



# Canadian Light Source Incorporated Licence Renewal Hearing

## Staff Presentation

**CMD 22-H4.A**

Commission Hearing  
March 23, 2022



CMD 22-H4.A – CLSI Licence Renewal, March 23, 2022

# Presentation Outline

- Purpose of Hearing
- Safety and Control Areas of particular importance
- Financial Guarantee
- Proposed Licence
- Recommendations



## Errata

- The Management System Risk Ranking provided in Table 2.2 of the CMD should be Medium, not High
- CNSC staff recommend the Commission accept the proposed financial guarantee, including funding plan. No delegation of authority is requested for the financial guarantee or decommissioning plan
- The expiry date of the proposed licence is May 31, 2032

The errata listed does not impact the conclusions and recommendations in the CMD



# Purpose of Hearing

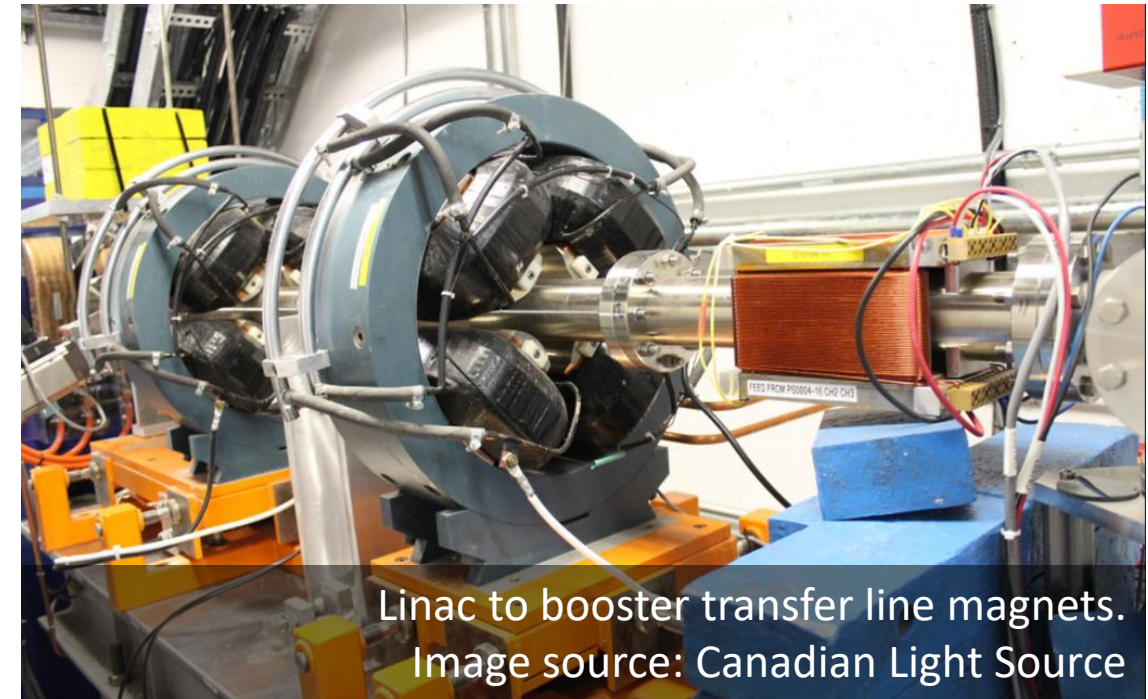
CLSI Request	CNSC Staff Recommendation	If Commission accepts recommendations
<ul style="list-style-type: none"><li>• Renew particle accelerator operating licence for 10 years</li><li>• Approve financial guarantee</li></ul>	<p><b>After assessment, CNSC staff recommend that the Commission conclude:</b></p> <ul style="list-style-type: none"><li>• Licensee is qualified</li><li>• Licensee will make adequate provision to protect Canadians and the environment</li></ul>	<ul style="list-style-type: none"><li>• Renew operating licence until May 31, 2032</li><li>• Accept proposed financial guarantee</li></ul>

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# Canadian Light Source Facility Overview

## Canadian Light Source Synchrotron

- Accelerates electrons up to 2.9 GeV.
- Magnetic devices force electrons to change direction, creating intense light
- Used by researchers from across the world for scientific experiments



Experiments are performed in diverse fields such as agriculture, material science, or life sciences

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# Current Licence

2012

10 year licence issued

2015

Licence amendment  
–  
**Addition of processing  
activity and lab**

2017

Change in licensing basis  
–  
**Change in mode of  
operation**

2021

Change in licensing basis  
–  
**Addition of electron  
source lab**

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# Licence Renewal and Approval of Financial Guarantee

## Canadian Light Source Incorporated has requested the Commission to:

- Renew the operating licence for a period of 10 years, and maintain authorized activities as in current licence
- Approve a proposed financial guarantee of C\$11.9 million in 2022, through a letter of credit maintained by the University of Saskatchewan and cash account

No changes requested to authorized activities

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# Review of Licence Application

## CNSC staff:

- Assessed the information submitted in support of the application was complete for all applicable safety and control areas
- Assessed CLSI's past performance and record

