Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Tuesday, June 10, 2008 beginning at 9:00 a.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

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

CNSC staff advisors were:
H. Rabski, B. Pearson, G. Rzentkowski, T. Schaubel, P. Webster, K. Lafrenière, A. Bouchard, C. Clement, J. Cameron, M. Couture, B. Valpy, M. Dallaire, B. Howden, D. Newland and B. Ecroyd and A. Omar

Other contributors were:

- Atomic Energy of Canada Limited (AECL): B. Pilkington, B. Gerestein, R. Zemdegs and F. Boyd
- Bruce Power Inc.: D. Hawthorne
- Ontario Power Generation Inc. (OPG): T. Mitchell, M. Elliot, P. Tremblay and C. Sellers
- Hydro Québec (HQ): N. Sawyer and P. Desbiens
- New Brunswick Power Nuclear (NB Power): G. Thomas, R. Eagles, C. Hickman and D. Parker
- Fred Boyd

Adoption of the Agenda

1. The revised agenda, CMD 08-M33.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 revised notice of meeting, CMD 08-M32.A, 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 May 14, 2008, Commission Member Documents CMD 08-M32 to CMD 08-M42 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Minutes of the CNSC Meeting Held May 14, 2008

5. The Commission Members approved the minutes of the May 14, 2008 Commission Meeting as outlined in CMD 08-M34 without modifications.

STATUS REPORTS

Significant Development Report

6. The Commission considered the Significant Development Report (SDR) no. 2008-5, submitted by CNSC staff as document CMD 08-M35.

Atomic Energy of Canada Limited (AECL) – AECL Announcement to Discontinue Development of the MAPLE Reactors

7. With reference to item 4.1.1 of CMD 08-M35 regarding AECL's announcement from May 16, 2008 that further development work associated with the commissioning and start-up of the MAPLE reactors has been discontinued, CNSC staff informed the Commission that AECL had safely placed the MAPLE 1 reactor into guaranteed shutdown state on May 23, 2008 and into the alternate guaranteed shutdown state on May 26, 2008. CNSC staff noted AECL's intention to focus on preparing the two MAPLE reactors for an extended shutdown state and that the nature of this state and the required activities are currently being planned by AECL.

8. CNSC staff further informed the Commission that all fuel and targets have been removed from the reactor core of the MAPLE 1 and stored in the reactor pool. CNSC staff added that all monitoring, surveillance and maintenance activities required for the current state of the MAPLE 1 reactor must be executed in compliance with the MAPLE Reactor Operational Limits and Conditions document referenced in the operating licence.

9. AECL confirmed the status of the reactors and added that the decision to discontinue further development of the MAPLE reactors extends to the whole Dedicated Isotope Facility (DIF).

10. AECL informed the Commission on its plan for a longer term lay-up status for the MAPLE reactors and stated that it will continue to work with CNSC staff to ensure compliance with its licensing obligations.

11. The Commission asked about the end-state of the physical and numerical experimental data obtained during the development of the MAPLE reactors. AECL responded that the data have been collected and archived, and would be used for further analyses and studies.

12. The Commission asked if there were plans to revive MAPLE reactors in the future. AECL responded that it does not intend to continue with activities related to the DIF or MAPLE reactors.

13. The Commission inquired on the timeline for the process leading to decommissioning and on the appropriate level of decommissioning guarantees. AECL responded that it expects to achieve the extended shutdown state within a one-year period. CNSC staff stated that the decommissioning plan, developed under the assumption that the active reactor lifetime would be 40 years, has to be revised taken into account the reduced period of activity of the reactors. AECL added that the decommissioning plan update would not be a prerequisite for going to the extended shutdown state.

14. The Commission sought more information on available decommissioning funds. AECL stated that financial guarantee is not secured in terms of a segregated fund, but rather in terms of the recognition of the liability by the Crown.

