



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Canadian Light Source Inc.

Subject Application by Canadian Light Source Inc. for an
Amendment to the Class IB Particle Accelerator
Operating Licence for its Facility in Saskatoon,
Saskatchewan

Hearing
Date October 1, 2009

RECORD OF PROCEEDINGS

Applicant: Canadian Light Source Inc.

Address/Location: University of Saskatoon, 101 Perimeter Road, Saskatoon,
SK, S7N 0X4

Purpose: Application by Canadian Light Source Inc. for an Amendment to
the Class IB Particle Accelerator Operating Licence for its Facility
in Saskatoon, Saskatchewan

Applications received: August 17, 2009

Date of hearing: October 1, 2009

Location: Canadian Nuclear Safety Commission (CNSC) 280 Slater St.,
Ottawa, Ontario

Members present: M. Binder, Chair

Secretary: K. McGee
Recording Secretary: P. Reinhardt

Licences: amended

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Introduction

1. Canadian Light Source Inc. (CLS) has applied to the Canadian Nuclear Safety Commission¹ (CNSC) to amend its Class IB particle accelerator licence to authorize commissioning and operation of an upgraded Access Control and Interlock System (ACIS) for their Linear Accelerator (LINAC) at its synchrotron facility in Saskatoon, Saskatchewan. The current operating licence, PA1OL-02.01/2012., is valid to May 31, 2012.
2. The CLS facility is a particle accelerator nuclear facility that is capable of operating at energy higher than 50 MeV and is classified as a Class IB nuclear facility under the *Class I Nuclear Facilities Regulations*².
3. CLS is seeking the Commission's approval to include in Appendix A of its licence the a revised version of the current CLS *Safety Report*. The main revisions to the safety report include an update to the description of the ACIS for the LINAC and the drawings associated with that system.
4. These changes are administrative in nature or would not change the existing physical works or the physical activities at the licensed facility.

Issue

5. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*³ (NSCA):
 - a) if CLS is qualified to carry on the activity that the amended licences would authorize; and
 - b) if in carrying on that activity, CLS would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Hearing

6. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to review the application. In establishing the process, a standing panel on procedural matters determined that it was not necessary to hold a public hearing on these matters, and the hearing was conducted by a panel of one commission member, based on written submissions.

¹ The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

² S.O.R./2000-204

³ S.C. 1997, c. 9.

7. The Commission, in making its decision, considered information presented for a hearing held on October 1, 2009 in Ottawa, Ontario. During the hearing, the Commission considered written submissions from CNSC staff (CMD 09-H124) and CLS (CMD 09-H124.1).

Decision

8. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that CLS Inc. is qualified to carry on the activities that the amended licence will authorize. The Commission is also satisfied that CLS Inc., in carrying on these activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, amends Canadian Light Source Inc. Class IB Particle Accelerator Operating Licence. The amended licence, PA1OL-02.02/2012, remains valid until May 31, 2012 unless suspended, amended, revoked or replaced.

9. The Commission includes in the amended licence the proposed changes as recommended by CNSC staff in CMD 09-H124, Appendix A to the proposed licence will include:
 1. the most recent revision to the CLS Safety Report, Revision 10; and
 2. the most recent revision to the *University of Saskatchewan and Canadian Light Source Inc. Licence Agreement*.

Issues and Commission Findings

10. In making its licensing decision, the Commission considered a number of issues relating to CLS's qualification to carry out the proposed activities and the impact of the proposed changes on measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.

Qualifications and Protection Measures

11. The purpose of the CLS request is to update the LINAC ACIS to a more modern system currently used for the Booster Ring, Storage Ring, and beamline hutches. The amendment will allow CLS to make modifications to the technical systems and layout of the LINAC ACIS, as well as the LINAC shielding.

