Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Chalk River Laboratories 2028 Licence Renewal Application Supporting Documents

Part A

CRL-508760-160-001

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Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Licensing Basis List for Chalk River Laboratories

900-514300-LST-006300

Revision 0.1

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Approved by:	Sarah Brewer	2026/06/29
	Senior Director, Compliance	Date
	John Osborne	2026/06/29
	Chief Nuclear Officer	Date

Effective Date: 2026/06/29

Mandatory Review by Date: 2029/06/29

Refer to ATOM for current version. Printed copies should not be considered current without first consulting ATOM.

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Revision History

Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
0.1	2026-06-15	Issued for 'Approval.' Minor Changes include: updated documents in the list to new revision numbers and remove documents which were cancelled.	A. Debidyal	A. Coulas C. Clark C. de Waele C. Gallagher C. McGregor W. Graydon K. Leeder K. Leroux K. Lundie R. Mantha A. Masters M. Mitchell T. Pehkonen P. Pottelberg A. Prescott J. Saville T. Scott G. Snell D. Woods	S. Brewer J. Osborne
0	2024-12-10	Issued as "Approved for Use."	S. Bessey	A. Bilton E. Broughton A. Coulas M. Crowe A. Dash C. Gallagher D. Garrick K. Leeder K. Leroux K. Lundie R. Mantha M. Parker P. Pottelberg T. Pehkonen C. Russell G. Snell A. Tisler D. Woods	S. Brewer
D1	2024-07-30	Issued for "Review and Comment."	S. Bessey	A. Bilton E. Broughton R. Corby A. Coulas M. Crowe A. Dash D. Delano G. Dolinar	

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
				C. Gallagher D. Garrick W. Graydon K. Leeder K. Leroux K. Lundie R. Mantha R. Mirault M. Parker P. Pottelberg T. Pehkonen T. Scott G. Snell D. Woods	

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1. Scope and Applicability

This document is limited to the CRL Licence Conditions Handbook and licensing basis documentation applicable to CRL. This controlled LST is revised on a quarterly basis.

2. Purpose

This document contains a list of all licensing basis documents applicable to Chalk River Laboratories, including their revision date and notification requirements.

3. Roles and Responsibilities

3.1 Designated Representatives of the Licensee

Designated Representatives of the Licensee (DROL) are responsible for:

- Ensuring the listed documents are submitted to the CNSC based on Licence Condition G.2: Notification of Change [1], and *Managing Regulatory Communications and Commitments* [2], and
- Verifying that listed documents are maintained as per *Creation, Capture and Use of Information Assets* [3].

3.2 Functional Support Manager, Compliance

Functional Support Manager (FSM), Compliance is responsible for maintaining this list.

3.3 Information Management

Information Management is responsible for identifying all documents in ATOM Electronic Document Records Management System (EDRMS), that require regulatory notification, as per this document.

4. List

CNL recognizes the need to maintain up-to-date licensing basis documents and is actively enhancing its management system document suite to ensure clear governance and accountability for maintaining document currency.

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4.1 Operational Facilities

4.1.1 Building [redacted] Nuclear Fuel Fabrication Facility

Nuclear Fuel Fabrication				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Nuclear Fuel Fabrication Facility (NFFF) Building [redacted] at the Chalk River Laboratories	[redacted]-00583-FA-001	6	*no expiry* 2019-05-01	Y
Nuclear Safety Note for Plate Type Nuclear Fuel Products Proof of Principle Project	NFFF-03500-NSN-001	0	*no expiry* 2017-08-16	Y
Nuclear Safety Note for Plate Target Process	NFFF-03500-NSN-002	1	*no expiry* 2019-02-27	Y
Safety Analysis Report for the [redacted] Fabrication Facilities Building [redacted]	NFFF-03500-SAR-001	2	*no expiry* 2014-09-16	Y
Criticality Safety Document for Building [redacted] Nuclear Fuel Fabrication Facility (CSD-21)	NFFF-123450-CSD-002	10	*no expiry* 2021-10-18	Y
Chalk River Laboratories – Building [redacted] Fire Hazard Assessment	10069536	0	2030-03-30 2025-03-31	Y
Chalk River Laboratories – Building [redacted] Code Compliance Review	10069537	0	2030-03-30 2025-03-31	Y

4.1.2 Buildings [redacted] Class II Facilities

Buildings [redacted] Class II Facilities				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Health Physics Neutron Generator Facility at the Chalk River Laboratories	HPNG-00583-FA-001	13	*no expiry* 2022-04-04	Y
Facility Authorization for the Operation of the Gamma Beam Irradiation Facility at the Chalk River Laboratories	GBF-00583-FA-001	7.2	*no expiry* 2026-01-22	Y
Facility Authorization for the Operation of the GC6O Gamma Irradiator at the Chalk River Laboratories	203-00583-FA-001	7	*no expiry* 2018-10-01	Y
Safety Analysis of the Gamma Beam Irradiation Facility at Chalk River Laboratories	GBF-03500-SAR-001	4	*no expiry* 2015-09-01	Y

[1] This data is the current data at the time of publications, check ATOM for the most current information.

