



Record of Decision

DEC 22-H4

In the Matter of

Applicant Canadian Light Source Inc.

Subject Application to Renew the Class IB Particle
Accelerator Operating Licence for Canadian
Light Source Inc.

Public Hearing
Date March 23, 2022

Summary
Record of
Decision Date May 30, 2022

Detailed
Record of
Decision Date August 9, 2022

RECORD OF DECISION – DEC 22-H4

Applicant: Canadian Light Source Inc.

Address/Location: 44 Innovation Boulevard
University of Saskatchewan
Saskatoon, SK S7N 2V3

Purpose: Application to Renew the Class IB Particle Accelerator Operating Licence for Canadian Light Source Inc.

Application received: January 29, 2021

Date of public hearing: March 23, 2022

Location: Virtual Hearing

Members present: R. Velshi, President
S. Demeter
I. Maharaj

Registrar: D. Saumure
Recording Secretary: C. Moreau
Senior General Counsel: L. Thiele

Applicant Represented By		Document Number
B. Matiko	Acting Chief Operating Officer	CMD 22-H4.1 , CMD 22-H4.1A
G. Botton	Science Director	
M. Boland	Machine Director	
T. West	General Manager	
G. Cubbon	Health, Safety and Environment Manager	
B. Petit	Indigenous Programs Education Coordinator	
CNSC staff		Document Number
K. Owen-Whitred	Director General, Directorate of Nuclear Substance Regulation (DNSR)	CMD 22-H4 , CMD 22-H4.A
M. Broeders	Director, Accelerators and Class II Facilities Division, DNSR	
L. Shuparski-Miller	Senior Project Officer, Accelerators and Class II Facilities Division, DNSR	

S. Thompson	Senior Project Officer, Wastes and Decommissioning Division, Directorate of Nuclear Cycle and Facilities Regulation	
D. Estan	Radiation Protection Officer, Radiation Protection Division, Directorate of Environmental and Radiation Protection and Assessment	
Intervenors		Document Number
North American Young Generation in Nuclear, represented by M. Mairinger		CMD 22-H4.2

Licence: Renewed

Table of Contents

1.0	INTRODUCTION.....	1
2.0	DECISION.....	3
3.0	APPLICABILITY OF THE <i>IMPACT ASSESSMENT ACT</i>.....	4
4.0	ISSUES AND COMMISSION FINDINGS.....	4
4.1	Completeness of the Licence Application.....	5
4.2	CLSI’s performance in relevant safety and control areas.....	6
4.2.1	<i>Management System.....</i>	<i>6</i>
4.2.2	<i>Human Performance Management.....</i>	<i>8</i>
4.2.3	<i>Operating Performance.....</i>	<i>9</i>
4.2.4	<i>Safety Analysis.....</i>	<i>10</i>
4.2.5	<i>Physical Design.....</i>	<i>11</i>
4.2.6	<i>Fitness for Service.....</i>	<i>12</i>
4.2.7	<i>Radiation Protection.....</i>	<i>12</i>
4.2.8	<i>Conventional Health and Safety.....</i>	<i>14</i>
4.2.9	<i>Environmental Protection.....</i>	<i>16</i>
4.2.10	<i>Emergency Management and Fire Protection.....</i>	<i>17</i>
4.2.11	<i>Waste Management.....</i>	<i>18</i>
4.2.12	<i>Security.....</i>	<i>20</i>
4.2.13	<i>Packaging and Transport.....</i>	<i>20</i>
4.2.14	<i>Conclusion on Safety and Control Areas.....</i>	<i>21</i>
4.3	Indigenous Engagement and Consultation.....	22
4.4	Other Matters of Regulatory Importance.....	23
4.4.1	<i>Public Engagement.....</i>	<i>23</i>
4.4.2	<i>Decommissioning Plans and Financial Guarantee.....</i>	<i>24</i>
4.4.3	<i>Cost Recovery.....</i>	<i>25</i>
4.5	Licence Length and Conditions.....	26
4.5.1	<i>Licence Length.....</i>	<i>26</i>
4.5.2	<i>Licence Conditions.....</i>	<i>26</i>
4.5.3	<i>Delegation of Authority.....</i>	<i>27</i>
4.5.4	<i>Conclusion on Licence Length and Conditions.....</i>	<i>27</i>
5.0	CONCLUSION.....	28

1.0 INTRODUCTION

1. Canadian Light Source Inc. (CLSI) has applied to the Canadian Nuclear Safety Commission¹ for the renewal of its Class IB Particle Accelerator Operating Licence for its facility located on the University of Saskatchewan campus in Saskatoon, on Treaty 6 territory, the traditional territory of Cree peoples, and the homeland of the Métis Nation of Saskatchewan. CLSI's licence, PA1OL2.01/2022, was set to expire on May 31, 2022.² CLSI requested a renewal of the licence for a period of 10 years.
2. The Canadian Light Source is a particle accelerator synchrotron facility, and a Class IB nuclear facility under the *Class I Nuclear Facilities Regulations*.³ The Canadian Light Source produces bright, focused light by accelerating electrons to a very high energy and then forcing them to change direction using magnetic devices. Scientists use synchrotron light to take images of samples, analyze their chemistry, or understand a sample's structure. CLSI's current licence authorizes the operation of the Canadian Light Source, as well as the possession, transfer, use, and storage of nuclear substances arising from the operation of the facility.
3. The Commission is also being asked to accept CLSI's revised financial guarantee in the amount of C\$11,978,300M in 2022, consisting of a letter of credit in the amount of \$10,549,000 and a cash fund of \$1,050,000, with planned increases for 2023 through 2026.

Issues

4. The Commission is required to determine whether and what requirements the *Impact Assessment Act*⁴ (IAA) imposes in relation to the activities sought to be authorized in CLSI's application to renew its Class IB particle accelerator operating licence. Satisfying any such requirements can be a prerequisite to licensing.
5. Pursuant to paragraph 24(4)(a) and (b) of the *Nuclear Safety and Control Act*⁵ (NSCA), to renew the licence, the Commission must be satisfied that:
 - a) CLSI is qualified to carry on the activity that the licence would authorize; and
 - b) in carrying on that activity, CLSI 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.

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 A Summary Record of Decision was issued on May 30, 2022 in light of the pending expiry of the licence. This detailed Record of Decision provides the reasons for the Commission's decision.

³ SOR/2000-204

⁴ S.C. 2019, c. 28, s. 1

⁵ S.C. 1997, c. 9

6. As an agent of the Crown, the Commission recognizes its role in fulfilling its constitutional obligations and upholding the honour of the Crown, along with advancing reconciliation with Canada's Indigenous peoples. The Commission's responsibilities include the duty to consult and, where appropriate, accommodate Indigenous interests where the Crown contemplates conduct which may adversely impact Aboriginal and treaty rights.⁶ As such, the Commission must determine what engagement and consultation steps and accommodation measures are called for, respecting Indigenous interests.

Public Hearing

7. On August 3, 2021, a [Notice of Public Hearing and Participant Funding](#) was published for this matter.
8. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission over which she would preside, including Commission Members Dr. S. Demeter and Ms. I. Maharaj, to decide on the application. The Commission, in making its decision, considered information presented for a public hearing held virtually on March 23, 2022. The public hearing was conducted in accordance with the [Canadian Nuclear Safety Commission Rules of Procedure](#)⁷ (the Rules). During the public hearing, the Commission considered written submissions and heard oral presentations from CLSI ([CMD 22-H4.1](#), [CMD 22-H4.1A](#)) and CNSC staff ([CMD 22-H4](#), [CMD 22-H4.A](#)). The Commission also considered an oral and written submission from one intervenor, the North American Young Generation in Nuclear ([CMD 22-H4.2](#)), in support of the application. The hearing was webcast live via the CNSC website, and [video archives](#) are available on the CNSC's website. A [Summary Record of Decision](#)⁸ was issued on May 30, 2022.