12. In support to their application, CLS submitted to CNSC staff a revised CLS Safety Report. CNSC staff reviewed CLS's licence amendment application and supporting documentation, and assessed the proposed changes for commissioning and operation of an upgraded ACIS for CLS's LINAC.
13. CNSC staff evaluated CLS's application against the regulatory requirements of subsection 24(2) of the NSCA, and section 6 of the *General Nuclear Safety and Control Regulations*⁴ and found it in compliance with these requirements.
14. CLS provided CNSC staff the following technical documentation in support of the amendment application:
 - CLS Safety Report;
 - LINAC ACIS Upgrade Hazard and Risk Analysis;
 - LINAC ACIS Upgrade Radiation Shielding Analysis;
 - LINAC Access Control and Interlock System (ACIS) Design Manual;
 - LINAC ACIS Lockup Procedure; and
 - CLS Drawings 0039405, 0038803, and 0038812.

Radiation Protection

15. CNSC staff has reviewed the application to ensure radiation protection aspects for the proposed LINAC ACIS upgrade had been addressed and incorporated into the appropriate documentation. CNSC staff concluded that the revised CLS Safety Report and detailed technical documentation adequately address the inclusion of the upgraded LINAC ACIS into CLS's radiation protection program.
16. CNSC staff has reviewed the shielding analysis and is satisfied that, with the proposed addition of local shielding, the dose rate limits specified in the Safety Report can be met. CLS has committed to CNSC staff to implementing all changes to local shielding specified in the LINAC ACIS Upgrade Radiation Shielding Analysis document.
17. CNSC staff has reviewed the documentation on the upgraded LINAC ACIS. CNSC staff considered the documentation submitted to be satisfactory and to adequately describe the design and lockup procedures for this system. CNSC staff's review of the design indicated that it will adequately control access to the LINAC vault. CNSC staff found the upgraded ACIS system for LINAC to be acceptable.
18. CLS noted that the two areas that are proposed to be released from lockup, the power supply room and the elevator stairwell, will be classified as Radiological Controlled Areas and that they will only be accessible through the CLS card access system. CLS also noted that access to these areas will be restricted to authorized CLS staff with appropriate health, safety and radiation protection training and that visitors will have to be accompanied by an authorized CLS escort and wear an Electronic Personal Dosimeter. The access control system at the CLS facility is acceptable to CNSC staff.

⁴ S.O.R./2000-202

19. Finally, in order to implement the proposed changes to the LINAC ACIS, CLS provided CNSC staff with a commissioning plan. This plan comprises the verification and validation steps required to ensure that the shielding and ACIS designs are adequate to protect the health and safety of persons on site. CNSC staff has reviewed the plan and considered it adequate to safely implement the proposed modifications.

Environmental Protection

20. There are no releases of radioactive materials or hazardous materials from the CLS facility to the environment under routine operation. As the proposed amendment does not change the activities authorized under routine operation of the facility, CNSC staff is satisfied that CLS will continue to make adequate provision for the protection of the environment.

Nuclear Security

21. CLS is required to meet the security requirements set out in the *Class I Nuclear Facility Regulations* as well as the *General Nuclear Safety and Control Regulations*. CNSC staff is satisfied that the proposed modifications for this licence amendment do not change the current security program for the licensed facility. The CLS facility's security program meets regulatory security requirements.

Application of the *Canadian Environmental Assessment Act*

22. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*⁵ (CEAA) have been fulfilled.
23. CNSC staff reported that it had completed an Environmental Assessment (EA) determination. Since the proposed amendments are not for the purpose of enabling a project, CNSC staff stated that there was no requirement for an EA pursuant to subsection 5(1) of the CEAA.
24. The Commission is satisfied that all applicable requirements of the CEAA have been fulfilled.

Conclusion

25. The Commission has considered the information and submissions of CLS and CNSC staff as presented in the material available for reference on the record.

⁵ S.C. 1992, c. 37.

26. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that CLS is qualified to carry on the activities that the amended licence will authorize and that it will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
27. The Commission, pursuant to section 24 of the Nuclear Safety and Control Act, amends Canadian Light Source Inc. Class IB Particle Accelerator Operating Licence. The amended licence, PA1OL-02.02/2012, remains valid until May 31, 2012 unless suspended, amended, revoked or replaced.
28. The Commission includes in the licence the recommendations made by CNSC staff in CMD 09-H124.



Michael Binder
President,
Canadian Nuclear Safety Commission

OCT 01 2009

Date