CNSC staff conclude that the application  
complies with regulatory requirements

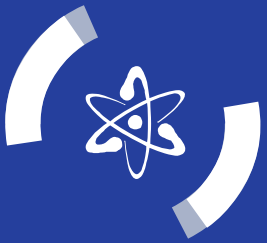


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# Indigenous Engagement

- No requests received from any Indigenous Nations or communities regarding CLSI
- Participant Funding offered by the CNSC
  - No applications were received
- Licence application is for an existing research facility, with no releases to the environment

CNSC staff are available to engage with any interested Indigenous Nation or community regarding CLSI



# Performance Assessment

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# Assessment of Safety and Control Areas

- CNSC staff assessed all applicable safety and control areas (13) for CLSI's licence application
- Assessment criteria and results are summarized in CMD 22-H4

**CLSI programs meet regulatory requirements**

## Assessed Safety and Control Areas

Management System

Human Performance Management

Operating Performance

Safety Analysis

Physical Design

Fitness for Service

Radiation Protection

Conventional Health and Safety

Environmental Protection

Emergency Management and Fire Protection

Waste Management

Security

Packaging and Transport

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# Management System

## CNSC staff assessment:

- Transition to CSA N286-12 *Management System Requirements for Nuclear Facilities* occurred in 2018
- CLSI has worked steadily to improve the implementation of the management system
- CLSI has implemented and maintains a management system framework in accordance with CSA N286-12

CNSC staff conclude CLSI's performance in the Management System SCA is satisfactory



# Radiation Protection Summary

## CNSC staff assessment:

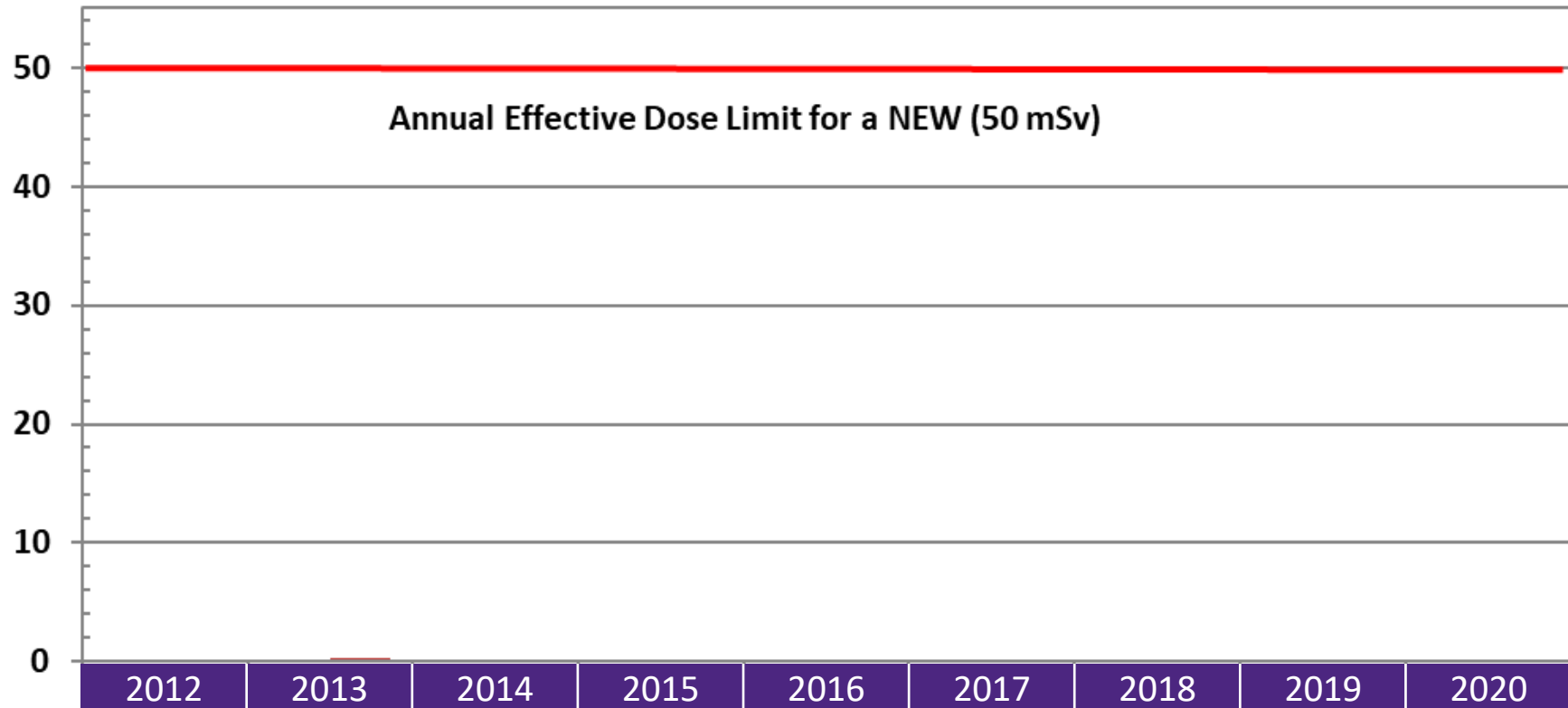
- CLSI's radiation protection program meets the *Radiation Protection Regulations*
- CLSI's radiation protection program keeps whole body doses well below regulatory dose limits
- No action level exceedances during current licence period