Participant Funding Program

9. Pursuant to paragraph 21(1)(b.1) of the NSCA, the Commission has established a [Participant Funding Program](#) (PFP) to facilitate the participation of Indigenous Nations and communities, members of the public and stakeholders in Commission proceedings. In [August 2021](#), up to \$35,000 in funding to participate in this licence renewal process was made available through the CNSC's PFP to review CLSI's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions. No PFP applications were received for this proceeding.

⁶ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73; *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, 2004 SCC 74

⁷ SOR/2000-211

⁸ Summary Record of Decision, *Application to Renew the Class IB Particle Accelerator Operating Licence for Canadian Light Source Inc.*, May 30, 2022.

2.0 DECISION

10. Based on its consideration of this matter, as described in more detail in the following sections of this *Record of Decision*, the Commission concludes the following:

- no requirements under the *Impact Assessment Act* (IAA) are imposed in relation to this matter
- the Commission's responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests has been satisfied
- CLSI is qualified to carry on the activities that the licence renewal will authorize
- CLSI, 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
- CLSI's proposed financial guarantee is acceptable.

Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Class IB Particle Accelerator Operating Licence issued to Canadian Light Source Inc. for its facility located in Saskatoon, Saskatchewan. The renewed licence, PA1OL-02.00/2032, is valid from June 1, 2022 to May 31, 2032.

11. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 22-H4 with changes to reflect the most recent standardized conditions. The licence conditions were updated to reflect what was presented in the hearing. The Commission delegates authority for the purposes of licence conditions G.3 and 7.2, as recommended by CNSC staff. Licence conditions and delegation of authority are further discussed in section 4.5 of this Record of Decision.

12. The Commission finds the financial guarantee amount of C\$11,978,300 to be acceptable for 2022, and the financial guarantee instrument of a letter of credit and cash fund to be acceptable, in accordance with CNSC regulatory guide [G-206 *Financial Guarantees for the Decommissioning of Licensed Activities*](#). The Commission directs CLSI to report to CNSC staff on an annual basis to confirm that CLSI has increased the value of its financial guarantee for 2023 through 2026, in accordance with the amounts set out in Table 7 of CMD 22-H4. The Commission directs the licensee to provide original financial guarantee instruments that conform with G-206, within 90 days of the issuance of the decision. The Commission notes that CNSC staff will assess the next full revision of CLSI's financial guarantee, to enter into effect in 2027, against [REGDOC-3.3.1, *Financial guarantees for decommissioning of nuclear facilities*](#).

13. The Commission directs CNSC staff to report on the performance of CLSI and its facility, as part of the periodic *Regulatory Oversight Report* for Class IB Particle Accelerators. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate. The Commission directs CNSC staff to inform the Commission, as part of the *Regulatory Oversight Report*, of any changes made to the Licence Conditions Handbook (LCH). CNSC staff may bring any matter to the Commission's attention as required.

3.0 APPLICABILITY OF THE *IMPACT ASSESSMENT ACT*

14. In coming to its decision, the Commission was first required to determine whether any requirement under the IAA applied to the application. Pursuant to the IAA and the *Physical Activities Regulations* made under it, impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. A licence renewal is not a project designated under the *Physical Activities Regulations*.
15. The Commission is satisfied there is no requirement under the IAA for an impact assessment to be completed. The Commission is also satisfied that there are no other applicable requirements of the IAA to be addressed in this matter.⁹ The Commission notes that the NSCA provides a strong regulatory framework for environmental protection and the health and safety of persons. Environmental protection is further discussed in section 4.2.9 of this decision.

4.0 ISSUES AND COMMISSION FINDINGS

16. In making its licensing decision, the Commission considered a number of issues and submissions relating to CLSI's qualification to carry out the licensed activities. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.
17. This decision focuses on the issues relevant for this application, specifically:
- Completeness of the licence application
 - CLSI's performance in relevant safety and control areas
 - Indigenous engagement and consultation
 - Other matters of regulatory importance, including the financial guarantee
 - Licence length and conditions, and delegation of authority

⁹ The IAA can impose other requirements on federal authorities in respect of authorizing projects that are not designated as requiring an impact assessment, including projects that are to be carried out on federal lands, or projects outside of Canada. This licence renewal does not engage any such applicable IAA requirements.

4.1 Completeness of the Licence Application

18. CLSI submitted a licence renewal application for its facility on [January 29, 2021](#). In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by CLSI, as required by the NSCA, the [General Nuclear Safety and Control Regulations](#)¹⁰ (GNSCR), the [Class I Nuclear Facilities Regulations](#)¹¹ and other applicable regulations made under the NSCA, including the [Nuclear Security Regulations](#)¹² and the [Radiation Protection Regulations](#)¹³.
19. The GNSCR call on an applicant for a licence renewal to provide information regarding any changes in information to the CNSC as part of its application. Section 5 provides:
 - An application for the renewal of a licence shall contain
 - (a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and
 - (b) a statement identifying the changes in the information that was previously submitted.
20. CLSI's application included reasoning for its application, information on the operation of its particle accelerator facilities since issuance of the current licence, information on the measures implemented by CLSI to satisfy the requirements of its current licence, and information on how those measures would continue to be implemented under a future licence, if granted. CNSC staff reported its advice that CLSI's application included all the required information.
21. The Commission concludes that CLSI's licence renewal application is complete and complies with the regulatory requirements respecting an application for licence renewal. CLSI's application and supporting documents identify how CLSI will meet regulatory requirements and CNSC staff's assessment demonstrates to the Commission how CLSI has adequately addressed the licence renewal application requirements. The Commission notes that CLSI's application is for the renewal of an existing licence to continue operating a Class IB facility, with no substantive changes to the licensing basis, and that section 7 of the GNSCR provides that "An application ...for the renewal... of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence."

¹⁰ SOR/2000-202.

¹¹ SOR/2000-204.

¹² SOR/2000-209.

¹³ SOR/2000-203.

4.2 CLSI's performance in relevant safety and control areas

22. The Commission examined CNSC staff's assessment of CLSI's performance in [13 safety and control areas](#) (SCAs) for the purpose of evaluating this application. The Safeguards and Non-Proliferation SCA is not relevant for this application as CLSI has not possessed, does not currently possess and is not planning to possess any safeguarded material. Throughout the current licence period, CNSC staff rated CLSI's performance in all applicable SCAs as "satisfactory", with the exception of 3 "below expectations" (BE) ratings in the Management System SCA and 2 BE ratings in the Human Performance Management SCA, which are further discussed in sections 4.2.1 and 4.2.2, respectively.

4.2.1 Management System

23. The Commission examined CLSI's management system, which covers the framework that establishes the processes and programs required to ensure that CLSI's facility achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.
24. Section 3.1 of CLSI's application contains information about its management system, including:
- the organizational structures of its facility,
 - audits of compliance with all applicable legislation,
 - annual management reviews of the site management system, and
 - safety culture assessments.

CLSI also provided information about its ongoing improvement initiatives, such as a document control improvement project and work management and engineering change integration project.