15. The Commission asked about the personnel AECL has to maintain at the site during the shutdown state. CNSC staff responded that the existing operating licence conditions cover the minimum staffing requirements for the period while the reactors are in the guaranteed shutdown state. AECL stated that it was prepared to meet minimum staffing complements as required by the operating licence conditions.

16. With respect to production of radioisotopes, the Commission inquired on the potential impact of AECL's decision to discontinue the development of the MAPLE reactors on the medical community. In response, AECL pointed out that the MAPLE reactors have never produced radioisotopes and, according to its assessment, they would not have been capable of producing isotopes for many years.

17. AECL added that an assessment made earlier this year had showed that, even with the resolution of technical problems, the DIF would not have been available for isotope production before 2013.

18. AECL further stated that its NRU reactor remains a reliable source of medical isotopes. CNSC staff added that it did not foresee any interruption of the NRU operation and that it is working closely with AECL to determine the steps for life extension of the NRU beyond the current operating licence period.

19. The Commission sought more information regarding the possible refurbishment of the NRU reactor. CNSC staff responded that the extent and types of refurbishment would be determined by an integrated safety review (ISR) and after a gap analysis with respect to the current regulatory requirements. The Commission will be informed on the status and progress of this activity within the mid-term report to be presented in October 2009 at a public proceeding of the Commission. ACTION by October 2009

Status Report on Power Reactors

20. With reference to CMD 08-M36 which includes the Status Report on Power Reactors, CNSC staff presented minor updates regarding return to service of Darlington Unit 1, Gentilly-2 and Pickering B Unit 5.

21. The Commission sought more information regarding an event involving a fuelling machine at the Pickering A Unit 1. CNSC staff responded that the problem of the machine becoming stuck is a common occurrence. CNSC staff noted that Ontario Power Generation (OPG) is managing the issue and that lessons learned are expected. CNSC staff expressed the opinion that the problem may be related to the ageing of the equipment. CNSC staff will update the Commission once the Unit is back in service. ACTION

22. The Commission sought an explanation regarding eight reactors being out of service during this reporting period. CNSC staff explained that all of the mentioned reactors had planned outages, which is typical for this season.

INFORMATION ITEMS

Annual CNSC Staff Report for 2007 on the Safety Performance of the Canadian Nuclear Power Industry

23. With reference to CMD 08-M37, CNSC staff presented its annual report for 2007 on the safety performance of the Canadian nuclear power industry. The report consisted of two parts, the first of which contains information on safety performance at each of the power reactor sites with respect to all performance areas. The second part presents the safety performance indicators and trends across the industry. The report also presents a retrospect on significant development reports related to the nuclear power plants and an overview of CANDU reactors safety issues.

24. CNSC staff stated that the annual report will be published and posted on the CNSC Web site this summer. The report will also be presented during the fall of 2008 at a series of CNSC public information sessions to be held in nuclear power plant host communities.

25. Representatives from the nuclear power plants, including OPG, Bruce Power, Hydro-Quebec and NB Power Nuclear, expressed their general acceptance of the report and ratings. They also presented their comments and clarifications regarding the activities presented in the report.

26. The Commission inquired on different aspects of the report, especially on noted trends and problems commonly encountered throughout the industry. Such topics of interest included demographics, training, fire protection, safety culture and commitment to improve the quality of operations.

27. CNSC staff pointed out that the report also presents a mid-term report for the Pickering A Nuclear Generating Station (NGS). CNSC staff noted that special attention has been given to the areas of organisation and plant management, operations, quality management, human factors and design, which had been rated below requirements during the review period. CNSC staff attributed the decline in ratings mainly to the inter-station transfer bus problems, which had been the subject of one SDR and several follow-up meetings, and which had caused a seven-month shutdown of Unit 1 and a four-month shutdown of Unit 4.

28. With respect to the mid-term report for the Pickering A NGS, the Commission sought more details of the safety aspects of the operation of this facility. In response, OPG explained the discovery

of the inter-station transfer bus problem and the corrective actions implemented to address this issue. OPG noted that a comprehensive extensive condition check had been conducted to look for a potential existence of similar problems. OPG further noted that an effectiveness check of implemented measures will be conducted and that improved ratings were expected for the next reporting period.

