

November 26 and 27, 2003

A previous version of the Minutes of Meeting was published on February 9, 2004 and contained formatting errors. As a result, some text was missing. The following is the correct version.

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held from 8:35 a.m. to 8:50 a.m. on Wednesday November 26 and from 3:37 p.m. to 5:48 p.m. on Thursday November 27, 2003 in the Public Hearing Room, CNSC Offices, 280 Slater Street, Ottawa, Ontario.

Present:

L.J. Keen, Chair

C.R. Barnes

J.A. Dosman

Y.M. Giroux (in attendance on November 26, 2003 only)

A. Graham (in attendance until 3:50 on November 27, 2003)

M.J. McDill

M.A. Leblanc, Secretary

I. V. Gendron, Senior Counsel

C.N. Taylor, Recording Secretary

CNSC staff advisers were R. Ferch, P. Thompson, A. Alwani, F. Ashley, J. Blyth, I. Grant, A. Erdman and H. Rabski.

Other contributors were:

- Cameco Corporation Inc.: T. Rogers, M. Quick and J. Jarrell
- Bruce Power Inc.: K. Talbot
- SRB Technologies: S. Levesque
- MDS Nordion: L. Hillier, P. Schultz and E. Martel

Adoption of the Agenda

1. The agenda, CMD 03-M61.B, was adopted as presented.

DECISION

Chair and Secretary

2. The President took the Chair and the Secretary of the Commission acted as Secretary of the meeting with C.N. Taylor acting as recording secretary.

Constitution

3. With the notice of meeting having been properly given and a quorum of Members being present, the meeting was declared to be properly constituted.
4. Since the meeting of the CNSC held September 26, 2003, Commission Member Documents CMD 03-M60 to CMD 03-M68 had been distributed to Members. These documents are further detailed in Annex A of these minutes.

Minutes of the CNSC Meeting Held September 26, 2003

5. With reference to the discussion in the draft Minutes on the status of the MAPLE reactors at AECL's Chalk River Laboratories (paragraphs 18 to 21 of the draft Minutes), the Chair noted that an update will be provided by staff as part of the current Significant Development Report 2003-8 (CMD 03-M64).
6. Referring to paragraph 32 of the draft Minutes, concerning the calculation of decommissioning financial guarantees for the Point Lepreau nuclear facilities, the Chair asked staff to clarify the discrepancy in CMD 03-M59 that was identified by the Members.
7. Staff acknowledged that there was a typographical error in the formula in Schedule A of CMD 03-M59. Staff reported that the correct formula used in the calculations was $C=(1+A)^x(1+B)^{-1}$ where A, B and C are all understood to be absolute ratios.
8. The Members approved the minutes of the September 26, 2003 Commission meeting (reference CMD 03-M62) without change.

DECISIONPackaging and Transport of Nuclear Substances Regulations

[Due to the protected nature of the information in CMD 03-M63, the Members considered this agenda item in closed session. The public portion of the meeting was therefore adjourned at 8:50 a.m. to resume the following day]

9. Staff recommended that the Commission make the *Regulations Amending Certain Regulations made under the Nuclear Safety and Control Act* as appended to CMD 03-M63. The purpose of the regulations is to modify the current CNSC *Packaging and Transport of Nuclear Substances Regulations* and to make two consequential amendments to the current CNSC *General Nuclear Safety and Control Regulations*. Staff noted that the proposed regulations had undergone extensive consultations with licensees, stakeholders and the international community.

10. The Commission considered the information presented by staff and decided to make the *Regulations Amending Certain Regulations made under the Nuclear Safety and Control Act*, as appended to CMD 03-M63, without change.

DECISION

The public meeting resumed at 3:37 p.m. on November 27, 2003.

Significant Development Report

11. Significant Development Report (SDR) no. 2003-8 (CMD 03-M64, CMD 03-M64.A and CMD 03-M64.B) was submitted by staff. Staff reported on the following with reference to the SDR.