25. CNSC staff provided information concerning CLSI's performance in the management system SCA over the licence period, particularly with respect to implementing Canadian Standards Association (CSA) Group standard N286-12¹⁴. CNSC staff submitted that it regularly assesses the compliance of CLSI's programs through desktop reviews and planned compliance verification inspections over the licensing period and noted deficiencies in CLSI's Management System program. CNSC staff issued "below expectations" ratings to CLSI in 2013, 2016 and 2019 based on the results of inspections. CNSC staff reported that it accepted CLSI's action plan for all notices of low-risk non-compliance and will continue to monitor the implementation of the remaining corrective actions in accordance with the requirements of CSA N286-12. CNSC staff submitted that CLSI's performance was satisfactory in 2020, and CLSI's management system meets the requirements of CSA N286-12.

¹⁴ CSA N286-12, *Management System Requirements for Nuclear Facilities*, CSA group, 2012.

26. CLSI acknowledged the issues that CNSC staff identified and raised regarding the management system SCA and the limited progress made by CLSI in order to meet regulatory requirements. Regulatory inspections identified the need for a single non-compliance reporting system as well as the need for non-compliance trending analysis and corrective action effectiveness reviews. CLSI stated that, in 2016, it formed new committees tasked with process improvement and initiated a Problem Identification and Resolution project to define and implement a strategy to address CLSI's deficiencies in the management system.
27. CNSC staff informed the Commission that its future regulatory activities will focus on the compliance activities on the OPEX (operating experience) program, procurement, and top management support at CLSI. CNSC staff added that, despite some weaknesses identified at CLSI, CNSC staff have noted progress in the implementation of CLSI's management system.
28. Asked about the key findings resulting from a 2021 internal safety culture self-assessment, a CLSI representative told the Commission that areas for improvement were related to communication with staff and improving accountability. The CLSI representative added that, as a result of these findings, CLSI improved the transparency of its safety reporting systems and improved the communication between managers and staff, to improve the safety culture.
29. The Commission sought additional information concerning CLSI's organizational structure, and how it changed over the licensing period. A CLSI representative explained that CLSI made gradual changes to its organizational structure over time with the hiring of new managers with a background in management and process improvement. The CLSI representative added that this restructuring increased the accountability and understanding of roles and responsibilities and improved internal communications.
30. The Commission finds that the information provided by CLSI and CNSC staff analysis demonstrate that CLSI has acceptable programs in place to ensure that its facility achieves its safety objectives and fosters a healthy safety culture, and that CLSI's management system meets the requirements of CSA N286-12. The Commission concludes that CLSI has appropriate organization and management structures in place to carry on the licensed activities. The Commission comes to this conclusion on the basis that:
 - the Commission finds the information provided by CLSI on the implementation of and improvements to its management system to be satisfactory
 - the Commission agrees with CNSC staff's assessment that regulatory oversight activities demonstrates that CLSI's management system meets regulatory requirements of CSA N286-12
 - the Commission agrees with CNSC staff's assessment that CLSI has implemented appropriate corrective actions to address the issues identified by CNSC staff

- the Commission agrees with CNSC staff's assessment that CLSI has demonstrated that it has an acceptable safety culture in place that will continue to improve with the proposed plans.

4.2.2 Human Performance Management

31. The Commission assessed CLSI's human performance management programs. Human performance management encompass activities that ensure that CLSI staff are sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.
32. CLSI reported, in section 3.2.3 of its CMD, that it has implemented a Systematic Approach to Training (SAT) for programs that include personnel who may be required to perform duties having an impact on safety and/or security to ensure the provision of qualified workers. CLSI stated that it ensures a minimum staff complement for operational shifts, and that its Health and Safety training ensures that all personnel are competent to work safely. CLSI submitted that it continues to develop and implement human performance tools in accordance with its continual improvement processes and with applicable CSA Group standards and CNSC [REGDOC-2.2.2 Personnel Training](#).
33. CNSC staff reported that CLSI's human performance program currently meets regulatory requirements, and that CLSI is performing satisfactorily with respect to this SCA. CNSC staff noted that issues resulting in a "below expectations" rating during the licence period were associated with CLSI's implementation of a SAT-based program that met CNSC requirements, and a delay in completing corrective actions to meet the requirements of [REGDOC-2.2.2 Personnel Training](#), in 2013 and 2015, respectively. CNSC staff confirmed that CLSI now has a SAT-based training program in place that meets regulatory requirements and has implemented training procedures that meet the requirements of [REGDOC-2.2.2 Personnel Training](#).
34. CNSC staff reported that although CLSI had short periods of non-compliance with minimum staff complement during the licence period, these cases were quickly identified and resolved to CNSC staff satisfaction. CNSC staff added that CLSI's operators were retrained and reminded that if the full minimum staff complement is not present, the beam of the synchrotron must be turned off. CNSC staff confirmed that CLSI has made the necessary improvements to its problem identification and resolution process.
35. On the topic of new users at the facility, a CLSI representative explained that CLSI has facility access training requirements for new users, including a general safety orientation course, a basic radiation safety course and a Workplace Hazardous Materials Information System training exam. Once inside the facility, users receive additional training identifying the types of hazards present at the beamline. The CLSI representative added that there are laboratory safety training requirements for new laboratory employees. The Commission is satisfied with the information provided on this topic.

36. On the basis of the evidence presented by CLSI and CNSC staff, the Commission concludes that CLSI has appropriate human performance management programs in place for the conduct of the requested licensed activities. The Commission is satisfied that the evidence presented demonstrates that CLSI's employees are appropriately trained and qualified in accordance with CNSC requirements, including CNSC REGDOC-2.2.2. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its training programs to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI has a sufficient number of staff in all relevant job areas
 - the Commission agrees with CNSC staff's assessment that CLSI's SAT-based training program meets regulatory requirements
 - the Commission is satisfied that CLSI implemented adequate corrective actions in response to the BE ratings

4.2.3 Operating Performance

37. The operating performance SCA includes an overall review of the conduct of the licensed activities and the activities that enable effective performance, as well as improvement plans and significant future activities at CLSI's facility.
38. Section 3.3 of CLSI's application includes information about its operating performance, including:
- operating programs, including operating limits
 - beamlines
 - reporting

CLSI also provided information about its ongoing improvement initiatives, including a document control improvement project, a self-assessment improvement project and a preventive maintenance project.

39. With respect to reporting and trending, CLSI submitted that it reports unplanned events as required by the NSCA, its licence and regulations. CLSI stated that it submits an Annual Compliance Reports to the CNSC, summarizing performance within each SCA during operation over the previous year and discussed unusual events that have occurred over the current licensing period. CNSC staff submitted that it reviewed all reported events from the current licence period, including spills, injuries, a COVID-19 outbreak, and non-conformances with operational policies. CNSC staff verified CLSI's compliance through inspections and desktop reviews and confirmed that CLSI implemented effective corrective actions for the reported events.

40. CNSC staff indicated, in section 3.3 of CMD 22-H4, that it reviews CLSI's procedural-level documents to ensure that procedures are maintained to reflect actual practices and to verify procedural adherence by CLSI personnel. CNSC staff submitted that its reviews confirmed that CLSI is adequately maintaining these procedures for its facility.
41. CLSI reported that it has abandoned its plans to use the Biomedical and Imaging Therapy (BMIT) beamline for research on humans. CLSI therefore proposed the removing of licence condition 4.3. Licence condition 4.3 is a non-standard condition that requires CLSI to seek approval from the CNSC prior to operating the BMIT beamline on humans. CNSC staff agreed with this proposal, as reflected in the proposed licence attached to its CMD. This is further discussed in section 4.5
42. The Commission is satisfied, taking into consideration the evidence submitted including the satisfactory analysis of compliance with applicable regulatory requirements, CLSI is qualified to carry out the activities under the proposed licence. The Commission comes to this conclusion on the basis that:
 - the Commission finds the information provided by CLSI on its operating performance program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI has appropriate operating-performance programs in place to provide for the protection of the health and safety of persons and the environment
 - the Commission agrees with CNSC staff's assessment that the results of compliance activities demonstrate that CLSI has operated in accordance with regulatory requirements over the current licence period.

