January 12, 2005

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, January 12, 2005 beginning at 8:30 a.m. in the Public Hearing Room, CNSC Offices, 280 Slater Street, Ottawa, Ontario.

Present:

L.J. Keen, Chair

C.R. Barnes
J. Dosman
A. Graham
M.J. McDill
M. Taylor

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

CNSC staff advisers were:
I. Grant, D. Desjardins, K. Lafrenière, T. Schaubel, R. Jammal, M. Rickard, C. Doyle, R. McCabe, H. Rabski, P. Thompson, G. Lamarre, K. Bundy, S. Vlahovich, K. Pereira, K. Wagstaff and B. Ecroyd

Other contributors were:

- Ontario Power Generation Inc.: M. Williams and J. Coleby
- Atomic Energy of Canada Limited: J.P. Létourneau, J.A. Bond, N.D. MacDonald, D. Lecuyer, R.P. Lambert and C.H. de Vries

Adoption of the Agenda

1. The revised agenda, CMD 05-M2, was adopted as presented.

Chair and Secretary

2. The President chaired the meeting of the Commission, assisted by M. A. Leblanc, Secretary and S. Gingras, 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 meeting of the Commission held November 17, 2004, Commission Member Documents CMD 05-M1 to CMD 05-M6 were distributed to Members. These documents are further

detailed in Annex A of these minutes.

Minutes of the CNSC Meeting Held November 17, 2004

5. The Members approved the minutes of the November 17, 2004 Commission meeting (reference CMD 05-M3) without change.

Significant Development Report

6. Significant Development Report (SDR) no. 2005-01 (CMDs 05-M4 and 05-M4.A) was submitted by CNSC staff.

7. With reference to section 4.1.1 of CMD 05-M4, concerning a shutdown of the Gentilly-2 NGS on December 4, 2004 due to a predicted high probability of pressure tube / calandria tube contact, the Commission asked whether CNSC staff had confidence in the new modelling method being used to predict the behaviour of pressure tubes. CNSC staff responded that its analysis of the method was not yet complete.

8. The Commission requested CNSC staff to report to the Commission on its findings of the new pressure tube modelling method review when it is complete. **ACTION**

9. In response to a question from the Commission on section 4.1.2 of the SDR (concerning a follow-up to an earlier SDR on the maintenance of the Point Lepreau NGS Emergency Power Supply), CNSC staff assured the Commission that the plant continued to operate with adequate backup power supply throughout the maintenance period.

10. With reference to section 4.1.3 on issues related to Pickering NGS A, Unit 4, CNSC staff reported further on an incident that occurred following the submission of CMD 05-M4. The incident occurred on December 24, 2004 at Pickering A, when Unit 4 tripped on the shutdown system enhancement neutronic parameters log rate. A failed fuse was replaced and the unit was returned to high power operation. Annex B provides the details of this SDR item.

11. Noting the duration of the aforementioned shutdown of Pickering A NGS, the Commission questioned whether reduced staffing at the station on Christmas Eve could have contributed to the length of the outage. In response, OPG stated that it continuously maintains the minimum required staffing levels at the station regardless of the holiday season. OPG also noted that the outage in this case was extended to do some other maintenance while the unit

was down.

12. CNSC staff reported another incident that occurred since the submission of CMD 05-M4. On December 31, 2004, during the restart of Pickering B Unit 7, a problem in the heat transport system caused a trip and unplanned shutdown. The unit was being returned to high power operation following this unplanned event. Annex B provides the details of this SDR.

13. With reference to section 4.1.3.1 of the SDR concerning the discovery of a circuit breaker in the "off" position and the resulting temporary unavailability of the Emergency Coolant Injection system at Pickering A NGS, the Commission asked whether protective barriers, similar to the one now installed around the switch at Pickering, would be installed at other locations in the plant and elsewhere. In response, OPG stated that it is examining the station for other potentially vulnerable switches and will build similar protective barriers as necessary. CNSC staff and OPG noted that, while the problem appears to be unique to the Pickering station design, the incident, as with all other operating experience information, will be shared with the other CANDU station operators.