29. As evidence of improved performance at the Pickering A NGS, OPG mentioned the reduced number of human performance events, the correction of causes for five (out of six) reactor trips that had occurred during the past year and the effective corrections on the Liquid Zone System. The Commission noted that however successful the recovery of the Pickering A was, the reality has been that the station was operating only about 40 % of the time during the reporting period and that the overall performance of the facility has to be evaluated in light of this fact.

30. The Commission asked CNSC staff if there were any safety areas for the evaluated facilities that show a consistent deteriorating trend in ratings over a longer period of time. CNSC staff responded that the performance indicators for the last five years have been provided and related trends have been incorporated in the current ratings. CNSC staff noted that the industry is using the provided information to plan and prepare corrective actions for encountered problems. CNSC staff added that general trends show improvement in resolving problems throughout the industry. CNSC staff also added that there were no “C” ratings (below requirements) that would show signs of further deterioration.

31. The Commission considered the presented data on collective and individual radiation doses received by workers and inquired if there were trends that could raise safety concerns. CNSC staff and representatives from the industry explained how the data are obtained and stated that none of the presented data raise safety concerns and that all doses received were well below the regulatory limits.

32. The Commission pointed out examples of deficiency related to qualification testing for certified personnel and difficulties with the implementation of programs for training authorized power plant staff. In this regard, the Commission sought more information regarding training and staffing of personnel at the nuclear plants.

33. In response to the Commission, CNSC staff stated that it is common to find areas for improvement during inspections. As a result, recommendations and action items are issued, and corrective

actions are taken by the industry.

34. A representative from the industry explained that CNSC staff has requested that there be more certified operators in recent years, resulting in training and staffing dilemma as experienced operators were needed to be reassigned in order to provide training to personnel. It was also noted that time was a factor to consider in the successful implementation of the long-term training programs.

35. The Commission further inquired about the difficulties associated with hiring skilled trades and craftsmen. The representatives from the industry responded that the shortage of skilled labour is a national issue and that they were able to meet their requirements so far. However, they stated that the nuclear power industry would have to be able to compete with other sectors in hiring skilled workers in the future when the realisation of large projects, such as refurbishment and new build, is expected to begin.

36. The Commission sought assurance that the licensees were addressing the safety issues raised by CNSC staff in a systematic and timely manner. The representatives of the industry provided an overview of the initiatives and corrective actions planned to address the issues through the next review periods. CNSC staff noted that the industry was addressing the issues adequately and further explained that it applied a gradual approach in its compliance enforcement, through the issuance of recommendations, action notices and directives, as appropriate.

37. The Commission noted the improvements that have been made in broad safety areas, such as emergency preparedness, radiation protection, environmental protection and safeguards, as well as in the fields of equipment fitness for service and design analysis. However, the Commission also noted that most of the low ratings fall in categories of operating performance and performance assurance in the segment of program implementation and that most of the issues could be attributed to human factors.

38. In light of this observation, the Commission expressed its view that keeping the employees focused on priorities remains the industry's management challenge to improve ratings. The Commission called out to the representatives from the nuclear power industry to strive towards excellence and to commit to improvements that would lead to the highest safety ratings.

Site Security Assessment for the Annual CNSC Staff Report for 2007 on the Safety Performance of the Canadian Nuclear Power Industry

39. With reference to CMD 08-M37.A, which contains protected information, the Commission considered the security assessment related to the annual report on the safety performance of the Canadian nuclear power industry in a closed session.

New Brunswick Power Nuclear: 2008 Refurbishment Outage Update

40. Commission Member Graham recused himself during consideration of this item of the Agenda.

41. With reference to CMD 08-M38.1 and CMD 08-M38.1A, NB Power Nuclear (NBPN) presented an update to the Commission on the status of the work related to the refurbishment outage currently ongoing at the Point Lepreau Generating Station (PLGS). NBPN presented the established goals, described the outage preparation and reported on the outage status.