REDACTED

Buildings [redacted] Class II Facilities				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Safety Analysis of the Health Physics Neutron Generator Facility	HPNG-03500-SAR-001	7	*no expiry* 2022-02-28	Y
Safety Analysis for the GC60 Gamma Irradiator at the Chalk River Laboratories	203-03500-SAR-001	3	*no expiry* 2018-10-01	Y

4.1.3 Fuel and Material Cells

Fuel and Materials Cells				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Fuels and Materials Cells at the Chalk River Laboratories	9420-00583-FA-001	5	*no expiry* 2019-07-26	Y
Safety Analysis of the Fuels and Materials Cells at the Chalk River Laboratories	9420-03500-SAR-001	5	*no expiry* 2012-07-11	Y
Fuels and Materials Cells Facility, Building [redacted] (CSD-49)	9420-123400-CSD-001	3	*no expiry* 2017-07-26	Y

4.1.4 Molybdenum-99 Production Facility

Molybdenum-99 Production Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Molybdenum-99 Production Facility at the Chalk River Laboratories	MPF-00583-FA-001	11	*no expiry* 2025-11-03	Y
Molybdenum-99 Production Facility Safety Analysis Report	CRNL-1537	2	*no expiry* 1993-07-01	Y
Final Safety Analysis Report for the Fissile Solution Storage Tank Addendum 2 to the CRNL-1537 (Rev. 2, 1993 July)	CRNL-1537, Addendum 2	1	*no expiry* 1994-06-01	Y
Final Safety Analysis Report for the Fissile Solution Storage Tank Life Extension. Addendum to CRNL-1537 (Rev. 1, 1982 July)	NSN-SRD-064	5	*no expiry* 1993-01-01	Y
Non-Criticality Hazards, Operability and Longevity Assessment (NHOLA) Report for Fissile Solution Storage Tank (FISST) Facility	NSN-RQASD-068	1	*no expiry* 1994-05-01	Y

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Molybdenum-99 Production Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Target Residue Material Retrieval and Transfer System Detailed Design Safety Assessment	361103-164100-SAR-001	3	*no expiry* 2017-10-24	Y
Criticality Safety for the Storage and Retrieval of TRM in FISST (CSD-1)	MPF-123450-CSD-001	4	*no expiry* 2017-12-04	Y
[redacted]ybdenium-99 Production Facility, Building [redacted] CRL (CSD-42)	MPF-03340-CSD-002	1	*no expiry* 2012-03-01	Y
Building [redacted] Fire Hazard Assessment and Code Compliance Review	10064331	0	2029-10-29 2024-10-30	Y
Fire Haz [redacted] ment CRL Building [redacted]	10064994	1	2030-09-03 2025-09-04	Y
Code Compliance Revie [redacted] r Laboratories – Buildings [redacted]	10064992	0	2029-10-29 2024-10-30	Y
Building [redacted] Fire Hazard Assessment	[redacted]-508720-FHA-001	0	2029-09-03 2020-02-14	Y
Confirmation of the Building [redacted] Fire Hazard Assessment	10063979	0	2029-09-03 2024-09-04	Y

4.1.5 National Research Universal

National Research Universal				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the NRU Reactor at the Chalk River Laboratories	NRU-00583-FA-001	17	*no expiry* 2018-07-19	Y
NRU Reactor Safety Analysis Report	NRU-01320-SAR-001	3	*no expiry* 2016-03-28	Y
Nuclear Safety Note for NRU Permanent Shutdown	NRU-508770-NSN-002	0	*no expiry* 2017-10-11	Y
Building [redacted] Rod Storage Bays Criticality Safety Document (CSD-4B)	RSB-123450-CSD-001	2	*no expiry* 2022-01-10	Y
Building [redacted] (NRU Stack Monitoring Building) Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2017-03-18 2012-03-19	Y[2]
AECL CRL [redacted] Fire Hazard Assessment	NRU-508720-FHA-002	1	2017-04-08 2012-04-04	Y[2]

[2] Letter was sent to CNSC proposing cancellation of this document, awaiting CNSC's acceptance.

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National Research Universal				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
[redacted] er Laboratories – Buildings [redacted] Fire Hazard Assessment	10069544	0	2030-03-30 2025-03-31	Y
[redacted] er Laboratories – Buildings [redacted] Code Compliance Review	10069546	0	2030-03-30 2025-03-31	Y

4.1.6 Recycled Fuel Fabrication Laboratories

Recycled Fuel Fabrication Laboratories				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Recycle Fuel Fabrication Laboratories at the Chalk River Laboratories	RFFL-00583-FA-001	6	*no expiry* 2011-10-01	Y
The Recycle Fuel Fabrication Laboratories Safety Analysis Report	RFFL-03500-SAR-001	5	*no expiry* 2011-09-01	Y
Recycle Fuel Fabrication Laboratories (RFFL), Building [redacted] CRL (CSD-3)	RFFL-123450-CSD-002804	0	*no expiry* 2026-01-15	Y

4.1.7 Tritium Facility

Tritium Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Tritium Facility (Building [redacted]) at the Chalk River Laboratories	TF-00583-FA-002	2	*no expiry* 2019-05-24	Y
Safety Analysis Report for the Building [redacted] Tritium Facility	TF-508770-SAR-001	1	*no expiry* 2018-12-17	Y

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4.1.8 Universal Cells

Universal Cells				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Building [redacted] Universal Cells at the Chalk River Laboratories	9410-00583-FA-001	4.2	*no expiry* 2023-06-20	Y
Final Safety Analysis Report for Building [redacted] Universal Cells	9410-03500-FSAR-001	3	*no expiry* 2018-04-01	Y
Universal Cells, Building [redacted] CRL (CSD-28)	[redacted] 123450-CSD-001	3	*no expiry* 2016-11-16	Y
Chalk River Laboratories On-Site Irradiated Material Transportation Flasks (CSD-50)	NFO-123450-CSD-001	2	*no expiry* 2018-11-21	Y

4.1.9 Van de Graaff Accelerator

Van de Graaf Accelerator				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Van de Graaf Accelerator at the Chalk River Laboratories	[redacted]-00583-FA-001	4.2	*no expiry* 2026-04-27	Y
Safety Analysis of the Van de Graaff Accelerator at the Chalk River Laboratories	[redacted]-03500-SAR-001	4	*no expiry* 2014-09-08	Y