14. Noting the relatively higher number of SDRs involving the Pickering NSG reported at this meeting, the Commission sought the views of staff and OPG with respect to whether a pattern of common contributing factors emerged. In response, OPG stated that events at the station are review both individually and collectively to identify possible trends in human or equipment performance. CNSC staff stated that it follows up on all events at both the individual and management system levels. CNSC staff concluded that the recently reported events do not constitute a major safety issue.

15. With respect to section 4.1.4 on an overexposure of an industrial radiographer, the Commission enquired as to whether the affected individual was still employed by the licensee. The Commission considers it an important part of a good safety culture that workers feel free to report such events without fear of retribution or dismissal. CNSC staff answered that it was waiting for more information from the licensee, but to its knowledge, the individual's employment terminated, as planned, at the end of the project he was hired for. At the time, CNSC staff had no evidence to suggest the worker was terminated because of his exposure to radiation.

16. The Commission asked CNSC staff if the device involved in the incident was still in use, and whether CNSC staff is satisfied that it is safe. CNSC staff responded that, while it does not yet possess all the information on the root causes of the incident, the company has verified that the device is in good working order. CNSC staff stated that it is satisfied that the device, which has been certified by the CNSC, is undamaged and is inherently safe for use. The root-cause assessment will, among other things, look at the human factors involved in the assembly of the tool in severe winter conditions.

17. The Commission requests CNSC staff to provide an update on this SDR as soon as possible following the completion of the root-cause assessment. The follow-up SDR should include information on the root causes, the inherent safety of the device, the status of the worker, and a summary of the CNSC's programs for promoting and ensuring compliance in the industrial radiography sector in general. **ACTION**

18. With reference to section 4.1.5 on the unauthorized disposal of sewage sludge into Waste Management Area (WMA) "C" at AECL's Chalk River Facilities (CRL), the Commission sought further information on why this unauthorized practice had been occurring and the risk it poses to health and the environment.

19. In response, AECL explained that, while the sludge is from the treatment of sanitary sewage generated on the CRL site (toilets, showers, cafeteria, and conventional laundry and sinks), a slight amount of radioactive contamination, as well as mercury, is present. AECL stated that it continues to monitor the contamination in the sludge and the receiving environment. AECL is of the view that the practice is not having a significant adverse effect on humans or the environment.

20. CNSC staff reported that, despite having agreed with the AECB in 1998 to dispose of the sewage sludge off-site except in emergency situations (i.e., when specific radiological clearance criteria could not be met), AECL has (as was discovered by a CNSC inspector in November 2004) continued the practice of disposing of the sludge in WMA "C" on a routine basis. According to CNSC staff and AECL, sewage sludge has not been sent off-site for disposal. It was also unclear whether the sludge would meet criteria for off-site disposal.

21. CNSC staff added that any sewage sludge disposed of on AECL property must be done in accordance with new engineered practices and the waste acceptance criteria for WMA "C". Those criteria, for

example, specify that no liquid material may be disposed of in this area. The sludge reportedly has a very low solid fraction (mostly liquid). CNSC staff considers that the practice is not compliant with these requirements.

22. In response to further questioning on this matter by the Commission, AECL stated that the regular disposal of sludge in WMA "C" was an historical practice dating back more than 40 years, and that since the sludge was only slightly contaminated, AECL determined that it was acceptable and preferable to dispose of it within the licensed area. AECL further clarified that it had not been notifying the CNSC that emergency conditions existed prior to each disposal event (occurring approximately every 4 to 6 weeks). The practice stopped as soon as it was pointed out by CNSC staff in November 2004.

23. AECL added that it has recently initiated a program to reduce and more strictly control the use of mercury at CRL and to determine the origin of the radioactive contamination in the sewage system. In this context, AECL made reference to its commitment to protect the environment in accordance with its ISO 14001-certified Environmental Management System.

24. CNSC staff noted that AECL has committed to providing a detailed analysis of the sludge by February 15, 2005. CNSC staff also indicated that it requested AECL to amend its sewage treatment process to provide for the dewatering of the sludge, in order to be consistent with federal and provincial requirements for sewage sludge management.