CNSC staff conclude that CLSI's performance in the radiation protection SCA is satisfactory

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# Radiation Protection

Dose (mSv)



	2012	2013	2014	2015	2016	2017	2018	2019	2020
■ Average Effective Dose (mSv)	0.041	0.061	0.007	0.006	0.007	0.004	0.008	0.024	0.01
■ Maximum Effective Dose (mSv)	0.23	0.31	0.14	0.19	0.12	0.08	0.17	0.15	0.17
Number of NEWs Monitored	152	151	154	165	174	176	171	139	131

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# Conventional Health and Safety

## CNSC staff assessment:

- CLSI has an effective health and safety program
- CLSI has programs in place to identify and control hazards
- CLSI reported 4 lost-time injuries during licensing period

CNSC staff conclude CLSI's performance in the conventional health and safety SCA is satisfactory

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# Preliminary Decommissioning Plan

## CNSC staff assessment:

- Preliminary decommissioning plan (PDP) meets G-219, *Decommissioning Planning for Licensed Activities* and CSA Group standard N294-09, *Decommissioning of facilities containing nuclear substances*
- The PDP captures strategies, activities and cost estimates for decommissioning which provide for establishing the financial guarantee for decommissioning
- CNSC requires PDPs and FGs to be reviewed on a minimum 5-year basis. The next PDP and FG for the CLSI facility are expected in 2026
- REGDOC-2.11.2, *Decommissioning* will apply in the next review cycle (2026)

CLSI continues to maintain a PDP in accordance with CNSC regulatory requirements



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# Proposed Financial Guarantee

## CLSI has proposed:

- 5-year financial guarantee 2022-2026
- Proposed instruments:
  - letter of credit
  - cash account
- Combined value of instruments will meet specified total for each year

Year	Financial Guarantee Required amount (in \$M)
2022	C\$11.9
2023	C\$12.3
2024	C\$12.7
2025	C\$13.0
2026	C\$13.4

CLSI's proposed financial guarantee is in accordance with CNSC regulatory requirements

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# Financial Guarantee Assessment

## CNSC staff confirm:

- Proposed FG instruments (letter of credit and cash account) are acceptable and meet G-206, Financial Guarantees for the Decommissioning of Licensed Activities
- Current value of financial guarantee of 12.6 million dollars meet the required FG amount for 2022.
- CNSC staff will verify annually that CLSI's funds for decommissioning are adequate to cover the financial guarantee required amount for each year

CNSC staff confirm that the proposed financial guarantee is adequate for the future decommissioning for CLSI



# Public Information Program

## CNSC staff assessment:

- CLSI uses multiple modes of communication to reach target audiences
- CLSI has met its public disclosure and reporting obligations throughout the licensing period
- CLSI's Public Information and Disclosure Program is in accordance with REGDOC 3.2.1 *Public Information and Disclosure*

CLSI's public information and disclosure  
program meets regulatory requirements

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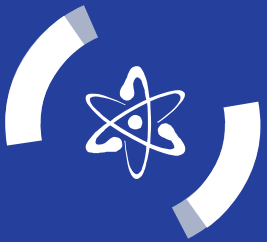


# Public Engagement

## The CNSC:

- Advertised the licence application and Commission hearing process to the public
- Offered Participant Funding
  - No applications for funding were received
- One intervention in favour of the renewal was received from the public regarding CLSI

CNSC staff are available to engage with members of the public regarding CLSI upon request



# Licence and Licence Conditions

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# Proposed Licence

- No change to licensed activities
- 10 year licence term
- Removal of a facility-specific licence condition that is no longer required: CLSI does not intend to pursue research on humans
- Reduction of timeline for submission of action level exceedance written reports (from 30 working days to 21 days) to align with other particle accelerators
- Licence conditions will be updated to reflect current standardized language
- Recommendation to retain all other licence conditions

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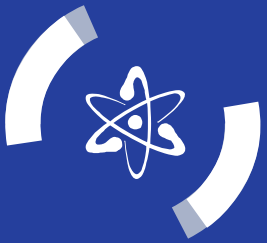


# Proposed Licence Term

## A 10 year licence term:

- Consistent with current term
- CNSC's standardized licence and LCH framework provides for effective regulatory oversight
- CLSI's regulatory compliance history is satisfactory
- CNSC staff report regularly on CLSI's performance to the Commission

CLSI is operating safely



# Recommendations



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# CNSC Staff Recommendations

## CNSC staff recommend that the Commission:

- Conclude that:
  - CLSI is qualified to carry out the activities authorized by the licence; and
  - CLSI 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
- Renew the proposed operating licence for a period of 10 years
- Accept the proposed revised financial guarantee as described in staff CMD, and direct CLSI to provide the original instrument



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