4.1.10 Waste Management Area

Waste Management Areas				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Waste Management Areas at the Chalk River Laboratories	WMA-00583-FA-001	23.1	*no expiry* 2024-09-03	Y
Final Safety Analysis Report for the Fuel Packaging and Storage Project	THRR-03610-FSAR-001	4	*no expiry* 2017-10-01	Y
Preliminary Decommissioning Plan for the Fuel Packing and Storage Facility	THRR-106131-PDP-001	1	2020-04-16 2015-04-16	Y
Waste Management Areas Safety Analysis Report (Part A) Non-Operating Facilities	WMA-508770-SAR-001	1	*no expiry* 2018-01-15	Y

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Waste Management Areas				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Waste Management Areas Safety Analysis Report (Part B) Operating Facilities	WMA-508770-SAR-002	1	*no expiry* 2019-04-01	Y
Assessment Report - Low-Level Radioactive Waste Storage in Sealant Containers and Engineered Waste Bags in Waste Management Area H	WMA-508770-NSN-001	3	*no expiry* 2017-10-23	Y
Storage of Bagged Alpha Waste in Waste Management Area D and Waste Management Area H Recoverable Surface Storage Areas	WMA-508770-NSN-006	2	*no expiry* 2020-12-07	Y
Sort and Segregation Facility Safety Assessment	WMA-508770-NSN-008	2	*no expiry* 2021-06-01	Y
Irradiated Fuel Element (IFE 2-17) Drying System Safety Assessment	WMA-508770-NSN-009	1	*no expiry* 2022-06-02	Y
Low Level Radioactive Waste Storage in Sealand Containers in Waste Management Area C	WMA-508770-NSN-010	3	*no expiry* 2024-01-22	Y
Waste Management Area G Modification for Storage of Gentilly-1 Spent Fuel in Concrete Canisters Safety Assessment	WMA-508770-NSN-012	2	*no expiry* 2022-08-15	Y
Nuclear Safety Note - Transfer and Storage of Gentilly-1 Spent Fuel Baskets in Waste Management Area G	247-508770-NSN-001	1.1	*no expiry* 2024-06-06	Y
Nuclear Safety Note for the Transfer and Storage of Whiteshell Laboratories Fuel Baskets in Waste Management Area G	235-508770-REPT-001	2	*no expiry* 2022-07-06	Y
Criticality Safety Document CSD-61 for the Storage of Fissionable Materials in the SMAGS Building in Waste Management Area H	SMAGS-03340-CSD-001	3	*no expiry* 2007-12-14	Y
Preliminary Decommissioning Plan for the SMAGS Facilities	SMAGS-01600-PDP-001	4	2031-01-12 2026-01-12	Y
Criticality Safety Document - [redacted] Packaging and Storage Project, Building [redacted] (CSD-65)	THRR-106660-CSD-002	3	*no expiry* 2015-07-08	Y
Criticality Safety Document - Chemical Pit	WMA-123450-CSD-001	0	*no expiry* 2007-05-01	Y
Criticality Safety Document - Reactor Active Drain Liquid Disposal Area	WMA-123450-CSD-002	0	*no expiry* 2007-05-01	Y

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Waste Management Areas				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Criticality Safety Document for the WMO Transfer Flask (CSD-53)	WMA-123450-CSD-003	6	*no expiry* 2017-03-28	Y
Criticality Safety Document for the Storage of Fissionable Materials in Concrete Lined Cribs CLC-1 to CLC-3 and the GP-18 Galvanized Steel Standpipes in Waste Management Area 'B'	WMA-123450-CSD-004	2	*no expiry* 2008-07-01	Y
Preliminary Decommi[redacted]ng Plan for WMA 'B' Entrance Building, [redacted]	[redacted]-01600-PDP-001	2	2031-01-12 2026-01-12	Y
Storage of Fissionable Materials in CD Bunkers, and CF, CW, IRP and Rod Tile Holes in Waste Management Area B, CRL (CSD-32)	WMA-123450-CSD-005	12	*no expiry* 2026-06-01	Y
Storage of Fissionable Materials in the IMD and IFE Series Tile Holes, Waste Management Area B, CRL (CSD-13A)	WMA-123450-CSD-006	2	*no expiry* 2013-12-04	Y
Storage and Retrieval of Fissionable Materials in the IMD and IFE Series Tile Holes, Waste Management Area B, CRL (CSD-13B)	WMA-123450-CSD-007	1	*no expiry* 2017-03-08	Y
Cemented Molybdenum-99 Waste (CMW) Retrieval from Irradiated Rod Part (IRP) Tile Holes in Waste Management Area "B" (CSD-69)	WMA-123450-CSD-008	1	*no expiry* 2014-06-05	Y
Dry Transfer System (DST)-XL Flask (CSD-71)	WMA-123450-CSD-009	3	*no expiry* 2021-10-05	Y
Criticality Safety Document for the Storage of Fissionable Materials in the Dry-Storage Facility Concrete Canisters in Waste Management Area G, CRL (CSD-30)	WMA-123450-CSD-010	3	*no expiry* 2023-07-21	Y
Technical Document Supporting CSDs Amendment for Multiple Activities in WMA B	WMA-123450-TD-001	1	2026-08-31 2025-09-01	Y
Nuclear Criticality Safety Analysis of NRU/NRX Fuel Basket Temporary Loading Station	WMA-123450-REPT-004	2	*no expiry* 2016-02-01	Y
AECL CRL [redacted] Fire Hazard Analysis	WMAB-508720-FHA-007	0	2017-05-23 2012-05-23	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	WMAB-508720-FHA-004	1	2022-04-10 2017-04-10	Y[2]
Fire Hazard Analysis - Building [redacted] - WMA "D" Low Level Waste Storage	[redacted]-508720-FHA-001	0	2016-10-04 2011-10-06	Y