Update on the Status of MAPLE Reactors at Chalk River Laboratories

12. With reference to section 5.1.1 of CMD 03-M64, staff updated the Commission on the status of the commissioning activities at MAPLE 1 and 2 reactors. Both reactors are currently authorized to conduct commissioning tests at power levels below the 2 kW hold point. MAPLE 1 is currently in a secure shutdown state.
13. With respect to the discovery of the positive power reactivity coefficient (reported to the Commission at the meeting on July 16, 2003), staff reported that work continues in an effort to verify the power coefficient and assess its impact on the Safety Analysis for the facility. Staff noted that AECL's next report is expected to be submitted in approximately 10 days (approximately by December 8, 2003).

Update on Water In-Flow Incident to Mine – McArthur River Operation

14. With reference to section 5.1.2 of CMD 03-M64 and CMD 03-M64.A, staff updated the Members on the incident involving the high rate of groundwater seepage into the McArthur River mine. The incident was first reported to the Commission at the meeting of April 10, 2003 and the first update was provided at the meeting of May 21, 2003.
15. Staff reported that, while production mining resumed in the unaffected parts of the mine on July 2, 2003, remediation of the area of ground instability and water inflow is taking longer than originally anticipated. Remediation of the problem site is expected to be complete by December 31, 2003.

16. Staff reported that treatment of the excess mine water has been effective with the exception of reported higher than permissible radium concentrations in seven composite samples that were taken during the period of September 29 to October 26, 2003. The monthly mean licence limit for radium, however, was not exceeded for that period and the effluent remained non-toxic to aquatic biota.
17. Staff also reported that ten mine workers received higher radiation doses from exposure to radon gas and radon progeny during the initial response phase of the incident; however, no workers received doses in excess of the regulatory limits.
18. In response to a question from the Members on these radiation exposures, Cameco stated that the affected individuals have been reassigned to work that will ensure that their annual doses remain below the regulatory limits. Cameco also noted that its radiation monitoring program has been modified to better address needs during such emergencies.
19. Further with respect to the safety of workers, Cameco confirmed that, at no time during the event, were any workers in danger of drowning.
20. Staff indicated that it continues to review the root-cause investigation and consequence assessment report prepared by Cameco (*McArthur River Water Inflow Report* – received November 3, 2003). Staff stated that it continues to receive up-to-date information and remains in close contact with other provincial and federal authorities on the matter.
21. With reference to CMD 03-M64.A, and in its responses to related questions from the Members, staff summarized the reported causes, progression of events, and consequences of the incident, as well as the corrective actions taken by Cameco. Cameco also made a brief presentation on the chronology of the event, the lessons learned and the corrective actions taken and planned.
22. The Members expressed serious concerns about the reported failing of fundamental management and communication systems at Cameco which led to, and to some extent exacerbated, this serious event. In particular, the Members expressed concern about the lack of a systematic integration between the various specialist disciplines involved on the site, and about an apparent need to better assess the dynamic mine environment from a hydrogeological perspective.

