

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held by teleconference on Monday, June 6, 2005 beginning at 3:30 p.m.

Present:

L.J. Keen, Chair

J. Dosman, Member
A. Graham, Member

M.A. Leblanc, Secretary
J. Lavoie, General Counsel
C. Taylor, Recording Secretary

Establishment of the Panel

1. On May 18, 2005, the President of the Commission established a Panel of the Commission to consider an application from Atomic Energy of Canada Limited (AECL) dated March 23, 2005 for an exemption, pursuant to Section 7 of the *Nuclear Safety and Control Act*, from the present and continued extremity dose received by a Nuclear Energy Worker employed by AECL.
2. The Members of the Panel were Ms. Linda Keen (President), Dr. James Dosman, and Mr. Alan Graham.

Chair and Secretary

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

Constitution

4. With the notice of meeting having been properly given and a quorum of Commission Panel Members being present, the meeting was declared to be properly constituted.
5. Commission Member Document CMD 05-M36 and AECL's letter of application dated March 23, 2005 were distributed to the Panel Members. Copies of Significant Development Report (SDR) No. 2005-1 presented at the Commission Meeting on January 12, 2005 and relevant excerpts from the Minutes of the January 12, 2005 meeting were also distributed to the Panel Members for reference.

Basis of the Request for Exemption

6. On September 9, 2004, a Nuclear Energy Worker at AECL's Chalk River Laboratories (CRL) received a small puncture wound to the right index finger tip while operating a chipping lathe in the Nuclear Fuel Fabrication Facility. Approximately 300 Bq of slightly enriched uranium silicide was embedded in the skin of the worker.
7. An attempt to remove the activity from the finger at the Pembroke General Hospital on September 9, 2004 was unsuccessful.
8. Subsequent medical advice provided to the worker and AECL recommended that the sliver of uranium should be left in the skin. This recommendation was based on medical opinion that the radiological risk would be very low in comparison to the risk of damage to the finger that could result from more invasive surgery. Separate medical advice obtained by CNSC staff from Health Canada concurred with this opinion.
9. If the sliver is not removed, CNSC staff estimated that the dose that the worker would continue to receive over the most exposed square centimeter of skin is 6 mSv/hour or 52.5 Sv per annum – a dose that would be significantly in excess of the regulatory dose limit of 500 mSv per annum. However, because the radiation is primarily in the form of alpha particles with very low ability to penetrate tissue, the radiological impact and effects would be confined to the cells immediately adjacent to the sliver and thus pose a very low risk to the health of the individual. CNSC staff also noted that the whole body and skin doses that the worker would otherwise receive while working at CRL would continue to be very low (typically less than 1.3 to 1.5 mSv/year since 2000).
10. Based on the above medical advice, assessment of radiation risk, and a request by the affected Nuclear Energy Worker to return to work, AECL formally applied to the CNSC for an exemption, pursuant to Section 7 of the *Nuclear Safety and Control Act*, from the present and continued extremity dose received by the worker. AECL also requested that the CNSC, pursuant to Section 17 of the *Radiation Protection Regulations*, permit the affected worker to return to the work in the Nuclear Fuel Fabrication Facility at CRL.
11. In CMD 05-M36, CNSC staff recommended that the Panel of the Commission grant the requested exemption. If the exemption is granted by the Commission, the CNSC staff Designated Officer could then consider the request for return to work.

Findings of the Commission

12. In considering the request for exemption, the Commission was required to determine if the granting of the exemption would meet any or all of the criteria set out in section 11 of the *General Nuclear Safety and Control Regulations* (GNSCRs). In particular in this case, the Commission had to determine if the granting of the exemption would pose an unreasonable risk to the environment or the health and safety of persons (paragraph 11(a) of the GNSCRs).
13. Based on the information presented, the Commission concluded, pursuant to paragraph 11(a) of the GNSCRs, that granting the exemption would not pose an unreasonable risk to the environment or the health and safety of the affected worker, or any other person. The Commission is of the view that the health consequences of the incident have already been realized, and that they are minor and localized to the cells immediately adjacent to the sliver. The Commission does not consider that continued application and enforcement of the extremity dose limits in this particular circumstance can be justified.
14. Furthermore, the Commission is satisfied that the affected worker has been informed about and understands the related risks, and that the request to return to the work has been made on the person's own volition.
15. The Commission therefore, pursuant to Section 7 of the NSCA, grants a permanent exemption to the extremity dose limit for the affected worker as proposed in CMD 05-M36 and the letter from AECL dated March 23, 2005. In the event that the uranium sliver is expelled from the person's body, the Commission will reexamine the need for this exemption.
16. The appropriate CNSC staff Designated Officer may therefore, and without prejudice, exercise his authority, pursuant to the *Radiation Protection Regulations*, in respect of the related request for return to work.
17. Despite granting the above-noted exemption, Commission wishes to acknowledge the very serious nature of this incident. The radiation dose limits are fundamental to the CNSC's regulatory framework and the Commission takes any such incidents and requests for exemption extremely seriously. The granting of this exemption should not be construed as precedent-setting. Requests for exemption from the regulations will be considered only under exceptional circumstances and on a case-by-case basis. It is

DECISION

- imperative that all reasonable steps be taken to prevent such incidents from occurring.
18. While AECL states that the cause of the accident was assessed and corrective actions were taken in the Nuclear Fuel Fabrication Facility to reduce the risk of similar events in future, the Commission was not provided with details in this regard.
19. The Commission therefore requests that CNSC staff, with the cooperation of AECL, present a further report to the Commission on the root cause of the event and the specific nature of the corrective actions taken by AECL. The report should also include information on any special dosimetry that will apply to the affected person, or others in the Nuclear Fuel Fabrication Facility, as well as information on how this particular exemption will be addressed by National Dose Registry. The report may take the form of an update to the original SDR presented at the January 12, 2005 Commission Meeting. The SDR update will be presented at the earliest possible scheduled public meeting of the Commission after all necessary assessments by AECL and/or CNSC staff are complete. Note that the report should not include any information that may be protected for privacy reasons.
20. With respect to the individual who received, and will continue to bear the contamination, the Commission strongly encourages AECL and CNSC staff to follow-up to ensure that the presence of the activity in the affected finger, and any related health effects, are periodically monitored into the foreseeable future (possibly on an annual basis). The Commission also recommends that the affected individual continue to receive all information concerning this incident and its potential or actual health effects.
21. In addition, the Commission requests CNSC staff to inform the Commission of any unexpected health effects observed in the future as a result of this incident.

ACTION

ACTION

Closure of the Meeting

The meeting closed at 4:35 p.m.

Chair

Recording Secretary

Secretary

June 6, 2005

ANNEX A

CMD	DATE	File No
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05-M36	2005-05-09	(24-1-0-4-0, 36-1-1-3)
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Request for Exemption of Regulatory Dose Limit – Extremity Dose of Worker at
AECL-CRL Nuclear Fuel Fabrication Facility