed the importance of public perception of the safety issues related to waste management and inquired into existing communication strategies. AECL noted that there are many aspects to take into account including planning, commitment to engage, bringing all stakeholders together and legal agreements. AECL pointed out that the developed strategy could be correlated to the complexity of the case and to the level of public interest and engagement.

14. The Commission further stressed the importance of a coordinated higher level document that would be communicated to the public, considering primarily high level radioactive waste.

15. The Commission enquired about the public awareness on the safety of mines. AREVA and Cameco stated that effective actions have been conducted on a project-by-project basis. However, there was not a coherent across-the-country type of effort to explain uranium mining and its potential impacts regarding the associated waste management challenges.

16. With respect to long-term safe disposal of radioactive waste, the Commission inquired on the schedule for construction of a deep geological repository (DGR) for high-level waste, and on the possibility to expedite the remaining research work. The Commission pointed out that public acceptance of nuclear power generation and nuclear industry in general depends in large part on how waste issues are dealt with.

17. In response, NWMO explained the schedule and the time required for each planned step of the project, emphasizing long and sensitive phases such as identification of a willing host community, underground site characterization, feasibility studies and environmental assessment. NWMO cited the Nuclear Energy Agency that had reported an average period of 30 years that different countries require to get from the point of making a decision to the operation of the facility.

18. Responding to the Commission question if the 2012 target for the EA approval and construction licence could be met, NWMO stated that so far no major delays had been encountered and that it expect to submit an application for a construction licence in early 2011.

19. The Commission inquired about cost effectiveness and asked if coordinated and distributed repository facilities had been considered. NWMO responded that the waste owners recognized the benefits of an enhanced cooperation and that an initial meeting had been planned. NWMO added that the Government of Canada has approved a centralized repository facility.

20. The Commission asked about levels of funding for the research and development programs in the area of waste management in Canada. NWMO responded that the amount for these programs totalled $ 8.4 million for 2008, and would be $ 10 million for 2009 with planned gradual increase to $ 25 million over the following five years.

21. With respect to the financial surety of the waste management operations, the Commission inquired about the estimation methodology for establishing the needed amount of funds for safe operations and questioned a hypothetical scenario related to accountability and responsibility in the case of closure of business.

22. In response, NWMO explained the current funding mechanism for the programs based on contributions from waste owners to the budget according to an adopted cost-sharing formula. NWMO added that for the second phase, following the issuance for a construction licence for a repository, the funding would be based on trust funds established by the waste owners, as required by the *Nuclear Fuel Waste Act*[1]. NWMO noted that it had submitted a funding formula for future years' deposits to the Minister of Natural Resources for review and approval.

23. Responding to the second part of the question, OPG indicated that the funds already exist in forms of required financial guarantees and funds dedicated to look after the life cycle management of the intermediate level waste. OPG noted that the only funds which are not fully funded at this moment are those dedicated to the used fuel, because contributions are ongoing as the waste is being generated.

24. Discussing the regulatory framework related to the waste disposal, NB Power noted that, in order to accommodate small waste producers and help them find long-term solutions for their radioactive waste, the Government should make some changes in its policy so to increase, or make more flexible, the mandate of the existing waste management organisations and facilities.

25. The Commission inquired on the status of national used fuel and high level waste in different countries. NWMO presented data on decisions and target in-service dates for long-term repositories, with brief descriptions of construction and depths of these waste disposing facilities.

26. The Commission expressed its appreciation for the successful organisation of this technical briefing that encompassed coordinated presentations of all relevant organisations involved in handling and managing radioactive waste in Canada.

[1] S.C. 2002, c.23

STATUS REPORTS

Status Report on Power Reactors

27. With reference to CMD 08-M76, which includes the Status Report on Power Reactors, CNSC staff presented information regarding the refurbishment of Units 1 and 2 of Bruce A Nuclear Generating Station (NGS), defueling of Units 2 and 3 of Pickering A NGS, an update on recovery operation on Unit 7 of the Pickering B NGS and an update on the refurbishment status of the Point Lepreau NGS.

28. In addition to the information presented in CMD 08-M76, CNSC staff informed the Commission that Bruce Power expects Units 1 and 2 to enter service during the first half of 2010. CNSC staff added that Bruce Power had provided an update on the expected operating life of Units 3 and 4. The end of the operating life for Unit 3 had been planned for 2009; however, the company expects that the recent works on fuel channel should extend the operating life of this unit until the end of 2010. The recently completed boiler inspection program at Unit 4 had resulted in extension of the expected operating life of the unit until 2015.

29. CNSC also informed the Commission that Pickering A unit 1 was in a forced outage due to a failed control valve on the auxiliary boiler feed water system and additional alarm indicating a general seal failure. Return to service has been projected for November 11, 2008.

30. With respect to a past event[2] at the Pickering B, Unit 7, CNSC staff informed the Commission that OPG had successfully removed most of the deposited gadolinium oxalate from the reactor core. CNSC staff noted that OPG had requested an approval to remove the reactor from the rod-based Guaranteed Shutdown State (GSS) and to restart it. CNSC staff has granted the approval, based on its conclusion that OPG had thoroughly assessed the conditions and established appropriate monitoring and back-out conditions required for a safe start-up of the reactor.

31. CNSC staff noted that the approval has been granted for the operation at 0.2% of the full power of the reactor, with the heat transport system cold and pressurized. A separate application for approval is requested for further increase in power and the reactor warm-up. This approval would be contingent on the approach to criticality and results of investigation of the replaced calandria tube.

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[2] Minutes of the Canadian Nuclear Safety Commission Meeting, May 14, 2008.