23. In response to these concerns expressed by the Members, Cameco stated that, with the benefit of hindsight, it has taken the opportunity to conduct a frank, objective and critical self-examination of the event in order to maximize the opportunity to learn from it and prevent similar problems in the future. As a result, revised management controls, change controls, and risk management approaches are being implemented. In addition, a set of Mine Design Standards for similar ground conditions will be available in early 2004. Cameco expressed the view that decisions were made during the event on the best available information at the time, including on the site hydrology. Cameco further noted that, while it found deficiencies in its planning, design and development of the site where the problem occurred, Cameco found that its staff was generally well prepared for the emergency and responded to it in a responsible and effective manner that ensured the continued protection of workers and the environment. As a result, Cameco is of the view that no further special training in emergency response and recovery, or personal safety, is required at this time.
24. The Members acknowledged Cameco's frank and open approach to the event analysis and noted that this is an important part of a healthy safety culture. The Members encouraged both Cameco and CNSC staff to learn as much as possible from this event.
25. In response to questions from the Members on whether CNSC staff should have been aware of the root-cause deficiencies at Cameco before the event occurred, staff explained that it had identified deficiencies in the design and implementation of Cameco's Quality Assurance (QA) program. In staff's view, an effective QA program should address the types of managed processes implicated in the precursors to the event. Staff explained that Cameco is required by a condition of its licence to have an acceptable QA program in place by June 30, 2004 - following which a detailed CNSC audit of the program is planned. Staff noted that periodic audits of the Quality Assurance program will provide a better means for early identification of the types of root-cause deficiencies involved in the event. Staff also noted that it had previously raised concerns with Cameco regarding deficiencies in the mine water handling contingency plans at the mine.
26. The Members expressed concern about the length of time it is taking to rectify the problem in the mine and to secure adequate additional pumping and mine water storage and treatment capacity on the surface. In response, Cameco and CNSC staff explained that the evolution of the event has been difficult to predict and that careful planning and review of the remediation is important to avoid further exacerbating the problem. Cameco also stated that it is proceeding slowly with the re-pressurization of the problem site

to avoid hydrofracturing of the rock. Cameco and CNSC staff further confirmed that there will be adequate water pumping, storage and treatment capacity on the site to manage the needs during the coming winter.

27. Staff indicated that it will perform a site evaluation to verify the implementation and effectiveness of the changes instituted by Cameco. Staff further stated that it would provide the Commission with a further update report at an appropriate time in the future.

ACTION

At approximately 3:50 p.m. Member A. Graham excused himself from the remainder of the meeting.

Fish Toxicity Test Failure on Key Lake Effluent

28. In section 5.1.5 of CMD 03-M64.A, staff reported that a batch of treated effluent was released to the environment from the Key Lake facility on November 2, 2003. While the effluent involved had passed the pre-release Microtox toxicity test, it was subsequently found to be toxic to fish in a 96-hour laboratory test.
29. Staff reported that water samples collected immediately down stream of the discharge point on November 3 and 8, 2003 showed no toxicity to fish; additional sampling is being done and no further toxicity has been found.
30. Staff noted that it is currently awaiting a complete report on the incident from the licensee. That report will be reviewed by staff in consultation with Environment Canada, and a further update will be provided to the Commission if further significant developments arise.

Bruce B

31. With reference to section 5.1.3 of CMD 03-H64, staff reported that the support materials in some of the Bruce B Unit 8 steam generators were found to be degraded due to flow-assisted corrosion. Follow-up inspections of the other steam generators at Units 3 through 8 found no similar degradation. Bruce Power is continuing to investigate the matter.
32. In response to a question from the Members on the cause of the corrosion, Bruce Power explained that the flow velocities and chemistry in the top end of the generators appear to be the key degradation mechanisms involved. Staff stated that it is closely reviewing the problem with experts at Bruce Power and will be reviewing a proposed design fix from Bruce Power in the near future.

33. As a further oral update to SDR no. 2003-8 in regard to the Bruce B NGS, staff reported that on November 19, 2003, Unit 5 at Bruce B reduced power to 48% in response to a transmission line failure. Staff reported that the unit responded as anticipated and was resynchronized to the grid approximately 1 hour and 20 minutes following the line failure.

Pickering B

34. With reference to section 5.1.4 of CMD 03-M64, staff reported that Unit 7 at Pickering B was shutdown on September 19, 2003 to deal with an algae run in the Pickering B water intake screenhouse following hurricane Isabel. The unit was returned to power approximately two days later.

Darlington NGS

35. As a further update to SDR no. 2003-8, staff reported orally that Unit 2 at Darlington tripped at 30% of full power while in the process of returning to service from a maintenance outage. An electrical equipment failure was the cause of the trip and the unit has since returned to full-power operation.

