Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Thursday, June 21, 2012

Canada

June 21, 2012

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Thursday, June 21, 2012 beginning at 9:00 am at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario.

Present:

M. Binder, President
A. Harvey
R.J. Barriault
R. Velshi
M. J. McDill

M. Leblanc, Secretary
L. Thiele, General Counsel
M. Young, Recording Secretary

CNSC staff advisors were: G. Rzentkowski, P. Webster, B. Lojk, F. Rinfret, R. Jammal, C. Moses, S. Faille, I. Tremblay, B. Ecroyd, and B. Valpy

Other contributors were:

- Ontario Power Generation Inc. : L. Swami
- Bruce Power: F. Saunders
- New Brunswick Power Nuclear: P. Thompson

Constitution

1. With the notice of meeting, CMD 12-M30, having been properly given and a quorum of Commission Members being present, the meeting was declared to be properly constituted.

2. Since the meeting of the Commission held May 2 and 3, 2012, Commission Member Documents CMD 12-M30 to CMD 12-M36 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The agenda, CMD 12-M31, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and M. Young, Recording Secretary.

Minutes of the CNSC Meeting Held May 2 and 3, 2012

5. The Commission Members approved the minutes of the May 2 and 3, 2012 Commission Meeting as presented in CMD 12-M32.

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 12-M33, which includes the Status Report on Power Reactors, CNSC staff presented updates on the following:
   - Bruce Nuclear Generating Station (NGS) A, Unit 3 was operating at 91% of full power;
   - Bruce NGS B, Unit 8 was operating at 98% of full power following a repair of boiler tubing;
   - Darlington NGS, Unit 2 was operating at full power following the resolution of an issue with the amplifiers on shutdown system 2;
   - Gentilly-2 NGS was operating at 83% of full power due to issues with the fuelling machine;
   - Pickering NGS B, Unit 8 was operating at 87% of full power following a 10-day long forced outage to repair the fuelling machine; and
   - Point Lepreau reactor building leak rate test was successfully completed as the leak rate was measured to be below the regulatory limit of one percent per day.

7. The Commission, noting that two reactors had had issues with fuelling machines, asked for more information on the subject. CNSC staff responded that, due to the complexity of the fuelling machines, it was not unusual for them to suffer mechanical, electrical or hydraulic failures. CNSC staff noted that the issues at Pickering B and Gentilly-2 were different. CNSC staff further noted that there was no safety risk associated with the issues and that the only effect was a reduction in power for the reactors due to the interruption in fuelling.

8. The Commission asked about the repair of fuelling machines during reactor refurbishment. A representative from OPG stated that OPG is analyzing fuelling machine reliability as part of its planned refurbishment for the Darlington NGS. The OPG representative noted that OPG is also developing a repair strategy for the Pickering NGS fuelling machines. A representative from Bruce Power stated that Bruce Power has a refurbishment strategy for fuelling machines and noted that it also performs maintenance on an ongoing basis.

9. The representative from Bruce Power also explained that the issues with the fuelling machine would affect reliability of the reactor and result in a lower power output due to the inability to add new fuel. CNSC staff confirmed that the issues with the fuelling machine affect reliability and are not related to safety.

10. The Commission enquired about the boiler tube leak at Bruce NGS B. CNSC staff responded that there are a large number of tubes in a reactor that can develop minor leaks and that can be repaired during normal operation with no risk to the health and safety of persons or the environment. CNSC staff noted that there is a regulatory limit of 10 kilograms[1] per hour for the allowable leak rate. CNSC staff explained that the reactor must be shut down within 12 hours if the leak exceeds the limit, and if the leak were to exceed 100 kilograms per hour, the reactor must be shut down immediately. A representative from Bruce Power concurred and stated that leaks need to be certain size to be found and repaired. The Bruce Power representative further stated that such leaks are contained.

