

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Friday, September 17, 2004 beginning at 10:18 a.m. in the Public Hearing Room, CNSC Offices, 280 Slater Street, Ottawa, Ontario.

Present:

L.J. Keen, Chair

Members:

C.R. Barnes

J. Dosman

A. Graham

M.J. McDill

M. Taylor

M.A. Leblanc, Secretary

J. Lavoie, General Counsel

C. Taylor, Recording Secretary

CNSC staff advisers were: I. Grant, B. Howden, K. Scissons, H. Rabski, J. Jaferi, P. Thompson, M. McKee, R. Jammal and M. Larabie

Other contributors were:

- General Electric Canada Inc.: P. Masson and P. Desiri
- Intervenor: Mrs. Shiell

Adoption of the Agenda

1. The revised agenda, CMD 04-M33.A, was adopted as presented.

The President noted that, as indicated in the revised agenda, decision item 5.1 on Regulatory Policy P-299, *Regulatory Fundamentals*, was postponed until the Commission Meeting scheduled for November 2004.

Chair and Secretary

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

Constitution

3. With the notice of meeting having been properly given and a quorum of Commission members being present, the meeting was declared to be properly constituted.

4. Since the last meeting of the Commission held July 8, 2004, Commission Member Documents CMD 04-M32 to CMD 04-M39 were distributed to the Commission members. These documents are further detailed in Annex A of these minutes.

Minutes of the CNSC Meeting Held July 8, 2004

5. The Commission approved the minutes of the July 8, 2004 Commission meeting (reference CMD 04-M34) without change.
6. With reference to paragraphs 9 and 10 of the July 8, 2004 meeting minutes concerning an incident involving a Certified Exposure Device Operator employed by Castle NDE Ltd., the President sought the requested update from staff.
7. Staff explained that, while Castle NDE Ltd. is responsible for ensuring compliance with the NSCA and Regulations, staff issued the Order to the worker because he failed to comply with the obligations of operators set out in the *Nuclear Substances and Radiation Devices Regulations*. Castle NDE Ltd. had communicated the applicable policies, procedures and management directives to the operator. Staff further reported that the worker has requested an opportunity to be heard and a mutually agreed date has been set for October 6, 2004.
8. In response to a question from the Commission on the safety consequence of the incident, staff reported that no increased radiation dose to the worker was recorded as a result of the incident.

Significant Development Report

9. Significant Development Report (SDR) no. 2004-5 (CMDs 04-M35 and 04-M35.A) was submitted by staff. The following information is in addition to that provided in the written SDR.
10. With reference to item 4.1.2 of CMD 04-M35 concerning a shutdown of the Point Lepreau Generating station following a series of lightning strikes, the Commission questioned whether the reactor tripped due to a loss of class 4 power. In response, staff explained that the station was shutdown as a protective measure and not due to a loss of class 4 power.
11. With reference to item 4.1.4 of CMD 04-M35 concerning the recent implementation of Environmental Qualification (EQ)

programs at all power reactor sites, the Commission commended staff on a significant and internationally recognized achievement. EQ programs help ensure that all special safety systems, including equipment, components, and protective barriers are qualified to perform their functions under the environmental conditions that could exist during the facility design-basis accident.

12. With reference to item 4.1.7 in CMD 04-M35.A concerning a 15-day outage at Pickering NGS Unit 4 caused by an equipment failure in the Liquid Zone Control System, the Commission asked staff whether the availability of spare parts contributed to the length of the shutdown. In response, staff reported that availability of parts was not a factor in the shutdown. OPG extended the outage to take advantage of an opportunity to do maintenance on other parts of the system.
13. In an update to item 4.1.5 in CMD 04-M35.A, concerning the Gunnar Idle Mine Site in Saskatchewan, staff reported that it is currently reviewing a letter from the Government of Saskatchewan that was submitted in response to the President's earlier correspondence to the Province concerning the need for a CNSC licence at the site. Staff reported that, while no licence application has yet been filed, the Province is proceeding with the required property ownership validation research. Saskatchewan has reported some delays in assembling the required information in this regard.
14. Staff noted that the current exemption for the Gunnar Idle Mine Site expires on December 31, 2004 and that a further extension of the exemption may be required to allow the licensing process to be concluded.
15. Staff will bring the matter of the Gunnar Idle Mine before the Commission again at the meeting scheduled for November 2004.
16. With reference to item 4.1.6 of CMD 04-M35.A concerning a work disruption at Cameco's Port Hope facility, staff reported that the strike ended and that the plant resumed normal operations on September 16, 2004. Staff noted its satisfaction with the contingency measures taken by Cameco to maintain safety and security during the strike. Staff will be reviewing the event to determine if there are any opportunities for improving its regulatory response.