25. The Commission expressed its deep concerns with AECL's management of sludge. The Commission also considers AECL's actions related to this significant development to be unacceptable.

26. The Commission requires that AECL prepare a thorough report on this significant development for CNSC staff review and subsequent presentation to the Commission at a future public meeting. The Commission requests that this report contain a description and results of environmental monitoring at the site, a description of the origin of radioactive contamination in sanitary sewage sludge, as well as an analysis of the management system at AECL that appears to have knowingly allowed this non-compliance to continue for such a long period of time without notification of the CNSC. The Commission requires that the matter (including the transcripts of this meeting) receive the direct attention of the most senior levels of AECL management. The Commission also

requires that the President and CEO of AECL sends a letter to the President of the CNSC on the waste management practices of AECL. **ACTION**

27. The Commission also requires that CNSC staff prepare a report on the appropriateness and effectiveness of its compliance and inspection practices. The CNSC staff report should also advise on whether the event constitutes a violation of the NSCA or the regulations under the Act and, if so, a summary of the available actions that the Commission may consider pursuing. **ACTION**

28. With reference to section 4.1.6 of CMD 05-M4.A on the extremity dose incident at AECL-CRL Nuclear Fuel Fabrication Facility, the Commission questioned whether further surgery could be performed to remove contamination from the employee's finger. In response, AECL reported that the employee has consulted with her doctor and was advised that further surgery would result in permanent damage to critical tissue within the finger. The employee's physician is reportedly of the view that the detriment from the surgery would be in excess of the radiological risk posed by the remaining radioactivity. CNSC staff reported that it sought an independent medical opinion from Health Canada on the matter, and Health Canada concurs with the advice of the employee's physician. AECL is also of the view that there would be no radiological health detriment from the exposure.

29. Staff reported that it is currently reviewing AECL incident investigation report and request to allow the employee to return to active work after having exceeded the regulatory extremity dose limit, pursuant to section 17 of the Radiation Protection Regulations. This report includes information on causes and planned corrective actions.

Status Report on Power Reactors

30. With reference to the Status Report on Power Reactors (CMD 05-M5), CNSC staff provided the following information that was added orally during the meeting.

- on January 4, 2005, Darlington NGS Unit 1 was manually tripped by OPG in accordance with procedures following indications of a loss of low-pressure service water.
- Darlington NGS Unit 3 has been derated to 59% full power for maintenance purposes.

Regulatory Policy P-299, R*egulatory Fundamentals*

31. With reference to CMD 05-M6, CNSC staff presented a summary of the proposed CNSC Regulatory Policy on Regulatory Fundamentals (P-299).

32. Following its deliberations on the matter after the close of the public portion of the meeting, the Commission approved Regulatory Policy P-299, with the changes as described in Annex C to these minutes. **DECISION**

Closure of the Public Meeting

The public portion of the meeting closed at 11:21 a.m. and the Commission moved in-camera to deliberate on the decision.

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Chair *Recording Secretary*

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Secretary

ANNEX A

CMD	DATE	File No

05-M1 2004-12-09 (1-3-1-5)
Notice of meeting held on Wednesday, January 12, 2005 in Ottawa

05-M2 2004-12-29 (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, January 12, 2005

05-M2.A 2004-01-06 (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 Wednesday, January 12, 2005 – Supplementary Information

05-M3 2004-12-29 (1-3-1-5)
Approval of minutes of Commission meeting held November 17, 2004

05-M4 2004-12-22 (1-3-1-5)
Significant Development Report no. 2005-1 for the period of November 1st, 2004 to December 22, 2004

05-M4.A 2005-01-06 (1-3-1-5)
Significant Development Report no. 2005-1 for the period of November 1st, 2004 to December 22, 2004 – Supplementary Information

05-M5 2004-12-22 (1-3-1-5)
Status report on power reactors for the period of October 29, 2004 to December 22, 2004

05-M6 2004-11-02 (1-8-8-299)
Regulatory Policy P-299, Regulatory Fundamentals

ANNEX B

Oral updates from CNSC staff on developments that have occurred at the Pickering site since the publication of CMD 05-M4 (transcript):

"CNSC staff would like to inform the Commission of the following developments which have occurred since the publication of the CMD 05-M4 at Pickering site. At Pickering A on December 24th Unit 4 tripped on the shutdown system enhancement neutronic parameters log rate. The unit upset began when a 120 volt power fuse failure occurred, which caused the loss of a colendular spray control, this caused the colendular unit to also close and the colandular level dropped and a low colandular level setback was initiated by the regulating system. The units subsequently tripped on the shutdown system enhancement neutronic log rate parameter, the fuse was replaced and the unit was returned to high power operation.