11. The Commission asked about the status of Bruce NGS A Unit 1, which had been refurbished and was undergoing a restart process. A Bruce Power representative responded that the restart process was progressing on plan and that Bruce Power has requested the release of the shutdown guarantees for the reactor.

12. The Commission also asked about the status of Bruce NGS A Unit 2, noting that there had been a delay in the return to service. A Bruce Power representative responded that Bruce Power was in the process of repairing a generator and completing other work, where possible, at the same time. The Bruce Power representative noted that Bruce Power had not yet determined an expected date to resolve the issue with the generator. The Bruce Power representative further stated that Bruce Power had shared information with New Brunswick Power Nuclear, which was in the process of retuning the Point Lepreau NGS to service.

13. The Commission enquired about the status of the Point Lepreau NGS return to service. A representative from New Brunswick Power Nuclear responded that the return to service was progressing on schedule with the expected return to service date of fall 2012.

14. The Commission asked for more information concerning the issue with the amplifiers on shutdown system 2 for the Darlington NGS. CNSC staff explained that the output of an amplifier in the shutdown system was low, which meant that there was a risk of a spurious trip of the shutdown system. CNSC staff noted that there was no risk to safety and that OPG had addressed the issue.

[1] 10 kilograms of heavy water is approximately nine litres.

Early Notification Reports

15. With reference to CMD 12-M34, CNSC staff presented an early notification report on Low Tritium Levels Detected in Emergency Water System (EWS) Outfall during EWS Safety System Test at the Bruce NGS B. CNSC staff explained that samples collected from the emergency water system outflow and tested for levels of hydrazine as part of a commitment to Environment Canada were found to have tritium levels higher than the drinking water limit of 7,000 Becquerels per litre (Bq/L) set in the Province of Ontario's water quality objectives. CNSC staff stated that a follow-up sample showed that the release was not ongoing and that tritium was below the minimum detection limit. CNSC staff further noted that Bruce Power provided a detailed event report to the CNSC on June 15, 2012.

16. A representative of Bruce Power also presented information concerning the event. The Bruce Power representative explained that the outfall for EWS is normally dry and only has water in it when the system is being tested. The Bruce Power representative noted that the test consisted of drawing lake water into the EWS and pumping it back out, and that the outfall is not considered a normal release point for contaminants. The Bruce Power representative further explained that the hydrazine and tritium were present due to another safety system, the emergency coolant injector system, which is attached to the EWS. The Bruce Power representative noted that there are valves to prevent tritium from entering the EWS, but one of the valves had failed, resulting in the release. The Bruce Power representative further noted that although there was a concentration of tritium above the drinking water quality objective, it was a very small quantity. The Bruce Power representative stated that the release was also reported to Environment Canada and the Ontario Ministry of the Environment.

17. The Commission asked for more information concerning the use of hydrazine. CNSC staff responded that hydrazine is used within the piping system to reduce corrosion the EWS Safety System.

18. The Commission enquired about the inspection of valves. The Bruce Power representative responded that the valves were inspected as part of the tests.

19. The Commission sought more information regarding the reporting to be completed by Bruce Power. CNSC staff responded that Bruce Power had met the requirement to submit a detailed report within 45 days of the event and noted that the root cause analysis would take longer to complete.

20. The Commission enquired about the testing for tritium, noting that the testing was done on April 26 and that the tritium results were not available until May 2. The Bruce Power representative responded that test results could be made available more quickly, depending on the priority of the test. The Bruce Power representative noted that the EWS test was a single 30-minute test, as opposed to an ongoing process that would require more controls. The Bruce Power representative further noted that Bruce Power does have the ability to analyze tritium if there is a more immediate need for results. The Bruce Power representative stated that Bruce Power would be looking at ways to improve the testing process as part of its follow-up to the event.

21. The Commission asked if there were any safety implications as a result of Bruce Power having stopped the testing of the EWS until it has completed the root-cause analysis. The Bruce Power representative responded that there were none, explaining that there are several EWS checks, and the event was the only one that has any potential to cause a tritium release.