4.2.4 Safety Analysis

43. The safety analysis SCA includes a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.
44. In section 3.4 of its submission, CLSI described its program for performing safety analyses for its facility, and provided information about the safety reviews it performed over the licence period. CLSI explained that it assesses risk and safety measures in all areas of its facility, and that it periodically reviews all safety analyses.
45. CNSC staff reported, in section 3.3 of CMD 22-H4, that CLSI maintains an adequate safety analysis report, which identifies facility hazards and their mitigation measures. CNSC staff submitted that its assessment, including desktop reviews and compliance verification, confirmed that CLSI's safety analysis program meets regulatory requirements.

46. The information provided by CLSI and CNSC staff demonstrates to the Commission's satisfaction that CLSI's safety analysis program meets regulatory requirements, and is adequate for the operation of the facility and the activities under the proposed licence. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on the implementation of and improvements to its safety analysis program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI's safety analysis program and safety analysis report meet regulatory requirements
 - the Commission is satisfied that there are no challenges with respect to CLSI's safety analysis evaluation.

4.2.5 Physical Design

47. The physical design SCA includes the activities to design systems, structures and components to meet and maintain the design basis of the facility. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems.
48. In section 3.5 of CMD 22-H4.1, CLSI provides information regarding its safety report, which includes a detailed description of its buildings, systems, and equipment. CLSI reported that it increased its engineering resources over the licensing period to ensure that qualified personnel are used. CLSI also reported that it tested designs regularly based on a graded approach to safety.
49. The CNSC staff assessment of CLSI's physical design program demonstrates that CLSI meets the regulatory requirements for the physical design SCA. CNSC staff reported, in section 3.3 of CMD 22-H4, that CLSI's engineered controls are designed according to CLSI's physical design program. CNSC staff noted that CLSI maintained and calibrated key equipment and systems to ensure safety. CNSC staff added that its desktop reviews and compliance assessments demonstrate that CLSI Physical Design SCA is satisfactory for the current licensing period.
50. The Commission concludes that CLSI continues to implement and maintain an effective design program at its facility, and that the design of CLSI's facility is adequate for the requested licence period and authorized activities. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its physical design program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI has adequate resources in place to safely manage and implement design changes that are within the licensing basis.

4.2.6 *Fitness for Service*

51. Fitness for service covers activities that are performed to ensure that systems, structures and components at CLSI continue to effectively fulfill their intended purpose.
52. In section 3.6 of its submission, CLSI explains that its fitness for service programs and procedures include a maintenance plan to control equipment failure and enhance reliability. CLSI noted that its maintenance activities include monitoring, surveillance, inspection, testing, assessment, calibration, service, overhaul, repair and replacement of parts.
53. CLSI noted that its facility was constructed from 2000 to 2005 while relying upon critical instrumentation installed in the 1960s and 1970s as part of the earlier Saskatchewan Accelerator Laboratory. Asked about the impacts of the aging equipment on safety, a CLSI representative explained that the risk associated with linear accelerator was low, from a radiation safety perspective, and that CLSI was planning to replace the aging instrumentation with new equipment.
54. CNSC staff assessed CLSI's fitness for service program with SCA-specific compliance activities in 2012 and 2021 and reported, in section 3.3 of CMD 22-H4, that CLSI meets regulatory requirements and that CLSI's performance in this SCA is satisfactory.
55. The Commission is satisfied that the information presented demonstrates that CLSI has appropriate programs in place to ensure that its equipment will remain fit for service throughout the proposed licence period. The Commission concludes that CLSI has in place and maintains its fire protection systems in accordance with CSA N393-13. The Commission comes to this conclusion on the basis that:
 - the Commission finds the information provided by CLSI on its fitness for service program to be satisfactory
 - the Commission agrees that the information submitted by CNSC staff supports its conclusion that CLSI's fitness for service program meets regulatory requirements.

4.2.7 *Radiation Protection*

56. The Radiation Protection SCA covers the implementation of a radiation protection program in accordance with the *Radiation Protection Regulations*. The radiation protection program must ensure that contamination levels and radiation doses received by individuals are monitored, controlled and maintained as low as reasonably achievable (ALARA), with social and economic factors taken into consideration. CLSI and CNSC staff submitted information to demonstrate how CLSI's radiation protection program satisfies the requirements of the *Radiation Protection Regulations*.

57. In section 3.4 of CMD 22-H4, CNSC staff explains that radiological exposures associated with work activities at CLSI's facility are due to gamma/x-ray radiation emitted from activated components or prompt radiation when the accelerator is active. CNSC staff notes that CLSI's workers are exposed to relatively uniform fields of gamma radiation, resulting in skin doses being closely identical to the whole-body doses.
58. In section 3.7 its submission, CLSI report dosimetry results over the current licensing period; the maximum annual effective dose to a Nuclear Energy Worker (NEW) was 0.31 millisieverts (mSv) in 2013, which is well below the regulatory limit.¹⁵ CLSI state that doses to CLSI personnel, facility users and contractors remained low over the current licence period. CNSC staff confirmed that the trend of total effective doses received by NEWs and non-NEWs over the current licence period remained relatively constant and well below limits.
59. CLSI provided the Commission with detailed information regarding its surface contamination measurement results over the current licence period. CLSI explained that the average surface contamination measured was well below CLSI's internal investigation and response level of 100 count per minutes (cpm).
60. CLSI also reported its water contamination measurement results over the current licensing period. CLSI informed the Commission that it analyses water samples from the accelerator heat exchangers, cooling water systems and holding tanks for signs of activation. CLSI reported that the measured water contamination levels remained below CLSI's internal investigation level of 10 Bq/mL.
61. CNSC staff reported that CLSI's performance over the licence period met regulatory requirements. CNSC staff noted that CLSI has acceptable radiation protection action levels, and that CLSI did not exceed any action levels during the licence period. CNSC staff further reported that CLSI has adequately addressed all action items raised during inspections focused on the radiation protection SCA over the current licence period.
62. Based on the information provided for this hearing including the report on the total effective doses received by CLSI workers over the licence period, the Commission is satisfied that CLSI is adequately controlling doses to workers at its facility. The Commission concludes that, given the mitigation measures and safety programs that are in place and will be in place to control radiation hazards, CLSI provides for, and will continue to provide for, the adequate protection of the health and safety of persons and the environment throughout the proposed licence period. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its radiation protection program to be satisfactory

¹⁵ The regulatory dose limits for nuclear energy workers are 50 mSv in any one year and 100 mSv in a five-year dosimetry period. The regulatory dose limit for members of the public is 1 mSv in one calendar year.