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Waste Management Areas				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
AECL CRL Building [redacted] Fire Hazard Analysis	WMAB-508720-FHA-003	0	2017-05-23 2012-05-23	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	WMAB-508720-FHA-005	0	2017-05-23 2012-05-23	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	WMAB-508720-FHA-006	0	2017-05-23 2012-05-23	Y[2]
[redacted]ackaging & Storage Building [redacted] Fire Hazard Assessment	THRR-106131-FHA-002	0	2029-11-27 2024-11-28	Y
Confirmation of the [redacted] Fire Hazard Analysis	10065415	0	2029-11-27 2024-11-28	Y
Chalk River Laboratories Building [redacted] Mixed Waste Drum Storage Fire Hazard Analysis	MWDS-508720-FHA-001	2	2016-09-13 2011-09-14	Y
AECL CRL [redacted] Fire Hazard Analysis	WMAB-508720-FHA-001	1	2017-03-28 2012-03-08	Y
Phase 7: [redacted] Fire Hazard Assessment	10034369	1	2026-09-14 2021-09-15	Y
Phase 7: [redacted] Code Compliance Assessment	10034370	1	2026-09-14 2021-09-15	Y
CSD-76 – CRL–WMA-C Below-Grade Storage Structures	WMAC-123450-CSD-007487	0	2029-12-13 2024-12-13	Y
Fire Hazard Analysis Report - Building [redacted] Site Access Control Building	A-17662-TN-07	0	2014-11-27 2009-11-27	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2023-05-28 2018-05-29	Y[2]
Fire Hazard Analysis - Building [redacted]- WMA H/D/G Electrical Service Building	[redacted]-508720-FHA-001	0	2016-10-05 2011-10-06	Y[2]
[redacted] Fire Hazard Analysis	10069338	0	2030-03-24 2025-03-25	Y
[redacted] Code Compliance Review	10069344	0	2030-03-24 2025-03-25	Y
CRL-Building [redacted] Fire Hazard Analysis	10065431	0	2030-12-19 2024-12-20	Y
CRL-Building [redacted] Code Compliance Review	10065432	0	2030-12-19 2024-12-20	Y
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment	10069542	0	2030-03-31 2025-03-31	Y
Chalk River Laboratories - Building [redacted] Code Compliance Review	10069543	0	2030-03-31 2025-03-31	Y

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Waste Management Areas				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment	10069918	0	2030-06-21 2025-06-22	Y
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment	10069917	0	2030-06-19 2025-06-20	Y
Phase 19: [redacted] Fire Hazard Assessment	10034358	1	2026-09-14 2021-09-15	Y
Phase 19: [redacted] Code Compliance Review	10025192	0	2026-09-15 2021-09-16	Y

4.1.11 Waste Treatment Centre and Associated Facilities

Waste Treatment Centre and Associate Facilities				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Waste Treatment Centre and Associated Facilities at the Chalk River Laboratories	WTC-00583-FA-001	8	*no expiry* 2018-08-21	Y
Safety Analysis of the Waste Treatment Centre and Associated Facilities	WTC-03500-SAR-001	2	*no expiry* 2018-06-26	Y
CSD-22 Waste Tank Farm	[redacted]-123450-CSD-001	0	*no expiry* 2018-03-09	Y
[redacted] Treatment Centre [redacted] Tanks and Guard Tank (CSD-52)	WTC-123450-CSD-001	1	*no expiry* 2015-07-13	Y
AECL CRL [redacted] Fire Hazard Analysis	WTC-508720-FHA-005	0	2012-04-01 2007-04-04	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2018-06-23 2013-06-24	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	WTC-508720-FHA-007	0	2017-04-01 2012-04-01	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-002	0	2012-04-03 2007-04-03	Y[2]
[redacted] Fire Hazard Analysis	[redacted]-508720-FHA-004	0	2017-04-13 2012-04-13	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-005	0	2017-04-13 2012-04-13	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	WTC-508720-FHA-008	0	2017-04-13 2012-04-13	Y[2]
Fire Hazard Analysis Building [redacted]-Concentrated Active LWS Tanks-Tank Farm	[redacted]-508720-FHA-001	0	2016-11-05 2011-11-05	Y[2]

REDACTED

Waste Treatment Centre and Associate Facilities				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Building [redacted] Fire Hazard Analysis - Delay Tanks for Liquid Decontamination Waste	[redacted]-508720-FHA-002	0	2016-09-28 2011-09-28	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-002	0	2017-04-12 2012-04-12	Y[2]
CRL [redacted] Fire Hazard Analysis	10069533	0	2030-03-30 2025-03-31	Y
CRL [redacted] Code Compliance Review	10069534	0	2030-03-30 2025-03-31	Y
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2016-05-14 2011-05-14	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2028-05-27 2023-05-27	Y[2]

4.1.12 Zero Energy Deuterium-2 Reactor

Zero Energy Deuterium-2 Reactor				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the ZED-2 Reactor at the Chalk River Laboratories	ZED2-00583-FA-001	8	*no expiry* 2018-05-31	Y
Safety Analysis of the ZED-2 Reactor	ZED2-03500-FSAR-001	8	*no expiry* 2018-06-05	Y
ZED-2 Reactor Nuclear Criticality Controlled Area, Building [redacted] Chalk River Laboratories (CSD-37)	ZED2-123450-CSD-001	1	*no expiry* 2016-01-01	Y