Pickering A Status Update

36. Referring to section 5.1.6 of CMD 03-M64.B, staff reported that Unit 4 at Pickering A was automatically shutdown and placed in a guaranteed shutdown state on November 13, 2003 due to a valve operations failure. The unit is scheduled to return to service on November 28, 2003 following replacement and testing of the affected equipment.

Status Report on Power Reactors

37. With reference to CMD 03-M65, staff presented the Status Report on Power Reactors.
38. Staff reported the following additional information on changes to the status of the power reactors that has occurred since CMD 03-M65 was issued on November 7, 2003:
- Following CNSC approval on November 24, 2003, Bruce A Unit 4 is now operating at 90% full power;
 - Darlington Unit 4 is currently operating at full power; and
 - Pickering Unit 6 is shutdown for planned maintenance.

Mid-term Report on SRB Technologies (Canada) Incorporated (SRBT)

39. With reference to CMD 03-M66, staff presented a mid-term licensing report on SRBT's gaseous tritium light manufacturing and tritium recovery facility located in Pembroke, Ontario.
40. Staff reported that it has identified, and continues to follow-up on, several deficiencies in SRBT's effluent and environmental monitoring programs and systems, and in SRBT's quality assurance program. Staff stated that SRBT is making progress in addressing those deficiencies and is continuing to improve other programs. Staff concluded that, despite the deficiencies described, the SRBT facility does not pose an unreasonable risk to health, safety, the environment and national security.
41. In response to the Members questions on the reasons for the delays in addressing the identified deficiencies, SRBT stated that the tasks have generally proven to be larger than first anticipated. Furthermore, SRBT stated that it wanted to make use of the data from a recent CNSC environmental sampling campaign in the vicinity of the plant. SRBT also noted that a specialist consultant has been engaged to help complete the work on the environmental monitoring program by the end of February 2004. Specifically with respect to the deficiencies in the Quality Assurance Program, SRBT noted that the delay has been, in large part, due to a lack of clarity on the CNSC's requirements for the program, i.e., in addition to the existing quality program that is certified under the ISO 9001 standard.
42. The Commission also asked staff why there were delays in the CNSC-sponsored research into possible technologies that could be used by SRBT to further reduce tritium emissions (the CNSC made a commitment in 2000 to carry out this research). In response, CNSC staff stated that there have been difficulties in securing a research contract and delivery schedule with a suitably qualified consultant. CNSC staff noted that a contract is now in place and the project should be completed in the next several months.
43. In response to a question from the Members on how CNSC staff is addressing public concern about the facility, CNSC staff stated that it remains in contact with the local municipality and interest groups, and that it remains available to meet with the public on the issues related to the CNSC's regulation of the facility. CNSC staff also noted that the results of its independent environmental sampling were made available to the public and municipal officials.

44. With respect to a follow-up question on the adequacy of SRBT's Public Information Program, CNSC staff stated that the program has yet to be assessed against the recently-issued CNSC guidelines for such programs. SRBT added that it has made improvements in its information program since 2000, including a significant expansion of the information available to the public on its web site.
45. In closing this item, the Members reiterated their concerns about the delays in meeting the CNSC's requirements. The Members expect that all remaining issues will be resolved as quickly as possible and before this matter comes again before the Commission

Mid-term Report on MDS Nordion

46. With reference to CMD 03-M67, staff presented a mid-term licensing report on MDS Nordion's radioisotope processing facility located in Kanata, Ontario.
47. Staff concluded that the overall performance of MDS Nordion during the past three years meets expectations and the continued operation of the facility does not pose an unreasonable risk to health, safety, the environment and national security. Staff noted that the programs required to meet the regulatory requirements continue to improve.
48. Staff made a correction to section 4.1.3 of CMD 03-M67 concerning worker health and safety. The statement under the heading "Other" was changed to read as:

"Since November 2000, there have been several minor health and safety worker injuries which resulted in time off work. The injuries were not considered serious".
49. In response to the Members questions about this new information and what it says about the safety culture at the facility, MDS Nordion explained that the report refers to two minor injuries in the past three years. MDS Nordion added that this performance is superior to both the industry average and overall company average and, as such, does not reflect a safety culture problem at the facility. MDS Nordion added that, despite its good safety performance, it continually strives to improve safety at the facility.
50. In response to a question from the Members on the future decommissioning of the facility, staff stated that the preliminary decommissioning plan and associated financial guarantee for the facility will be in place before the current licence term expires in October 2005.