- the Commission agrees with CNSC staff's assessment demonstrating that CLSI has implemented a radiation protection program that meets the requirements of the *Radiation Protection Regulations*
- the Commission is satisfied that the data provided by CLSI and CNSC staff shows that doses to workers at CLSI were well below CNSC regulatory limits during the current licence term, and that CLSI did not exceed any action levels during the licence period
- the Commission is satisfied that CLSI adequately addressed all action items raised during inspections focused on the radiation protection SCA over the current licence period

4.2.8 Conventional Health and Safety

63. The conventional health and safety SCA covers the implementation of a program to manage workplace safety hazards and to protect workers. The conventional health and safety program is mandated by provincial statutes for all employers and employees to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with applicable labour codes and conventional safety training.
64. In section 3.8 of its submission, CLSI provides detailed information regarding its conventional health and safety program, stating that it identifies and controls hazards, investigates unusual events, reports them to CNSC staff and performs monthly workplace safety inspections. CLSI described some of the incidents involving conventional safety over the licensing period, including a procedural violation related to the oxygen monitoring system annunciation horn in the control room that presented a potential reduction to personnel safety.
65. CLSI reported that it puts its efforts to continuously monitor and improve CLSI safety culture to maintain its low injury rate. CLSI reported that it achieved a period of 1275 consecutive days without a lost time injury and that all CLSI employees have received training in the new Workplace Hazardous Materials Information System - 2015.
66. CNSC staff stated that CLSI is required to implement and maintain a conventional health and safety program, in accordance with the [*Canada Labour Code Part II*](#),¹⁶ and the Public Health Agency of Canada (PHAC) [*Human Pathogens and Toxins Act*](#).¹⁷ CNSC staff reported that CLSI maintains an effective conventional health and safety program in accordance with regulatory requirements and that CLSI has a joint occupational health and safety committee, in accordance with the *Canada Labour Code Part II*.

¹⁶ R.S.C., 1985, c. L-2

¹⁷ S.C. 2009, c. 24

67. CNSC staff stated that, over the licence period, it conducted 11 inspections that included conventional health and safety criteria. CNSC staff reported that CLSI adequately addressed all identified non-compliances related to conventional health and safety.
68. CNSC staff also provided information concerning events related to conventional health and safety at CLSI over the licence period. These included a near miss involving an incorrectly locked 600V power supply prior to the start of work, and an outbreak of COVID-19 among CLSI staff. CNSC staff reported that CLSI satisfactorily addressed those events to prevent reoccurrence.
69. The Commission asked for information regarding the impact of the COVID-19 pandemic on CLSI's activities. A CLSI representative stated that CLSI shut down its facility at the beginning of the pandemic and later imposed restrictions limiting the number of staff. The CLSI representative added that CLSI also had pandemic-related supply chain issues, including equipment and repair components because of COVID travel restrictions between Europe and Canada.
70. The Commission noted that the total number of occupational injuries requiring medical attention reported by CLSI in 2020 was higher than they were in 2018 and 2019, and asked CNSC staff to provide an explanation. CNSC staff stated that those injuries were relatively minor and did not cause any lost time beyond the day of the injury. CNSC staff added that CLSI has a comprehensive injury reporting and follow-up program and that CNSC staff reviews CLSI's follow-up for all injuries. CNSC staff further added that it has no concerns about CLSI's Conventional Health and Safety programs.
71. The Commission is satisfied that the information provided demonstrate that CLSI's conventional health and safety program satisfies regulatory requirements. The health and safety of workers and the public was adequately protected during the operation of the facility for the current licence period and that the health and safety of persons will continue be adequately protected during throughout the proposed licence period. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its conventional health and safety program to be satisfactory
 - the Commission agrees with the conclusion of CNSC staff's assessment, based on CNSC staff's inspections, that CLSI's conventional health and safety program meets regulatory requirements
 - the Commission is satisfied that CLSI has adequately addressed inspection findings over the current licence term

4.2.9 Environmental Protection

72. The Commission examined information provided by CLSI on its environmental protection programs, including effluent and emissions control, and estimated doses to the public. These programs are intended to identify, control and monitor all releases of radioactive and hazardous substances, and aim to minimize the effects on the environment which may result from the licensed activities. Given that CLSI does not have any significant releases to the environment, CLSI has a basic environmental monitoring program that consists of dosimeters located around the perimeter of the building.
73. CLSI noted that, as the operation of its synchrotron does not result in any significant releases of radioactive or hazardous substances to the environment, CLSI is not required to have Derived Release Limits (DRLs). In section 3.9 of its CMD, CLSI reports that it monitors its exhaust using a real-time gamma dose rate monitor and performs environmental radiation level monitoring around the perimeter of the main building. CLSI submitted that it collects and stores wastewater generated at all locations in its facility, which it then samples and analyzes prior to releasing to the municipal sewer system.
74. In its submission, CNSC staff confirmed that CLSI implements an effluent monitoring program that consists of monitoring at any potential discharge locations from the facility. CNSC staff reported that the sample results are consistently below detection levels. CNSC staff further reported that gamma monitoring results are consistently within background levels.
75. In section 3.6 of CMD 22-H4, CNSC staff confirmed that CLSI's implementation of its environmental protection program meets CNSC's regulatory requirements, and that releases to the environment during the current licence period were well below licence limits since CLSI does not have any releases to the environment. CNSC staff's assessment demonstrates that CLSI has implemented and maintained an effective environmental protection program that protects the environment and the public in accordance with CNSC [REGDOC 2.9.1 Environmental Protection: Policies, Programs and Procedures \(2013\)](#). CNSC staff stated that it verified CLSI's performance with respect to environmental protection through inspections and document reviews. CNSC staff reported that all findings from these inspections were of low safety significance and that CLSI closed all enforcement actions associated with these inspections to CNSC staff's satisfaction.
76. With respect to requirements for an environmental risk assessment (ERA), CNSC staff reported that CLSI had submitted an initial screening level ERA to the CNSC in August 2021. CNSC staff reviewed the submission and provided feedback to CLSI to ensure that the ERA meets regulatory requirements and to ensure effective implementation. CNSC staff noted that a stand-alone ERA became a requirement for CLSI with the publication of [2020 version of REGDOC-2.9.1](#). CNSC staff added that CLSI is in the process of addressing CNSC staff comments and that once CNSC staff

confirms that the updated ERA meets requirements, CLSI will have fully implemented the 2020 version of REGDOC-2.9.1.

77. The Commission concludes that, based on the information provided and the programs that are in place to control hazards, CLSI will provide adequate protection to the health and safety of persons and the environment throughout the proposed licence period. The Commission is satisfied that CLSI's environmental protection programs meet, or are being updated to meet, the specifications of the most recent version of CNSC REGDOC-2.9.1, and that releases to the environment from CLSI's facility during the current licence period were well below licence limits. The Commission is also satisfied that the measures implemented by CLSI are adequate for the purposes of environmental protection of aquatic species under the NSCA. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its environmental protection program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI has maintained an environmental management system in compliance with REGDOC-2.9.1 (2013)
 - the Commission is satisfied that the dose to the public remained well below the regulatory limit throughout the current licence period
 - the Commission is satisfied with the progress made by CLSI in implementing an ERA that complies with regulatory requirements
 - CNSC staff regulatory oversight activities demonstrate that CLSI's environmental monitoring program meets regulatory requirements
 - the information provided by CNSC staff that demonstrates that CLSI has addressed all enforcement actions associated with CNSC staff's environmental protection SCA inspections to CNSC staff's satisfaction

4.2.10 Emergency Management and Fire Protection

78. Emergency management and fire protection programs, cover the measures for preparedness and response capabilities implemented by CLSI in the event of emergencies and non-routine conditions. These measures include nuclear emergency management, conventional emergency response, and fire protection and response.
79. With respect to emergency management, CLSI reported that its Emergency Response Plan provides information on how to respond to the various emergencies that could be reasonably expected to occur at CLSI's facility.
80. CNSC staff submitted that CLSI's Emergency Response plan currently complies with the requirements of CNSC regulatory document [G-225, *Emergency Planning at Class I Nuclear Facilities and Uranium Mines*](#). CNSC staff noted that this document was superseded by [REGDOC 2.10.1 *Nuclear Emergency Preparedness and Response, Version 2*](#). CNSC staff reported that CLSI will prepare a gap analysis and action plan to outline the changes required in order to meet the new expectations.