4.2 Safety Shutdown or Decommissioning

4.2.1 Combined Electrolysis Catalytic and Exchange Upgrade and Detritiation Test Facility

Combined Electrolysis Catalytic and Exchange Upgrade and Detritiation Test Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Building [redacted] CECEUD Decommissioning	CECEUD-508310-DDP-006388	1	2030-07-08 2025-07-08	Y

REDACTED

4.2.2 MAPLE Reactors and New Processing Facility

MAPLE Reactors and New Processing Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
MAPLE Reactors Operations Limits and Conditions	6425-05410-OLC-001	29	*no expiry* 2018-11-21	Y
NPF Operational Limits and Conditions	6424-05410-OLC-001	8	*no expiry* 2009-04-01	Y
Buildings [redacted] Fire Hazard Assessment	10069946	0	2030-06-21 2025-06-22	Y

4.2.3 Facilities Decommissioning

Facility Decommissioning				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Detailed Decommissioning Plan for Interior Demolition (Stage 1) of Building [redacted] at Chalk River Laboratories	[redacted]-508310-DDP-001	4	2030-08-26 2025-08-27	Y
Detailed Decommissioning Plan for the NRXMF Ancillary Buildings	NRXMF-508310-DDP-001	4	2029-11-27 2024-11-28	Y
Detailed Decommissioning Plan for Building [redacted] Fuel Rod Storage and Handling Bays at Chalk River Laboratories	[redacted]-508310-DDP-001	5	2030-03-18 2025-03-19	Y
Building [redacted] Storage with Surveillance Plan	[redacted]-508310-SWS-001	1	2027-02-13 2022-02-14	Y
Detailed [redacted]ommissioning Plan for Building [redacted]	[redacted]-508310-DDP-001	4	2030-06-18 2025-06-19	Y
Building [redacted] Decommissioning	[redacted]-508310-DDP-001	4	2029-06-26 2024-06-27	Y
Decommissioning Plan for Building [redacted]	[redacted]-508310-DDP-001	5	2029-02-04 2024-02-05	Y
Detailed [redacted]oning Plan for Building [redacted]	[redacted]-508310-DDP-001	4	2029-10-02 2024-10-03	Y
Chalk River Laboratories – Buildings [redacted] Fire Hazard Assessment	10061893	1	2029-08-12 2024-08-12	Y
AECL CRL [redacted] Frie Hazard Analysis	NRX-508720-FHA-001	1	2017-04-09 2012-04-10	Y[2]
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2016-05-01 2011-05-02	Y[2]
Building [redacted] Fire Hazard Assessment	10083745	0	2030-05-28	Y

REDACTED

Facility Decommissioning				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
			2026-05-29	
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	3	2022-02-20 2017-02-20	Y[2]
Detailed Decommissioning Plan (DDP) for Interior Demolition (Stage 1) of Building [redacted] at Chalk River Laboratories (CRL)	[redacted]-508310-DDP-001	4	2030-08-26 2025-08-27	Y
Detailed Decommissioning Plan (DDP) for Building [redacted] Fuel Rod Storage and Handling Bays at Chalk River Laboratories	[redacted]-508310-DDP-001	5	2030-03-18 2025-03-19	Y
Detailed [redacted]ommissioning Plan for Building [redacted]	[redacted]-508310-DDP-001	4	2030-06-18 2025-06-19	Y
Detailed [redacted]n for Building [redacted]	[redacted]-508310-DDP-001	4	2029-10-02 2024-10-03	Y
Detailed Decommissioning Plan for Building [redacted] Chemical Engineering Laboratory/Offices	[redacted]-508310-DDP-001	4	2030-10-05 2025-10-06	Y
Detailed [redacted]ommissioning Plan for Building [redacted] Fabrication Facility (NFFF)	[redacted]-508310-DDP-001	5	2030-08-05 2025-08-05	Y
Detailed Decommissioning Plan for the NRXMF Ancillary Buildings	NRXMF-508310-DDP-001	4	2029-11-27 2024-11-28	Y

4.3 Construction Phase

4.3.1 Near Surface Disposal Facility

Near Surface Disposal Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Facility Authorization for the Operation of the Near Surface Disposal Facility at the Chalk River Laboratories	232-00583-FA-001	3	*no expiry* 2020-10-06	Y
NSDF Safety Analysis Report	232-503230-SAR-001	2	2022-09-22 2017-08-10	Y
NSDF Safety Analysis Report	232-508770-SAR-002	2	2025-10-15 2020-10-16	Y
Near Surface Disposal Facility (CSD-72)	232-503230-CSD-001	7	*no expiry* 2020-08-31	Y

REDACTED

Near Surface Disposal Facility				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Near Surface Disposal Facility Fire Hazard Analysis	232-503230-FHA-001	2	2029-03-30 2019-03-15	Y
Near Surface Disposal Facility Code Compliance Review	232-03101-REPT-001	2	2024-12-01 2019-12-03	Y

4.4 Licence Conditions

4.4.1 Licence Condition G.1

Licence Condition G.1				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Application for Renewal of the Nuclear Research and Test Establishment Operating Licence for the Chalk River Laboratories – 2018	CRL-CNNO-17-0005-L	0	*no expiry* 2017-03-30	*n/a*
Application for Renewal of the Nuclear Research and Test Establishment Operating Licence for the Chalk River Laboratories – 2018 (Supporting Information for CNSC Staff)	CRL-CNNO-17-0010-L	0	*no expiry* 2017-05-15	*n/a*
Implementation of REGDOCs and CSA Standards in Support of Relicensing	CRL-CNNO-17-0017-L	0	*no expiry* 2017-07-07	*n/a*
Application for Approval of a Modification to the Waste Management Areas at Chalk River Laboratories: Construction of the Near Surface Disposal Facility	232-CNNO-17-0004-L	0	*no expiry* 2017-03-31	*n/a*
Updated Application for Licence Amendment to add the Near Surface Disposal Facility to the Chalk River Laboratories Licensing Basis	232-CNNO-21-0004-L	0	*no expiry* 2021-03-31	*n/a*