51. The Members sought further information on the cause for a reported significant reduction in iodine-125 emissions in 2003. MDS Nordion responded that the reduction in emissions was the result of modifications made to the filters in the nuclear ventilation system.
52. Noting that the emergency exercise conducted in October 2002 did not include the radiation aspects of the operation, the Members asked whether future exercises were planned to include those aspects. In reply, MDS Nordion stated that it has conducted several full-scale exercises in recent years that involve the radioactive aspects. The October 2002 exercise, following consultation with CNSC staff, focused more on fire, safety and security in response to the terrorist events in the United States on September 11, 2001. MDS Nordion added that evacuation drills are done annually and that full plan exercises are typically done every two or three years and at least every 5 years. Staff confirmed its satisfaction with emergency preparedness at the facility.
53. With respect to fulfilling the remaining CNSC requirements for Quality Assurance, staff explained that it will be completing an audit of the facility safety aspects of the Quality Assurance Program in 2004.
54. With respect to MDS Nordion's Public Information Program, the Members questioned whether the program conforms to the recently published CNSC guidelines for such programs. Staff noted that MDS Nordion is currently reviewing its information program against the new guidelines and staff expects that any necessary adjustments to the program will be made prior to the conclusion of the current licence term. In response to follow-up questions from the Members on this, MDS Nordion added that there appears to be little or no public concern about the facility. MDS Nordion noted, however, that the recent amalgamation of local municipalities has required the company to interact with a wider range of municipal officials and response personnel.

Criteria for Preparing Significant Development Reports (SDRs)

55. This agenda item, which is related to an action initiated during the Commission meeting on February 26, 2003, was deferred to a future meeting due to the lateness of the hour.

ACTION

Closure of the Public Meeting

The public meeting closed at 5:48 p.m.

Chair

Recording Secretary

Secretary

ANNEX A

CMD	DATE	File No
03-M60	2003-10-23	(1-3-1-5)
Notice of Meeting held on Wednesday and Thursday, November 26 and 27, 2003 in Ottawa		
03-M61	2003-11-12	(1-3-1-5)
Agenda of the meeting of the Canadian Nuclear Safety Commission (CNSC) held in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario, on Wednesday and Thursday, November 26 and 27, 2003		
03-M61.A	2003-11-20	(1-3-1-5)
Revised Agenda of the meeting of the Canadian Nuclear Safety Commission (CNSC) held in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario, on Wednesday and Thursday, November 26 and 27, 2003		
03-M62	2003-11-12	(1-3-1-5)
Approval of minutes of Commission meeting held September 26, 2003		
03-M63	2003-11-17	(20-1-18-7, 30-1-18)
<i>Packaging and Transport of Nuclear Substances Regulation</i> [In closed session] (This document contains prescribed information and is not publicly available)		
03-M64	2003-11-07	(1-3-1-5)
Significant Development Report no. 2003-8		
03-M64.A	2003-11-19	(1-3-1-5)
Significant Development Report no. 2003-8 - Supplementary Information		
03-M65	2003-11-07	(1-3-1-5)
Status Report on Power Reactors units for the period of 2003-09-08 to 2003-11-06		
03-M66	2003-11-12	(42-1-3-0)
Mid-term Report on SRB Technologies (Canada) Incorporated		
03-M67	2003-11-07	(42-1-1-0)
Mid-term Report on MDS Nordion		
03-M68	2003-11-07	(26-0-0-0-0)
Criteria for Preparing Significant Development Reports		