81. CLSI also submitted information regarding its fire protection program, including compliance with the requirements of the [*National Fire Code of Canada, 2015*](#)¹⁸, the [*National Building Code of Canada, 2015*](#)¹⁹. CNSC staff reported that it informed CLSI, in 2020, that the licensing basis document for CLSI's fire protection program would become CSA N393-13 *Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances*. CNSC staff indicated that CLSI has submitted an acceptable gap analysis between its current fire protection program and CSA N393-13. In its submission, CLSI states that it anticipates being in full compliance with the standard before the end of the current licence period.
82. CNSC staff stated that CLSI continues to maintain emergency management and fire protection programs in accordance with regulatory requirements. CNSC staff indicated that its assessment of CLSI's performance with respect to its emergency management and fire protection programs was based on reviews of events, program documentation submitted by CLSI, and third-party reviews of any changes or modifications to the fire protection systems.
83. Taking into consideration the evidence submitted by CLSI and CNSC staff, the Commission is satisfied that CLSI's emergency preparedness program meet CNSC regulatory requirements, such as the *National Fire Code of Canada, 2015* and the *National Building Code of Canada, 2015*. The Commission is also satisfied that CLSI is in the process of updating its program to meet CSA N393-13. The Commission concludes that the information presented demonstrates that CLSI's nuclear and conventional emergency management preparedness programs and the fire protection measures in place, and that will be in place during the proposed licence period, are adequate to protect the health and safety of persons and the environment. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on its emergency management and fire protection program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI's emergency preparedness program meets regulatory requirements
 - the Commission agrees with CNSC staff's assessment that CLSI's fire protection program meets regulatory requirements
 - the Commission is satisfied with CLSI's commitment to update its programs in a timely manner to meet recent REGDOC and CSA standards

4.2.11 Waste Management

84. Waste management covers waste-related programs that form part of a facility's operations up to the point where the waste is removed from the licensed site for storage, treatment, or disposal at another licensed location, and includes waste

¹⁸ *National Fire Code of Canada 2015*, National Research Council Canada, 2015.

¹⁹ *National Building Code of Canada 2015*, National Research Council Canada, 2015.

minimization, segregation, characterization, and storage programs. The waste management SCA also covers planning for decommissioning, however, CLSI's decommissioning plans are discussed in section 4.4.2 of this Record of Decision.

85. Section 3.11 of CLSI's CMD provides information regarding CLSI's waste management program. CLSI submitted that it minimizes the amount of waste generated at its facility, and segregates its waste into chemical, biological, and radiological streams. CLSI added that it characterizes potentially radioactive waste according to its procedural requirements and that it controls access to radiological waste storage areas. CNSC staff reported that CLSI maintains detailed records of items released from regulatory control, in accordance with the [*Nuclear Substances and Radiation Devices Regulations*](#).²⁰
86. CNSC staff reported that CLSI continues to maintain and implement a documented waste management program in accordance with CNSC regulatory requirements. CNSC staff reported that it conducted compliance inspections with respect to waste management during the current licence period, and that all enforcement actions associated with these inspections were closed to CNSC staff's satisfaction. CNSC staff also reviewed CLSI's waste management program documents and rated them satisfactory.
87. CNSC staff also provided information concerning the status of CLSI's implementation of the newly published CNSC regulatory documents [*REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste*](#) and [*REGDOC-2.11.2, Decommissioning*](#). CNSC staff expect CLSI to undertake a gap analysis and submit an implementation plan to align its waste management program with the new regulatory requirements by December 2022.
88. The Commission concludes that CLSI has implemented a waste management program that meets regulatory requirements. The Commission is satisfied that the evidence demonstrates that CLSI has adequate programs and measures in place to manage waste, and finds that CLSI will continue to manage waste in accordance with regulatory requirements during the proposed licence period. The Commission comes to this conclusion on the basis that:
 - the Commission finds the information provided by CLSI on its waste management program to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI's waste management program meets regulatory requirements, including the *Nuclear Substances and Radiation Devices Regulations*
 - the Commission is satisfied that CLSI has addressed all enforcement actions associated with CNSC staff's waste management inspections to CNSC staff's satisfaction

²⁰ SOR/2000-207

The Commission expects CNSC staff to provide it with updates regarding CLSI's implementation of REGDOCs 2.11.1 and 2.11.2 as part of future Regulatory Oversight Reports.

4.2.12 Security

89. The security SCA covers provision for the security of nuclear substances, and measures to alert the licensee to the illegal use or removal of nuclear substances, or sabotage or attempted sabotage anywhere at the site. CLSI's security program, must comply with applicable provisions of the [*General Nuclear Safety and Control Regulations*](#).
90. CLSI reported that it works with the University of Saskatchewan Electronic Protection Group to ensure site security. CLSI added that it employs an independent security firm to provide security personnel, patrol the premises, monitor the surveillance system, and liaise with emergency services as required. CLSI also reported that it tests its security monitoring system on a biannual cycle, and that it ensures that its employees understand security protocols.
91. CNSC staff stated that CLSI has implemented and maintained a security program that meets regulatory requirements under the GNSCR. CNSC staff stated that CLSI's security program provides sufficient technical and administrative security measures for CLSI's facility. CNSC staff reported that CLSI submitted an updated site security plan in February 2021, and that the updated plan meets applicable regulatory requirements. In addition, CNSC staff noted that it conducted a security-focused inspection at CLSI in 2019 and that CLSI had addressed all actions resulting from this inspection.
92. The Commission is satisfied that CLSI has implemented a security program that meets regulatory requirements. The evidence provided demonstrates that CLSI has adequate programs and measures in place to provide for the physical security of its facility during the proposed licence period. The Commission agrees with CNSC staff's assessment and conclusion that CLSI's security program meets regulatory requirements, including the GNSCR. The data that demonstrate that CLSI's performance vis-à-vis security has been acceptable over the current licence period.

4.2.13 Packaging and Transport

93. The packaging and transport SCA covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. CLSI must adhere to the [*Packaging and Transport of Nuclear Substances Regulations, 2015*](#)²¹ (PTNSR, 2015) and Transport Canada's [*Transportation of Dangerous Goods Regulations*](#)²² (TDG Regulations) for all shipments.

²¹ SOR/2015-145

²² SOR/2001-286

94. In section 3.14 of its submission, CLSI provides information on its packaging and transport activities, noting that the majority of shipments are for exempt quantities of nuclear substances. CLSI informed the Commission that, since 2020, its packaging and transport activities are managed under import and export licences, as opposed to a separate CNSC licence that was used from 2012 to 2019.
95. CNSC staff reported that CLSI's packaging and transport program complies with the PTNSR, 2015 and the TDG Regulations for all shipments. CNSC staff added that no packaging and transport events were reported during the licensing period. CNSC staff also reported that it assessed CLSI's performance in this SCA through desktop reviews of reports and that there are no open non-compliances for this SCA.
96. The Commission concludes that CLSI has an adequate program and measures in place to meet regulatory requirements regarding packaging and transport over the proposed licence period. The Commission agrees with CNSC staff's assessment that CLSI's packaging and transport program meets regulatory requirements, including the PTNSR, 2015. The Commission is satisfied that CLSI has measures in place to report events in accordance with regulatory requirements, that no packaging and transport events were reported during the licensing period, and there are no open non-compliances related to CLSI's packaging and transport program.