42. With respect to the status of the outage, NBPN informed the Commission that on March 30, 2008, the station entered into a guaranteed shutdown state and defuelling was safely completed on May 11, 2008. NBPN further informed the Commission that the removal of the main reactor components is scheduled to be completed by November 2008 and that the full power operation is planned for August 2009.

43. NBPN also provided details on the refurbishment outage organisation, the pre-outage analysis and safety improvements, the design, engineering and procurement, as well as the plans for commissioning, restart and return to service.

44. With respect to next steps and future updates, NBPN made reference to licence condition 12.1 that requires the licensee to seek the approval of the Commission to load the fuel. NBPN noted that, as fuel reloading is scheduled to start in May 2009, it will inform the Commission on the status of the reloading in November or December of 2008 prior to submitting a request for approval to be considered at a public hearing of the Commission in February or March 2009.

ACTION
by
December
2008

45. CNSC staff commented on the update and noted that the project is progressing as scheduled.

46. The Commission sought more details on the refurbishment outage organisation, including the areas of responsibility and coordination with AECL which has a dedicated safety team covering both conventional and radiological issues. NBPN explained the lines of responsibility and how the station management program is being

respected by site workers, including AECL and other contractors.

47. The Commission asked if there was any item that has not been completed as scheduled. NBPN responded that all major work has been completed as scheduled, except for a small delay in rewinding a rotor of the stand-by generator.

48. The Commission sought more details on the storage of used fuel after defuelling and asked if the fuel could be reused. NBPN responded that the fuel is maintained in the storage bay for seven to ten years, before it is transferred to the waste site. That fuel will not be re-used.

49. The Commission asked NBPN how it will maintain its personnel's level of knowledge and ability to operate the facility following the refurbishment. NBPN responded that their on-going staff training is continuing during the outage and that, in preparation for reactor start-up, necessary operating and maintenance documentation will be issued and training provided to appropriate technical, maintenance and operations staff.

50. The Commission sought more information on the loss time injuries since the onset of the refurbishment. NBPN responded that there have been no loss time accidents. CNSC staff added that it was satisfied with the overall Health and Safety Program.

Canada's participation at the Fourth Review Meeting on the Convention of Nuclear Safety, 14 – 25 April 2008

51. With reference to CMD 08-M40, CNSC staff informed the Commission on Canada's participation at the Fourth Review Meeting on the Convention of Nuclear Safety held in Vienna from April 14 to April 25, 2008. Canada submitted a national report demonstrating the measures it has implemented to achieve the objectives of the Convention, and participated in the peer-review process prior and during the review meeting.

52. CNSC staff informed the Commission on good practices attributed to Canada during the Convention, as well as on challenges related to safety improvement. Canada is expected to report on these issues at the Fifth Review Meeting in 2011.

53. CNSC staff further informed the Commission that two general challenges that require further attention had been posted to all contracting parties (i.e., all countries with nuclear power and power plants). These are: the issue of regulatory separation and independence, and the potential conflict between nuclear safety and

the need for production of goods and services which are essential for public safety or well-being.

54. In response to the Commission's question on how the international community would address these challenges, CNSC staff noted that, at this stage, the international community is trying to identify how this challenge has to be resolved and that the International Atomic Energy Agency (IAEA) is already in the process of revising regulatory documents on the structure of regulatory bodies.

Update on the New Fundamental Recommendations of the International Commission on Radiological Protection (ICRP) and their Implications for the CNSC

55. With reference to CMD 08-M41, CNSC staff has prepared this document as a written submission to the Commission Members. The document describes the system of radiation protection recommended by the ICRP, some of the potential implications for the CNSC regulatory framework for radiation protection, and a path forward to ensure a consistency between Canadian and international approaches to radiation protection regulation to the extent possible.