At Pickering B on December 31st, 2004 during the restart of Unit 7, following a planned maintenance outage, the unit experienced a 20 second loss of bleed while placing the heat transport bleed condenser into service. This caused a heat transport pressure transient and an SDS1 shutdown system 1 trip on high heat transport pressure. The loss of bleed was caused by a valve failing to open as per design. The valve control logic has been repaired and the unit is currently being returned to higher power operation.

This concludes the oral updates for the Pickering site."

ANNEX C

CNSC Regulatory Policy on Regulatory Fundamentals

The Commission makes the following amendments to CNSC Regulatory Policy P-299 *Regulatory Fundamentals*, as proposed by CNSC staff and attached to CMD 05-M6:

On page 1, section 3.0, entitled: Policy Statement, the sentence:

> "The CNSC is responsible to the public, through Parliament, for assuring that these responsibilities are properly discharged", is replaced with:
>
> "The CNSC is responsible to Canadians, through Parliament, for assuring that these responsibilities are properly discharged."

On page 1, section 4.1, entitled: Setting Requirements and Assuring Compliance, the sentence:

> "Cooperates with other organizations and jurisdictions to foster the development and application of consistent standards;", is replaced with:
>
> "Cooperates with other organizations and jurisdictions to foster the development of consistent regulatory requirements;"

On page 2, section 4.1, entitled: Setting Requirements and Assuring Compliance, the sentence:

> "Enforces requirements using an escalating, predictable approach;", is replaced with:
>
> "Enforces requirements using an escalating, consistent approach;".

On page 2, section 4.2, entitled: Basing Regulatory Action on Levels of Risk, the sentence:

> "Regulates persons and organizations that are subject to the *Act* and regulations in a manner that is consistent with the risk posed by the regulated activity;", is replaced with:
>
> "Regulates persons, organizations, and activities that are subject to the *Act* and regulations in a manner that is consistent with the risk posed by the regulated activity;"

On page 2, section 4.3, entitled: Making Independent, Objective and Informed Decisions, the sentence:

> "Performs unbiased assessments of information submitted by licensees, intervenors and others;" is replaced with,
>
> "Performs objective assessments of information submitted by licensees, intervenors and others;"

On the same page, the sentence:

> "Recognizes the role of professional judgment, especially in areas where there is a lack of objective standards;" is replaced with:
>
> "Recognizes the role of professional judgment, especially in areas where there is a lack of standards;"

On the same page, the sentence:

> "Maintains a predictable regulatory process, recognizing that flexibility may be required on a case-by-case basis;" is replaced with:
>
> "Maintains a consistent regulatory process, recognizing that flexibility may be required on a case-by-case basis;"

On page 2, section 4.4, entitled: Serving the Public Interest, the sentence:

> "Is responsible to Canadians for carrying out the mandate of the Act;" is replaced with:
>
> "Carries out its mandate in the interest of Canadians;"

On the same page, the sentence:

> "Communicates openly and transparently with stakeholders in an unbiased fashion while respecting Canada's access to information and privacy laws;" is replaced with:
>
> "Communicates openly and transparently with stakeholders in an objective fashion while respecting Canada's access to information and privacy laws;"

On page 3, section 5.0, entitled: Evaluation, the sentence:

> "The CNSC internal audit group will evaluate the CNSC's adherence to the policy and the policy's effectiveness during periodic program reviews in accordance with management priorities." is replaced with:

“The CNSC’s adherence to this policy and its effectiveness will be periodically evaluated in accordance with management priorities.”