4.2.14 Conclusion on Safety and Control Areas

97. Based on the evidence provided regarding CLSI's performance with respect to the SCAs, the Commission is satisfied that CLSI has adequate programs and measures in place to ensure that the health and safety of workers, the public and the environment will be protected over the proposed 10-year licence term. The Commission is further satisfied that CLSI has measures in place to provide for the maintenance of national security and to implement international obligations to which Canada has agreed. The Commission comes to this conclusion on the basis that:
- the Commission finds the information provided by CLSI on the applicable SCAs to be satisfactory
 - the Commission agrees with CNSC staff's assessment that CLSI's performance in the majority of the applicable SCAs was "satisfactory" over the current licence term
 - regarding the SCAs for which CNSC staff rated CLSI's performance as "below expectations" over the current licence period, the Commission agrees with CNSC staff's assessment that CLSI has improved its performance to a "satisfactory" rating
 - the Commission agrees with CNSC staff's assessment that CLSI's performance in the 13 applicable SCAs demonstrates that CLSI has the programs, resources, and measures in place to ensure the health and safety of persons and the environment, and the maintenance of security and Canada's international obligations.

4.3 Indigenous Engagement and Consultation

98. The Commission considered the information provided by CNSC staff and CLSI regarding Indigenous consultation and engagement activities in respect of this application. Indigenous consultation refers to the common law duty to consult with Indigenous Nations and communities pursuant to section 35 of the [Constitution Act, 1982](#).²³
99. The common law duty to consult with Indigenous Nations and communities is engaged when the Crown contemplates action that may adversely affect established or potential Indigenous and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Indigenous Nations and communities. The CNSC ensures that its licensing decisions under the NSCA uphold the honour of the Crown and consider Indigenous Nations and communities' potential or established Indigenous and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.
100. The duty to consult is engaged wherever the Crown has "knowledge, real or constructive, of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it".²⁴ Licensing decisions of the Commission, where Indigenous interests may be adversely impacted, can engage the duty to consult, and the Commission must be satisfied that it has met the duty prior to making the relevant licensing decision.
101. CNSC staff noted its commitment to engaging with interested Indigenous nations and communities. CNSC staff stated that, midway through the current licence period, it assessed the level of interest from Indigenous nations and communities in the vicinity of CLSI; no interest or concerns were noted. Given the minimal interest, CNSC staff did not conduct specific engagement or outreach activities for this hearing, and did not receive any requests or questions from Indigenous nations or communities regarding the licence renewal application or the CNSC's regulatory process. CNSC staff added that no applications for funding were received, despite the offer for funding to participate in the licence renewal process.
102. In its presentation, CLSI reported that it has an Indigenous Outreach Education Program in place and described the TREE program at the Mistik Askiwin Dendrochronology Laboratory (MAD Lab) at the University of Saskatchewan. CLSI explained that it has been working to incorporate the [Truth and Reconciliation Call to Action](#), build awareness and work with Indigenous communities to increase representation of Indigenous peoples within Science, technology, engineering, and mathematic (STEM) careers. CLSI did not report any concerns raised by First Nations regarding the licence renewal application.

²³ Schedule B to the Canada Act 1982 (UK), 1982, c 11.

²⁴ *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73 at para 35

103. The Commission is satisfied that this licence renewal will not authorize any new licenced activities and will not cause novel adverse impacts to any Aboriginal or treaty rights. Efforts made by CNSC staff with regard to Indigenous engagement are key to the important work of the Commission toward reconciliation and relationship-building with Canada's Indigenous peoples. The Commission concludes that, for this licence renewal application, the Commission's responsibility to uphold the honour of the Crown and its constitutional obligations with respect to engagement and consultation has been satisfied. The Commission expects CNSC staff to continue to build meaningful long-term relationships with Indigenous Nations and communities as part of the CNSC's reconciliation efforts.

4.4 Other Matters of Regulatory Importance

4.4.1 Public Engagement

104. The Commission assessed CLSI's public information and disclosure program (PIDP). A public information program is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities.
105. The Commission assessed how CLSI's PIDP met the specifications of CNSC [REGDOC-3.2.1, Public Information and Disclosure](#). CLSI reported that its website includes information such as:
- a description of the CLSI safety culture
 - a description of the CLSI Public Disclosure Protocol
 - frequently asked questions and
 - social media.
106. CLSI submitted that it discloses any circumstances arising from a crisis event, such as a fire, natural event, serious worker accident, significant interruptions of facility operations, routine and non-routine releases of radiological and hazardous materials to the environment, unplanned events including those exceeding regulatory limits, and other events or developments that may have an impact on the health and safety of the public or the environment. CLSI added that this information would be disclosed via social media, news release and/or CLSI's website.
107. CNSC staff submitted that CLSI's PIDP meets the specifications of REGDOC-3.2.1. CNSC staff reported that, during the current licence period, CLSI has been successful in meeting its public disclosure and reporting obligations. CNSC staff noted that CLSI uses newsletters, email lists, website content, facility tours, social media, public meetings, public advertisements, volunteering, community investment and community relations activities.

108. The Commission is satisfied that the evidence provided by CLSI and CNSC staff demonstrates that CLSI's PIDP meets regulatory requirements, including CNSC REGDOC-3.2.1. The Commission is of the opinion that CLSI will continue to communicate to the public information about the health, safety and security of persons and the environment and other issues related to its facility. The Commission encourages CLSI to continue creating, maintaining and improving its dialogue with the neighbouring communities.

4.4.2 Decommissioning Plans and Financial Guarantee

109. The *Class I Nuclear Facilities Regulations* require that CLSI have plans in place for the future decommissioning of the nuclear facility. The Commission requires that CLSI maintain a financial guarantee that is adequate to fund those plans, in a form that is acceptable to the Commission.
110. CNSC staff provides detailed information regarding CLSI's financial guarantee in section 4.3 of its CMD. CNSC staff reported that CLSI maintains a preliminary decommissioning plan (PDP) for its facility as per CSA Group standard N294-09, *Decommissioning of facilities containing nuclear substances*²⁵ and CNSC regulatory guide [G-206, Financial Guarantees Guide for the Decommissioning of Licensed Activities](#). CNSC staff further reported that CLSI submitted a revised PDP to the CNSC on in March 2021. As provided in the revised PDP, CLSI has estimated the cost for decommissioning of its facility to be C\$11,978,300 to the end of 2022. The proposed amount includes 25% contingency. The cost estimate includes an escalation of 3% annually to account for inflation. CLSI proposes to annually increase the value of its financial guarantee to meet the cost estimate for 2023 through 2026, as presented in Table 7 of CMD 22-H4 and transcribed below. CNSC staff assessed the cost estimate of CLSI's decommissioning against the criteria set out in CNSC regulatory guide G-206, and considers the proposed amount to be credible and adequate for decommissioning of CLSI's facility. The Estimated costs for decommissioning of CLSI facility presented in Table 7 of CMD 22-H4 are:

2023 - \$12,299,900

2024 - \$12,668,900

2025 - \$13,049,000

2026 - \$13,440,500

111. CLSI is proposing to maintain a letter of credit as its financial guarantee, combined with a cash fund held by the University of Saskatchewan. CNSC staff confirmed that a letter of credit and a cash fund are acceptable financial instruments for financial guarantees, as identified in G-206.