Report on the Progress Made in the Implementation of a Compliance Program for the Transport Industry

56. With reference to CMD 08-M42, CNSC staff submitted a written report on the implementation of a program to verify compliance with radiation protection requirements for transportation carriers of nuclear substances. The Commission requested this report at its September 2007 public meeting[1].

Regulatory Document RD-346, *Site Evaluation for the Nuclear Power Plants* and Regulatory Document RD-337, *Design of New Nuclear Power Plants*

57. With reference to CMD 08-M39, CNSC staff presented Regulatory Document RD-346, *Site Evaluation for the Nuclear Power Plants* and Regulatory Document RD-337, *Design of New Nuclear Power Plants* for final approval by the Commission.

58. In its presentation, CNSC staff made introductory comments on elements of the regulatory framework and regulatory documents. For each document, CNSC staff provided an explanation of the purpose of the document, its legal basis, the development process

[1] Refer to the Minutes of the CNSC Meeting held on September 12 and 13, 2007, available on the CNSC Web site at http://www.nuclearsafety.gc.ca/eng/.

and stakeholder feedback, and the implementation process.

59. Commenting on the presented documents, Chief Nuclear Officers expressed their appreciation for CNSC staff's effort to develop final versions of the documents. They noted that their major concerns, expressed during consultations with CNSC staff, have been addressed and that they are satisfied that both documents are more closely aligned with current international standards for nuclear power plant site evaluation and design.

60. The Chief Nuclear Officers also noted that there still remained some parts in both documents that would need to be discussed further with the CNSC staff during the implementation phase.

61. The Commission inquired to what extent these documents are aligned with a streamlining process to consider both environmental assessment results and licensing applications. CNSC staff provided an overview of a proposed process to conduct the environmental assessment in parallel with the site application review process so that a joint review panel is able to consider all the evidence at a single hearing but would then make their decisions, an EA decision or recommendation followed by a licensing decision. By following the guidance found in the proposed regulatory document RD-346, the proponent of a project would be able to fulfil certain requirements for the environmental impact statement (EIS) as well as for the licence application.

62. Asked to comment on the consultation process, CNSC staff noted that about 150 comments had been received from five respondents. CNSC staff added that the comments from the nuclear sector had been submitted by the Canadian Nuclear Utilities Executive Forum and AECL. As such, CNSC staff was of the view that the concerns of the utility sector had been adequately covered.

63. CNSC staff informed the Commission on interventions by non-governmental organisations (NGO) submitted during the consultation process. Participating organisations comprised the Canadian Nuclear Utilities Executive Forum (CNUEF), Citizens Advocating Use of Sustainable Energy (CAUSE), the Environmental Law Centre (ELC) and Greenpeace with the Institute and Security Studies. CNSC staff reported that three NGOs have submitted comments which have been addressed by introducing changes in the document RD-346, and that one NGO has submitted comments on the document RD-337, which have also been addressed by introducing three changes in the document.

64. The Commission asked about consultation with other government

departments. CNSC staff responded that the other departments were invited to comment through the CNSC Web site and that it occasionally receives their feedback. However, no comments were received for the two proposed regulatory documents.

65. The Commission commented that certain topics appeared to have been barely covered in the documents, such as the impact of the power plants on the environment, waste disposal and decommissioning. CNSC staff responded that the presented documents were based on international standards which were developed with the input of experts from all over the world. CNSC staff added that it would also develop review guides that will contain more detailed information to assist in the assessment of licence applications. These guides would be available to the proponents and the public.

66. The Commission inquired on the applicability of the documents to nuclear facilities which are not strictly categorized as nuclear power plants. CNSC staff responded that the documents would need to be adapted to a specific case, depending on the degree of similarity with a nuclear power plant.

67. The Commission also inquired about applicability of the documents to different types of reactor design. CNSC staff responded that the document RD-337 promotes a long established international practice of providing multiple levels of defense in the design so as to afford a high level of protection for the safety of the public and the environment. CNSC staff added that the guidance provided therein is technology neutral with respect to water-cooled nuclear power plants.