ACTION

17. Staff reported on a recent significant development that occurred after the publication of the SDR and which involved Rio Algom Limited's Nordic tailings waste management area near Elliot Lake, Ontario. The incident involved the discovery of a small deposit of uranium mine tailings in an adjacent lake (Westner Lake) that has resulted in measurable negative change in the lake water quality. The water quality, however, remains within the Ontario Drinking Water Guidelines. Remediation options are being evaluated and CNSC staff remains in close contact with the licensee and the City of Elliot Lake on the matter.

18. Staff will provide a further update on this incident at Rio Algom Limited's Nordic site at the Commission meeting in November 2004.

ACTION

19. With respect to a further significant development since the publication of the SDR, staff reported on the discovery of radium contamination in an airplane hangar located at Toronto's Pearson International Airport. The former tenant of the building, Millard Air, serviced aircraft instruments containing radium luminous paint until 1993. The building owner is cooperating with the CNSC's request to clean up the contaminated areas. A detailed clean up plan is to be filed by the owner by September 23, 2004 and the work is to be complete by December 31, 2004.

20. In response to the Commission's questions on the history of the site, CNSC staff explained that the location was one of several potentially contaminated sites that were identified during the implementation of the CLEAN Program. While a CNSC inspection in November 2003 confirmed the presence of the contamination, the likelihood of contamination was previously recognized. The site has been locked and unused since Millard Air ceased its activity there.

21. The Commission requested staff to provide additional information at the November 2004 meeting to confirm whether anybody would have received a radiation dose in excess of the regulatory limit while at the affected property. The Commission noted that an update on the CLEAN Program and related items is also scheduled for the November 2004 meeting.

ACTION

Status Report on Power Reactors

22. With reference to the Status Report on Power Reactors (CMD 04-M36), staff provided the following update on the changes in status that have occurred since the report was issued:

- Pickering NGS-B Unit 5 was shutdown on September 9, 2004 to repair a control rod and Liquid Control System.
- Pickering NGS-B Unit 7 was shutdown on September 6, 2004 for a planned maintenance outage.

Interim Performance Report on General Electric Canada (GEC) Class 1B Nuclear Facilities in Toronto and Peterborough, Ontario

23. With reference to CMD 04-M37, staff provided the scheduled interim performance report on GEC's Toronto and Peterborough fuel fabrication facilities.
24. Staff reported that no safety-significant non-compliances or events occurred during the current licence period. Staff considers that GEC's operational compliance met applicable CNSC requirements and performance expectations, and an overall "B" rating has been assigned to both facilities.
25. Staff reported that some deficiencies in the fire safety program were identified and GEC took steps to address those findings in a timely and satisfactory manner.
26. The Commission sought further information on the reported instances when uranium-in-air levels exceeded the CNSC-approved action levels. In response, GEC explained that the higher air concentrations occurred in a room that is normally unoccupied. The causes were immediately investigated and corrected. GEC also clarified that the data represents a single occurrence in 2001 and another single occurrence in 2003. Staff also noted that the room where the events occurred is recognized as having a higher potential for accidental airborne contamination and therefore it is designed with a special ventilation system to address such events.
27. In response to the Commission questions on the quality of the liquid discharges from the facilities, GEC confirmed that all discharges were below the limit of 6 ppm (uranium in water) and averaged approximately 1 ppm.
28. In response to a follow-up question from the Commission on the reported increasing (but still very low) concentrations of uranium in the liquid effluent during the past few years, GEC explained that this was the result of its effort to clean and treat more of its solid waste on the sites prior to shipping it off-site for disposal.

29. In response to questions from the Commission on safety culture at the GEC facilities, GEC representatives described what it considers to be a global, proactive initiative for driving environmental health and safety in the company. The program actively engages all employees in striving for a goal of zero accidents. GEC pointed to its good safety record as evidence of the program effectiveness.