4.4.2 Licence Condition G.2

Licence Condition G.2				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Cleanup	900-508300-GDI-001	7	2027-04-26 2024-04-26	Annually
Commissioning	900-505250-GDI-001	4.1	2028-11-04 2025-11-04	Annually

REDACTED

Licence Condition G.2				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Compliance	900-514300-GDI-001	3.1	2028-12-19 2025-12-19	Annually
Conduct of Operations	900-508200-GDI-001	7.2	2028-02-04 2025-02-04	Annually
Configuration Management	900-508130-GDI-001	6.1	2026-10-11 2023-11-03	Annually
Construction	900-505240-GDI-001	1.1	2028-06-16 2025-06-16	Annually
Design Authority and Design Engineering	900-508120-GDI-001	6.1	2026-10-11 2023-11-11	Annually
Electrical Safety	900-508150-GDI-001	1.1	2028-12-01 2025-12-01	Annually
Emergency Preparedness	900-508730-GDI-001	4.1	2028-11-24 2025-11-24	Annually
Environmental Protection	900-509200-GDI-001	6	2026-09-28 2023-09-29	Annually
Fire Protection	900-508720-GDI-001	3	2027-07-30 2024-07-30	Annually
Fitness for Service	900-508230-GDI-001	2.1	2029-03-31 2024-03-22	Annually
Information Management	900-511300-GDI-001	4.2	2029-03-05 2026-03-05	Annually
Management System	900-514100-GDI-001	3.2	2028-12-18 2025-12-18	Annually
Nuclear Criticality Safety	900-508550-GDI-001	6.1	2029-01-26 2026-01-26	Annually
Nuclear Cyber Security	900-511400-GDI-001	2	2028-09-10 2025-09-10	Annually
Nuclear Materials and Safeguards Management	900-508510-GDI-001	2.1	2026-12-19 2023-12-20	Annually
Occupational Safety & Health	900-510400-GDI-001	1.1	2028-10-17 2025-10-17	Annually
Performance Assurance	900-514000-GDI-001	2	2025-03-07 2022-03-07	Annually
Pressure Boundary	900-508140-GDI-001	5.1	2026-05-23 2023-05-24	Annually
Quality	900-514200-GDI-001	5	2027-01-14 2024-01-31	Annually
Radiation Protection Governing Document Index	900-508740-GDI-001	4	2029-05-07 2026-05-07	Annually
Safety Analysis	900-508770-GDI-001	7	2028-06-20 2025-06-20	Annually
Security	900-508710-GDI-001	6.2	2029-03-30 2026-03-30	Annually

REDACTED

Licence Condition G.2				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Supply Chain	900-505210-GDI-001	4	2026-06-19 2023-06-30	Annually
Training and Development	900-510200-GDI-001	5	2026-10-03 2023-10-02	Annually
Transportation of Dangerous Goods	900-508520-GDI-001	4.2	2029-04-01 2026-04-01	Annually
Waste Management	900-508600-GDI-001	2.2	2027-04-29 2024-04-29	Annually

4.4.3 Licence Condition G.3

Licence Condition G.3				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
CRL Outer Area Plant Boundary Monuments Property Plan	E-4500-1101	8	*no expiry* 2026-06-24	N

4.4.4 Licence Condition G.5

Licence Condition G.5				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Submission of Information Regarding Financial Guarantees for all Atomic Energy of Canada Limited Sites Operated by Canadian Nuclear Laboratories	145-CNNO-24-0031-L	0	*no expiry* 2025-07-30	*n/a*

4.4.5 Licence Condition G.6

Licence Condition G.6				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Public Information Program for Canadian Nuclear Laboratories	CW-513430-REPT-001	10	*no expiry* 2024-10-08	N

REDACTED

4.4.6 Licence Condition G.8

Licence Condition G.8				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Near Surface Disposal Facility Project Consolidated Commitment Lists	232-513440-REPT-001	1.2	2030-05-28 2025-05-29	Annually

4.5 Safety and Control Areas

4.5.1 Management System

Management System				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
CNL Management System Manual	900-514100-MAN-001	3.2	2028-09-04 2025-09-04	Y
Codes, Regulations, Standards and Other Documents	900-514100-LST-002	1.3	2026-11-06 2023-11-17	N
Functional Authorities	900-514100-LST-001	7.3	2028-05-29 2025-05-29	N
Information Management	900-511300-PDD-001	6	2029-04-10 2026-04-10	N
Information Management (PRD)	900-511300-PRD-001	5	2029-05-30 2026-05-30	Y
Quality	900-514200-PDD-001	3	2027-05-01 2024-05-10	N
Quality (PRD)	900-514200-PRD-001	4	2027-05-08 2024-06-14	Y
Site Licences, Certificates, Permits and Representatives	900-514300-LST-001	14	2028-08-04 2025-08-04	N
Supply Chain	900-505210-PDD-001	3	2026-03-20 2023-04-07	N
Supply Chain (PRD)	900-505210-PRD-001	4	2026-06-07 2023-07-28	Y

4.5.2 Human Performance Management

Human Performance Management				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Performance Assurance	900-514000-PDD-001	2	2026-11-28 2023-12-12	N