²⁵ CSA N294-09, *Decommissioning of facilities containing nuclear substances*, CSA group, 2009.

112. The University of Saskatchewan has provided the CNSC with a letter confirming that a decommissioning fund has been established for CLSI. The letter confirms that the monies are being held in a distinct interest-bearing fund and that the balance of the fund as of January 12, 2022 is \$2,097,724.31. CLSI has proposed as well to maintain its Letter of Credit from the Royal Bank of Canada in the amount of \$10,549,000.
113. CNSC staff noted that it will assess the next full revision of CLSI's financial guarantee, in 2027, with the requirements and guidance provided in CNSC [REGDOC-3.3.1, *Financial guarantees for decommissioning of nuclear facilities*](#), which was published in January 2021 and supersedes G-206. Financial guarantees are reviewed on a 5-year basis.
114. Asked about the date for the future decommissioning of CLSI's facility, a CLSI representative reported that the current estimated date of decommissioning is in 2029. The CLSI representative noted that the operational life of the CLSI facility could be extended into the mid-2030s. The CLSI representative added that decommissioning could be postponed depending on funding for a new synchrotron.
115. Asked for information on CLSI's cash fund, CNSC staff indicated that the University of Saskatchewan provided the CNSC with a letter outlining the conditions of the cash account, such as when the money from the cash account could be accessed and by whom. CNSC staff reported that the cash account and conditions are acceptable, in accordance with G-206.
116. The Commission concludes that the preliminary decommissioning plan and related financial guarantee for decommissioning CLSI's facility are acceptable. The Commission is satisfied that the evidence provided by CLSI and CNSC staff demonstrates that CLSI's PDP meets CNSC requirements. The Commission finds the financial guarantee amount of C\$11,978,300 to be acceptable for 2022, and the financial guarantee instrument of a letter of credit and cash fund to be acceptable.
117. The Commission directs CLSI to provide the original financial guarantee instruments within 90 days from the issuance of its decision. The Commission directs CLSI to report to CNSC staff on an annual basis to confirm that CLSI has increased the value of its financial guarantee for 2023 through 2026, in accordance with the amounts set out in Table 7 of CMD 22-H4. As financial guarantees remain a matter for Commission acceptance, the Commission will consider any future updates to the financial guarantee as applicable.

4.4.3 Cost Recovery

118. On the question of CLSI's standing under the [Cost Recovery Fees Regulations](#)²⁶ (CRFR), CNSC staff reported that CLSI is a not-for-profit organization and is exempt from the CRFR under section 2(b). The Commission is satisfied that the CRFR do not apply to CLSI.

²⁶ SOR/2003-212.

4.5 Licence Length and Conditions

119. The Commission considered CLSI's application for the renewal of its current licence for a period of 10 years. CLSI's current licence, Class IB Particle Accelerator Operating Licence PA1OL-02.01/2022, expires on May 31, 2022.

4.5.1 Licence Length

120. CLSI is requesting a 10-year term for the renewed licence. CNSC staff recommended the renewal of the licence for a period of 10 years, until 2032, submitting that the evidence provided shows that CLSI is qualified to carry on the licensed activities authorized by the licence. CNSC staff noted that CLSI's performance has been consistent and adequate over the current licence period, and that reporting processes are in place to monitor performance over the proposed licensing period. CNSC staff also noted that a 10-year licence term is consistent with the current licence term. The Commission notes that the public would have the opportunity to provide feedback on CLSI's operations during the proposed licence period when CNSC staff present the associated Regulatory Oversight Report to the Commission.
121. The Commission concludes that a 10-year licence term is appropriate. The Commission agrees with CNSC staff's assessment that CLSI is qualified to carry on the licensed activities, and has mature programs in place with adequate performance and oversight. The Commission notes that a 10-year licence term is consistent with CLSI's current licence term and that the public will have the opportunity to provide feedback to the Commission on CLSI's operations periodically throughout the 10-year licence period.

4.5.2 Licence Conditions

122. CNSC staff's CMD includes a proposed draft licence that incorporates the CNSC's standardized licence format and conditions applicable to CLSI for its Class IB Particle Accelerator Operating Licence. CNSC staff proposed the following changes to the licence and licence conditions:
- removing licence condition 4.3 that prohibits the use of the BioMedical Imaging and Therapy (BMIT) beamline on humans; and
 - licence condition 7.2, changing the timeframe for provision of a written report regarding a dose action level exceedance to 21 days, from 30 working days.

CNSC staff proposed changes reflecting the most recent standardized licence conditions. These changes do not impact the intent or requirements of the licence conditions.

123. Regarding licence condition 4.3, CNSC staff confirmed that the removal of this licence condition would not imply permission to use the BMIT on humans. The Commission is satisfied that, as CLSI has abandoned its plans to use the BMIT on humans, licence condition 4.3 is no longer required.
124. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 22-H4 with changes to reflect the most recent standardized conditions. The licence conditions in the licence reflect the updated conditions as discussed in the hearing. The Commission finds that the proposed changes to the licence conditions are appropriate, minor, and do not impact the licensed activities.

4.5.3 Delegation of Authority

125. In order to provide adequate regulatory oversight of changes that are administrative in nature, and that do not require a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate authority for certain approval or consent, as contemplated in licence conditions that contain the phrase “a person authorized by the Commission” to specific CNSC staff.
126. During its presentation, CNSC staff revised its recommendation from that listed in its CMD. CNSC staff’s recommendation was for the Commission to delegate authority for two licence conditions, the conditions pertaining to the resolution of conflict or inconsistency, and dose action levels. No delegation of authority is requested for the planning for decommissioning or financial guarantee licence conditions.
127. As recommended by CNSC staff during the hearing, the Commission delegates its authority for the purposes of licence conditions *G.3 Resolution of Conflict or Inconsistency*, and *7.2 Dose Action Levels* to the following CNSC staff:
- Director, Accelerators and Class II Facilities Division
 - Director General, Directorate of Nuclear Substance Regulation
 - Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch

The Commission is satisfied that this approach is reasonable and consistent with the current licence.

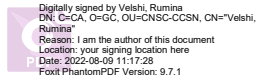
4.5.4 Conclusion on Licence Length and Conditions

128. Based on the information examined by the Commission during the course of this hearing, the Commission is satisfied that a 10-year licence is appropriate for CLSI. The Commission accepts the licence conditions as recommended by CNSC staff, with the proposed changes described during the hearing to reflect the most recent standardized conditions. The Commission accepts CNSC staff’s recommendation regarding the delegation of authority for the purposes of licence conditions *G.3* and *7.2*.

5.0 CONCLUSION

129. The Commission has considered CLSI's application to renew its Class IB particle accelerator operating licence for a 10-year period. The Commission has also considered the submissions of CLSI, CNSC staff, and one intervenor. Based on its consideration of the evidence on the record for this hearing, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Class IB particle accelerator operating licence issued to Canadian Light Source Inc. for a period of 10 years. In doing so, the Commission also accepts the revised financial guarantee and delegates its authority as outlined in sections 4.4.2 and 4.5.3 of this Record of Decision, respectively. The renewed licence, PA1OL-02.00/2032, is valid from June 1, 2022 to May 31, 2032.

Velshi,
Rumina



August 9, 2022

Rumina Velshi
President,
Canadian Nuclear Safety Commission

Date