22. The Commission asked for clarification regarding the regulatory limits associated with the release. CNSC staff responded that while the release exceeded the Ontario drinking water objective for tritium, it was several orders of magnitude lower than the regulatory limit. CNSC staff noted that it mentioned the drinking water objective in its report because it triggered the notification of the Ontario Ministry of Environment. The Bruce Power representative explained that, in this instance, the drinking water objective was used as a guide and that the reason for reporting the event was because the outfall is not approved to discharge effluents. The Bruce Power representative noted that the drinking water objective is used for drinking water sources, which was not the case for this event.

23. With reference to CMD 12-M36, CNSC staff presented an early notification report on a Heavy Water Spill during Heat Transport System Pressure Test at Point Lepreau. CNSC staff explained that 300 litres of heavy water had overflowed from the collection system set up during a primary heat transport system pressure test. CNSC staff noted that the heavy water was completely contained, cleaned up and recovered. CNSC staff stated that New Brunswick Power Nuclear had identified the lack of detailed operating procedures and a lack of training for supervisors as the two main causes for the event. CNSC staff stated that there were no safety concerns related to the event.

24. A representative for New Brunswick Power Nuclear stated that a successful test was completed following the implementation of corrective measures.

25. The Commission asked for information concerning the issues with training and procedures. CNSC staff noted that the test was a non-routine operation with a unique procedure. The representative from New Brunswick Power Nuclear stated that while the operators had received hands-on training with the testing apparatus, the procedures needed improvement. The representative from New Brunswick Power Nuclear noted that as a result of this event, New Brunswick Power Nuclear has ensured that the procedures for other similar tests are robust and that supervisors have also received the hands-on training.

26. The Commission asked for more information concerning the containment area for the heavy water spill. The representative from New Brunswick Power Nuclear responded that the containment area is a large room with dedicated ventilation to segregate the room from the rest of the reactor building.

27. The Commission commented that the restart of a reactor that has been shut down is likely to result in other non-routine tests. CNSC staff concurred and noted that, from a regulatory standpoint, New Brunswick Power Nuclear must have appropriate controls in place, including the capacity to contain leaks, protective equipment for workers and a radiation protection program, in order to conduct the tests.

28. The Commission asked what the worst-case scenario for this type of leak would be. The representative from New Brunswick Power Nuclear responded that the leak of 300 L was as large as could be expected for this type of event. The representative from New Brunswick Power Nuclear noted that the leak was so large because a relief valve was slow to reseat, which prevented the heavy water from remaining in the heat transport system’s collection system.

29. The Commission asked if CNSC staff verify training procedures before activities are conducted. CNSC staff responded that, in general, they assess the training programs implemented at facilities and witness many tests, but not all. CNSC staff noted that the primary responsibility for safety resides with the licensee. CNSC staff further stated that it had some oversight of the pressure test and the remedial actions to address the event. CNSC staff stated that it was satisfied that New Brunswick Power Nuclear had the ability to manage these types of events and safely return the station to a state where it could be put back in service.

DECISION ITEMS

Application of the 2009 Edition of the International Atomic Energy Agency *Regulations for the Safe Transport of Radioactive Material* (TS-R-1)

30. With reference to CMD 12-M35 CNSC staff presented to the Commission its recommendation that the Commission apply, as a matter of principle, the International Atomic Energy Agency (IAEA) document *Regulations for the Safe Transport of Radioactive Material 2009 Edition* (TS-R-1), to the extent that doing so would not create conflicts with the current *Packaging and Transport of Nuclear Substances Regulations*[2]. CNSC staff recommended that this instruction take effect immediately until such a time as the *Packaging and Transport of Nuclear Substances Regulations* are amended.