68. The Commission recognised the importance of the documents for the public and its participation in the process, but also underlined that the primary role of the presented regulatory documents is to provide guidance to the industry and proponents interested in development of nuclear power plants.

69. AECL supported the proposed documents and expressed expectations that the review guides, planned by CNSC staff, would bring additional clarity and supplement the regulatory documents.

70. The Commission asked CNSC staff about the timeframe for the planned review guides. CNSC staff responded that review guides for site preparation are planned for the end of August 2008 and for construction licences by March 2009.

71. F. Boyd provided a historical background for the safety approaches

embedded in the nuclear power plants operating in Canada. As a follow-up to his comments, the Commission asked if two independent shutdown systems have remained a requirement in the design of new nuclear power plants. CNSC staff confirmed that the requirement for two separate shutdown systems is built in the proposed document, with modifications to make it technology neutral.

72. Following its deliberation on the matter, the Commission decided to approve Regulatory Document RD-346, *Site Evaluation for the Nuclear Power Plants* and Regulatory Document RD-337, *Design of New Nuclear Power Plants.* The documents will be published and available on the CNSC Web site at http://www.nuclearsafety.gc.ca/eng/. DECISION

Closure of the Public Meeting

73. The public portion of the meeting closed at 5:17 p.m.

President

Recording Secretary

Secretary

APPENDIX A

CMD	DATE	File No

08-M32 2008-05-12 (6.02.01)
Notice of Meeting of June 10, 2008

08-M32.A 2008-05-28 (6.02.01)
Revised Notice of Meeting of June 10, 2008

08-M33 2008-05-29 (6.02.02)
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Tuesday, June 10, 2008, in the Public Hearing Room, 14th Floor, 280 Slater Street, Ottawa (Ontario)

08-M33.A 2008-06-04 (6.02.02)
Revised Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Tuesday, June 10, 2008, in the Public Hearing Room, 14th Floor, 280 Slater Street, Ottawa (Ontario)

08-M34 2008-06-03 (6.02.03)
Approval of Minutes of Commission Meeting held May 14, 2008

08-M35 2008-05-27 (6.02.04)
Significant Development Report No. 2008-5 – for the period of April 23 to May 14, 2008 – Atomic Energy of Canada Limited –AECL announcement to discontinue development of the MAPLE Reactors

08-M36 2008-05-27 (6.02.04)
Status Report on Power Reactors for the period of April 30, 2008 to May 27, 2008-06-27

08-M37 2008-05-29 (26-1-0-0-0)
Annual CNSC Staff Report for 2007 on the Safety Performance of the Canadian Nuclear Power Industry

08-M37.A 2008-05-28 (6.01.07/4.11.02)
Site security Assessment for the Annual CNSC Staff Report for 2007 on the Safety Performance of the Canadian Nuclear Power Industry – Contains prescribed security information and is not publicly available

08-M38.1 2008-05-22 (6.02.04)
2008 Refurbishment Outage Update – point Lepreau Generating Station – Oral presentation by NB Power Nuclear

08-M38.1A 2008 Refurbishment Outage Update – Point Lepreau Generating Station – Supplementary information Oral presentation by NB Power Nuclear

08-M39 2008-05-27 (1.03.04)
Regulatory Document RD-346, Site Evaluation for New nuclear Power Plants and Regulatory Document RD-337, Design of New Nuclear Power plants

08-M40 2008-05-26 (5.01.01)
Canada's Participation at the Fourth Review Meeting of the Convention on Nuclear Safety, 14 – 25 April 2008

08-M41 2008-05-15 (6.02.04)
Updating the Commission on the new fundamental recommendations of the International Commission on Radiological Protection and their implications for the CNSC – Written submission from CNSC Staff

08-M42 2008-05-27 (6.01.07)
Report on the Progress Made in the Implementation of a Compliance Program for the Transport Industry – Written submission from CNSC Staff