REDACTED

Human Performance Management				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Performance Assurance (PRD)	900-514000-PRD-001	3	2027-03-08 2024-03-08	Y
Training and Development	900-510200-PDD-001	5	2026-08-02 2023-08-02	N
Training and Development (PRD)	900-510200-PRD-001	5	2026-08-20 2023-09-29	Y
Application of the Systematic Approach to Training (SAT) at CNL	900-510200-LST-001	5	2029-02-10 2026-02-10	N
Shift Staffing Minimum Requirements	NRU-150001-ITS-000-0009	1	*no expiry* 2021-10-26	N
NRU HP Roles and Responsibilities	NRU-510000-REQ-002	0	*no expiry* 2006-06-01	N

4.5.3 Operating Performance

Operating Performance				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Commissioning	900-505250-PDD-001	2.2	2031-03-01 2026-03-01	N
Commissioning (PRD)	900-505250-PRD-001	2.0	2029-04-03 2026-04-03	Y
Conduct of Operations	900-508200-PDD-001	7.1	2029-01-15 2026-01-15	N
Conduct of Operations (PRD)	900-508200-PRD-001	7.1	2028-10-31 2025-10-31	Y
Configuration Management	900-508130-PDD-001	6.0	2028-09-12 2025-09-12	N
Configuration Management (PRD)	900-508130-PRD-001	6.0	2028-10-17 2025-10-17	Y
Construction	900-505240-PDD-001	2.1	2027-03-11 2024-04-15	N
Construction (PRD)	900-505240-PRD-001	3.0	2028-08-25 2025-08-25	Y
CNL Reporting to Regulatory Agencies	900-514300-MCP-006	0.3	2026-07-18 2023-07-18	N
Operating Room for Wast[redacted]n Services (WCS) in Building [redacted]	213-508200-OE-006122	0	2029-12-04 2024-12-05	N
Operating Envelope for Environmental and Organics Analysis Laboratories in Building [redacted]	[redacted]-508200-OE-004070	1.0	2031-04-28 2026-04-28	N

REDACTED

Operating Performance				
Document Title	**Document Number**	**Revision**[1]	**Expiry / Effective Date**	**Notification Requirement**
Chalk River Advanced Fuel Technology Ceramics Section Laboratories, Bld. [redacted]	[redacted]-124200-RLP-001	2	2022-09-26 2017-09-27	N
Class A Radioisotope Laboratory Protocol for the Tritium Facility / Building [redacted]	TF-508740-RLP-002	0	2028-02-01 2018-03-12	N
Class B R[redacted]y; Building [redacted]	[redacted]-108360-RLP-002	3	2027-09-22 2022-09-21	N
Class B Radioisotope Laboratories Protocol for Fuel Fabrication S&T Laboratories [redacted]	[redacted] 124200-RLP-003	2	2026-05-01 2017-10-02	N
[redacted] ing [redacted]	[redacted]-108460-OE-010977	0	2031-02-11 2026-02-11	N
Environmental and Organics Analysis Laboratories in Building [redacted]	[redacted]-508200-OE-004070	0	2031-04-28 2026-04-28	N
Class B Radioisotope Laboratory Protocol for Building [redacted] Chalk River Advanced Fuel Technology Section Laboratory	[redacted]-124200-RLP-002	5	2027-04-18 2022-04-19	N
Class B Radioisotope Laboratory Protocol for Building [redacted] Materials Science Radioactive Specimen Preparation Laboratories	[redacted]-128740-RLP-001	1	2027-02-07 2022-02-07	N
Class B Radioisotope Laboratory Protocol for Building [redacted]	[redacted]-108360-RLP-001	2	2027-04-11 2022-04-12	N
Operating Envelope for the Coulometric Titration Lab in Building [redacted]	[redacted]-508200-OE-011031	0.1	2031-06-09 2026-06-09	N
Class B Radioisotope Laboratory Protocol for the Containment Chemistry Laboratory [redacted] and Iodine-131 Tracer Studies in the Gamma Cell Laboratory [redacted]	[redacted]-108344-RLP-001	3	2028-03-15 2023-03-15	N
Class C Laboratory Protocol for Building [redacted] Bioassay Laboratories	[redacted]-508790-RLP-001	5	2027-11-14 2022-04-28	N
Operating Envelope fo[redacted] alysis Laboratory in Building [redacted]	[redacted]-508200-OE-010976	0	2031-04-28 2026-04-28	N
Operating Envelope for Radiochemistry Research Laboratory in Building [redacted]	[redacted]-508200-OE-007782	0	2030-03-05 2025-30-05	N

REDACTED

Operating Performance				
Document Title	**Document Number**	**Revision**[1]	**Expiry / Effective Date**	**Notification Requirement**
Class C Radioisotope Laboratory Protocol for Building [redacted]	[redacted]-03512-RLP-001	1	2022-09-28 2017-09-29	N
Operating Envelope for Chalk River Laboratories Toxicity Laboratory in Building [redacted]	[redacted]-508200-OE-008340	0	2031-01-16 2026-01-26	N
Radioch [redacted] Laboratory in Building [redacted]	[redacted]-508200-OE-004295	0	2030-10-22 2025-10-22	N
Operating Room Environm [redacted] Radiochemistry in Building [redacted]	[redacted]-508200-OE-006342	0	2029-01-20 2025-01-20	N
Class C Radioisotope Laboratory Protocol for Building [redacted] Radiochemistry Applications Laboratory	[redacted]-121100-RLP-001	2	2022-04-27 2017-04-28	N
Class C Radioisotope Laboratory Protocol for Building [redacted] Tritium Instrument Calibration Laboratory	[redacted]-508740-RLP-001	0	2027-11-14 2022-11-15	N
Operating Envelope for the Biological Research Facility in Building [redacted]	[redacted]-508200-OE-009133	0	2031-03-10 2026-03-10	N
Fuel Assembly Science and Technology Laboratory in Building [redacted]	[redacted] 508200-OE-009084	1	2031-06-01 2026-06-01	N
Laboratory Protocol for Medium [redacted] ity Material Testing Facility, Building [redacted]	[redacted] 127660-RLP-001	0	2026-09-01 2021-09-01	N
[redacted] Laboratory, Building [redacted]	[redacted]-108360-RLP-001	4	2027-12-15 2022-12-16	N
Radioisotope Laboratory Protocol for Building [redacted] Class B Radiochemistry Laboratory	[redacted]-108360-RLP-004	2	2027-09-22 2022-09-23	N
Radioisotope Laboratory Protocol for Building [redacted] Hydrogen and Deuterium Analysis Laboratory	[redacted]-108360-RLP-006	3	2028-01-05 2023-01-06	N
Radioisotope Laboratory Protocol for Building [redacted] Focused Ion Beam Facility	[redacted]-108720-RLP-001	1	2027-12-11 2022-12-12	N
Operating [redacted] atory in Building [redacted]	[redacted]-508200-OE-006292	0	2030-12-08 2025-12-08	N
Operating Envelope for the SIMS and SEM Laboratories in Building [redacted]	[redacted] 508200-OE-010754	0	2031-03-09 2026-03-24	N
[redacted] atory in Building [redacted]	[redacted] 508200-OE-011506	0	2031-05-15 2026-05-15	N