The Assessment of Radiation Effects of Alpha Emitters on Biota

30. With reference to CMD 04-M39, staff presented information on the approach it uses to assess the effects of long-lived alpha emitting radionuclides on non-human biota and, in particular, how scientific uncertainty is managed in that approach. The information was presented to address concerns raised by intervenors at a number of uranium mine and mill licensing hearings about the scientific soundness of the staff's assessments. In response to an expression of interest in this CMD, the President allowed Mrs. Shiell (an interested member of the public who has intervened in a number of public hearings on this topic) an opportunity to make an oral presentation following the staff's presentation.
31. In summary, staff concluded that, for regulatory purposes, the existing biota dose assessment methodology for alpha emitters is sufficiently conservative to ensure that risks are not underestimated and that the recommendations and conclusions are sound. Staff further noted that research in this area continues and that this should result in a reduction in the degree of conservatism over time.
32. In response to the Commission's questions about the ongoing research, staff noted the work it has done in cooperation with Environment Canada on the linking of genetic effects to population or individual level effects. Staff reported that, while a theoretical link exists, it is currently not possible to link the occurrence of genetic damage to the occurrence of population level effects. Staff further noted that it continues to track research in this area within the European Commission, OECD (Organization for Economic Co-operation and Development) and the Norwegian Radiation Protection Institute. Depending on the needs identified from the international initiatives, CNSC research and support program funding may be sought in future.
33. In response to further question on the research being done in this area, staff stated that while some fundamental research on radiation continues, an important area of current research is being done by conservation biologists in an effort to predict long-term impacts of

very wide-scale environmental hazards. That work is for the purpose of driving international policies and identifying tools for early identification of hazards. Staff noted that, to date, hundreds of relevant studies have been conducted and extensively reviewed to form the basis of recommendations for human radiation protection.

34. With respect to the Commission's question on the Radiation Biological Effectiveness (RBE) factors used for alpha radiation, staff explained how it has chosen a RBE of 40 from a review of the available scientific literature. Staff anticipates that as more studies are done and the uncertainties about the effects are reduced, RBE factors could be reduced, or even eventually eliminated, if reliable benchmarks specific to different types of organisms are developed.
35. The Commission sought further clarification of staff statements in CMD 04-M38 concerning metals and metal toxicity. In response, staff stated that where measurable biological effects are observed, it is occurring in situations where the concentrations of metals in association with the radionuclides are elevated relative to the established benchmarks. Staff noted that the effect of uranium is more related to its physiological toxicity, rather than its radiation dose contribution.
36. Mrs. Shiell, in her oral statement during the meeting, expressed the view that not enough is known about the long-term impacts of alpha emitting radionuclides to justify permitting high-grade uranium ores to be mined and milled. Mrs. Shiell is of the view that, while there may be many studies on the effects of radiation on humans, relatively little is known in her opinion about the effects on the environment, and in particular, about the genetic effects on organisms living in contaminated sediments. Mrs. Shiell urged the CNSC to take a broader, longer-term view of the risks.
37. In response to these statements by Mrs. Shiell, staff stated that, while more study will continue to improve understanding of the effects, the scientific community is satisfied that enough is known about radiation to be able to make regulatory decisions that duly consider the remaining scientific uncertainties. Staff will continue to monitor scientific developments and the environmental effects at nuclear facilities to continually review whether more stringent controls are needed.
38. The Commission thanked staff and Mrs. Shiell for the information. The Commission requested that staff maintain and periodically update the document. In this regard, the Commission noted that the

above statements relating to the staff's continuing involvement in specific areas of research, and about the regulatory context in which current knowledge is applied and uncertainties are managed, would be useful additions to the document.

ACTION

39. Staff will prepare a revision of the document with the above-noted additions recommended by the Commission.

ACTION

40. The Commission noted that it may wish to refer specifically to the contents of the document, as appropriate, in future licensing hearings.

Conclusion of the Public Meeting

The public meeting closed at 11:48 a.m.

Chair

Recording Secretary

Secretary

ANNEX A

CMD	DATE	File No
04-M32	2004-08-10	(1-3-1-5)
Notice of meeting held on Friday, September 17, 2004 in Ottawa		
04-M33	2004-09-01	(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 Friday, September 17, 2004		
04-M33.A	2004-09-09	(1-3-1-5)
Updated 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 Friday, September 17, 2004 – Supplementary Information		
04-M34	2004-08-31	(1-3-1-5)
Approval of minutes of Commission meeting held July 8, 2004		
04-M35	2004-08-26	(1-3-1-5)
Significant Development Report no. 2004-5		
04-M35.A	2004-08-30	(1-3-1-5)
Significant Development Report no. 2004-5 – Supplementary Information		
04-M36	2004-08-31	(1-3-1-5)
Status report on power reactors for the period of June 21, 2004 to August 30, 2004		
04-M37	2004-08-20	(36-2-1-0, 36-2-2-0)
Interim Licensing Report on General Electric Canada Inc.'s Class IB nuclear facilities in Toronto and Peterborough, Ontario		
04-M39	2004-08-31	(22-7)
The Assessment of Radiation Effects of Alpha Emitters on Biota		