32. Regarding the refurbishment of the Point Lepreau NGS, CNSC staff reported that the dismantling phase was progressing as planned, in spite of the rotor incident that occurred on October 15, 2008, and would be completed by the end of the year. NB Power will provide a detailed update on refurbishment for the next meeting of the Commission, to be held in December. ACTION by December 2008

Updates on items from previous Commission proceedings

33. With reference to CMD 08-M75 regarding the updates to items from previous Commission proceedings, CNSC staff presented information regarding follow-ups on the Port Hope uranium conversion facility, SRBT status on meeting its financial commitments and the update on the event involving a fuelling machine at the Pickering A NGS Unit 1.

Cameco Corporation: Follow-up on Port Hope Uranium Conversion Facility

34. CNSC staff presented a brief follow-up report on the Port Hope uranium conversion facility. CNSC staff reported that Cameco started to produce UF_6 in September, as part of its start-up plan that CNSC staff had reviewed and accepted. As part of the follow-up to the UF_6 plant rehabilitation, Cameco has been conducting a site-wide characterization of the subsurface conditions at its Port Hope conversion facility and discovered a limited groundwater contamination east of the uranium dioxide (UO_2) plant. There was no evidence of potentially adverse impact on the quality of water in the Port Hope harbour.

35. Cameco informed the Commission that it was taking contaminated soil out and had installed a well to collect contaminated water as part of its investigation and remediation activities. Cameco stated that it will prepare a more detailed update on the event for the Commission meeting in December 2008.

36. The Commission inquired on how long the contamination has been present and to what extent. Cameco responded that it could not determine when the contamination had begun but stated that the plume was isolated to the limited area east of the UO_2 building.

37. The Commission further inquired into the remedial work done at the site of contamination. Cameco responded that an outage of three months had been taken to replace the floor, trenches and sumps with state-of-the-art equipment.

38. The Commission sought more detailed information regarding the event and remedial work and requested an extensive report for the next Commission meeting scheduled for December 2008. ACTION by December 2008

SRB Technologies (Canada) Inc. (SRBT): SRBT Status on Meeting its Financial Commitments for the Period of September 23 to October 28, 2008

39. CNSC staff informed the Commission that SRBT is currently meeting its CNSC financial commitments. CNSC staff stated that SRBT had contributed an additional $ 5,000 to their decommissioning fund, so that the total value of the escrow account is $ 100,676.80.

Ontario Power Generation Inc.: Update on Event Involving Fuelling Machine at the Pickering A Nuclear Generating Station Unit 1

40. As requested by the Commission[3], CNSC staff provided an update to the event originally reported in CMD 08-M36. CNSC reported that in August 2008, OPG had completed a root cause analysis of this event and concluded that the root cause was an insufficient analysis of previous fuel handling equipment failures. Similar failures had occurred in the past; however, only the 2008 event resulted in a major forced unit outage.

41. CNSC staff added that 14 corrective actions have been identified and planned to be completed by September 2009. CNSC staff added that it would monitor the progress of all corrective actions, continue to review the root cause assessment and would provide comments to OPG.

42. OPG stated that it had appointed a new manager of equipment reliability for fuel handling so that it could dedicate resources to improving reliability of the fuelling machines and prevent this type of event from reoccurring.

43. The Commission asked technical details related to the specific parts of the fuelling machine that had failed. OPG provided a detailed explanation of the operations undertaken to avoid the type of damage that had caused the failure.

[3] Minutes of the Canadian Nuclear Safety Commission Meeting held on June 2008, paragraph 21.

44. The Commission inquired on safety culture and the role of human factor in this event. OPG explained the changes that it had implemented in order to improve safety culture and stated that an assessment to confirm the impact of these changes will be performed in February 2009 as a part of the corrective action plan.

45. The Commission did not request further actions with respect to this event.

DECISION ITEMS - REGULATORY DOCUMENTS

Amendments to the *Nuclear Non-Proliferation Import and Export Control Regulations*

46. With reference to CMD 08-M77, CNSC staff submitted to the Commission its recommendation in a protected document, which has been considered in a closed session.

47. After considering the recommendations submitted by CNSC staff, the Commission has approved the draft documents *Regulations Amending the Nuclear Non-Proliferation Import and Export Control Regulations,* the Regulatory Impact Analysis Statement and the Communication Plan, for pre-publication in the *Canada Gazette*, Part I. DECISION

Closure of the Public Meeting

48. The public portion of the meeting closed on November 6, 2008, at 4:05 p.m.

President

Recording Secretary

Secretary

APPENDIX A

CMD	DATE	File No

08-M71 2008-10-10 (6.02.01)
Notice of Meeting of November 5 and 6, 2008

08-M72 2008-10-23 (6.02.02)
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, November 5 and 6, 2008, in the Public Hearing Room, 14th Floor, 280 Slater Street, Ottawa (Ontario)

08-M72.A 2008-10-30 (6.02.02)
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, November 5 and 6, 2008, in the Public Hearing Room, 14th Floor, 280 Slater Street, Ottawa (Ontario)

08-M73 2008-10-29 (6.02.03)
Approval of Minutes of Commission Meeting held November 5 and 6, 2008

08-M74 2008-10-21 (6.02.04)
Technical Briefing on Current Status and Future Progress being made in the Management of Radioactive Waste in Canada

08-M75 2008-10-30 (6.02.04)
Updates on items from previous Commission proceedings

08-M76 2008-10-21 (6.02.04)
Status Report on Power Reactors - Document summarises the status of power reactor units as October 21, 2008

08-M77 2008-10-24 (6.02.04)
Amendments to the Nuclear Non-Proliferation Import and Export Control Regulations – Contains Cabinet Confidence documents and is not publicly available