31. CNSC staff explained that its recommendation was based on a review of Canadian regulatory practices regarding the packaging and transport of nuclear substances by the Integrated Regulatory Review Service (IRRS) mission, which was conducted by the IAEA. CNSC staff noted that the present *Packaging and Transport of Nuclear Substances Regulations* refer to the 1996 TS-R-1 Regulations, which were revised in 2000. CNSC staff further noted that while a number of changes were introduced in the 2009 Edition, the changes were administrative in nature and did not affect the technical requirements of the Regulations. CNSC staff stated that it would develop an internal administrative process by September 2012 to ensure that any new revisions of the IAEA Regulations are implemented in Canada as soon as they become available.

32. The Commission asked CNSC staff to clarify the statement "to the extent that doing so would not create conflicts with the current *Packaging and Transport of Nuclear Substances Regulations.*" CNSC staff noted that while the technical requirements are the same, there may be some differences in administrative requirements, particularly regarding international transport. CNSC staff noted that the licensees would be responsible to address these administrative requirements.

33. The Commission, noting that the IAEA Regulations were from 2009, asked why the changes were not implemented before 2012. CNSC staff responded that when the 2009 edition was released, it was reviewed and a decision was made to move forward with interim amendments to the *Packaging and Transport of Nuclear Substances Regulations* to introduce certain exemptions, published

[2] Statutory Orders and Regulations (SOR)/2000-208.

in 2011, and is now proceeding with a broader amendment project to reference the newest edition and introduce other changes. CNSC staff noted that it was decided to apply the 2009 Edition through this item in the interim.

34. The Commission asked if the amended *Packaging and Transport of Nuclear Substances Regulations* would reference the next edition of the IAEA Regulations. CNSC staff responded that they would. CNSC staff noted that, while the 2012 Edition had not yet been published by the IAEA, it had been approved and was taken into consideration during CNSC staff's preparation of the amended *Packaging and Transport of Nuclear Substances Regulations*. CNSC staff further noted that if the next IAEA Regulations were published soon, CNSC staff may ask the Commission to adopt the 2012 Edition, if required. CNSC staff noted that it intended to have the *Packaging and Transport of Nuclear Substances Regulations* amended by the end of 2013.

35. The Commission asked if CNSC staff had received any input from the transport community who would be affected by the Commission's decision to apply the 2009 IAEA Regulations. CNSC staff responded that the transport community, including Transport Canada, was aware of the changes to the IAEA Regulations and had participated in the IAEA process to change the regulations.

36. After considering the recommendations submitted by CNSC staff, the Commission applies, as a matter of principle, the IAEA document *Regulations for the Safe Transport of Radioactive Material 2009 Edition* (TS-R-1), to the extent that doing so would not create conflicts with the current *Packaging and Transport of Nuclear Substances Regulations*. This instruction takes effect immediately until such a time as the *Packaging and Transport of Nuclear Substances Regulations* are amended. DECISION

Closure of the Public Meeting

37. The meeting closed at 10:39 a.m.

Recording Secretary — Date: 22/8/12

Secretary — Date: 22/8/12

APPENDIX A

CMD	DATE	FILE NO

12-M30 2012-05-22 Edocs # 3941339
Notice of Meeting of June 21, 2012

12-M31 2012-06-06 Edocs # 3949309
Meeting Agenda of June 21, 2012

12-M32 2012-06-18 Edocs # 3955782
Draft Minutes of Commission Meeting held May 2 and 3, 2012

12-M33 2012-06-14 Edocs # 3953141
Status Report on Power Reactors

12-M34 2012-05-09 Edocs # 3934942
Early Notification Report on Bruce Power: Low Tritium Levels Detected in Emergency Water System (EWS) Outfall during EWS Safety System Test

12-M35 2012-06-05 Edocs # 3936768
Application of the 2009 Edition of the International Atomic Energy Agency *Regulations for the Safe Transport of Radioactive Material* (TS-R-1)

12-M36 2012-06-05 Edocs # 3949283
Early Notification Report on NB Power Nuclear: Heavy Water Spill during Heat Transport System Pressure Test at Point Lepreau