REDACTED

Operating Performance				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Radioisotope Laboratory Protocol for Building [redacted] Surface Science Laboratory	[redacted]-108730-RLP-001	2	2026-06-01 2018-01-31	N
Radioisotope Laboratory Protocol for Class B ACB Satellite Labs in Building [redacted]	NRU-157901-RLP-001	3	2027-11-28 2022-11-28	N
Radioisotope Laborator[redacted]otocol for Class B Laboratories Building [redacted]	[redacted]-121100-RLP-001	3	2026-06-01 2020-09-21	N
Radioisotope Laboratory Protocol for Class C Laboratories, Building [redacted] Decontamination Test Loops [redacted] Chemical Cleaning [redacted] and Reactor Artefact Storage [redacted]	[redacted]-108330-RLP-001	2	2028-07-24 2023-07-26	N
ICP-MS Laboratories in Building [redacted]	[redacted]-508200-OE-008117	0	2030-03-13 2025-03-30	N
Radioisotope Laboratory Protocol for TIMS Sample Preparation Laboratories [redacted]	[redacted]-108360-RLP-003	2	2027-09-20 2022-09-21	N
Radiological Laboratory Protocol Metallographic Service Laboratory Building [redacted]	[redacted]-03210-RLP-001	1	2024-03-21 2019-03-19	N

4.5.4 Safety Analysis

Safety Analysis				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Safety Analysis	900-508770-PDD-001	6	2028-03-31 2025-03-31	N
Safety Analysis (PRD)	900-508770-PRD-001	6.3	2029-02-27 2026-02-27	Y
CRL Site Characteristics	CRL-03510-SAB-001	5	2023-05-31 2018-06-04	N
Nuclear Criticality Safety	900-508550-PDD-001	3	2026-02-28 2023-03-10	Y
Nuclear Criticality Safety (PRD)	900-508550-PRD-001	3.1	2026-07-24 2023-09-01	Y
FAST Lab Relocation (B300-00070-CR-001)	[redacted]-00070-NSN-001	2	*no expiry* 2019-05-01	Y
Nuclear Material Storage Facility, CRL (CSD-8)	[redacted]-123450-CSD-001	2	*no expiry* 2016-01-06	Y

REDACTED

Safety Analysis				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Criticality Safety Document On-Site Transfer Packages, AECL Model Birdcages CSD-20	9302-123400-CSD-001	1	*no expiry* 2008-02-22	Y
Criticality Safety Document On-Site Transfer Packages (CSD-29)	CSD-029	1	*no expiry* 2003-12-15	Y
Metallurgy Area C of Building [redacted] (CSD-34)	[redacted]-123400-CSD-001	7	*no expiry* 2012-01-31	Y
Chalk River Advanced Fuel Technologies Laboratory [redacted]	[redacted]-508550-CSD-001	4	*no expiry* 2012-09-24	Y
Health Sciences Centre, Building [redacted] (CSD-39)	[redacted]-123450-CSD-001	2	*no expiry* 2018-11-09	Y
Criticality Safety Document Nuclear Materials Storage Facility Building [redacted] (CSD-63)	[redacted]-123400-CSD-001	4	*no expiry* 2019-03-05	Y

4.5.5 Physical Design

Physical Design				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Design Authority and Design Engineering	900-508120-PDD-001	6	2028-09-05 2025-09-05	N
Design Authority and Design Engineering (PRD)	900-508120-PRD-001	6.1	2029-03-10 2026-03-10	Y
Pressure Boundary	900-508140-PDD-001	5.2	2026-07-03 2023-07-18	N
Pressure Boundary (PRD)	900-508140-PRD-001	5.2	2026-10-10 2023-11-30	Y
Classification and Design Registration of Pressure Retaining Systems/Components	CRL-508140-PRO-005606	0.1	2029-12-08 2024-12-18	N
CRL Nuclear Pressure Boundary Quality Assurance	CRL-508140-QAP-001	5.2	2030-03-31 2025-03-31	N
CRL CSA [redacted] Pressure Boundary Quality Control Manual	CRL-508140-QAP-003	2.1	2030-03-31 2025-03-31	N
Authorized Inspection Agency Services Agreement between Technical Standards and Safety Authority and Canadian Nuclear Laboratories Limited	CRL-508140-141-69403876	2	2029-12-03 2024-12-03	N

REDACTED

4.5.6 Fitness for Service

Fitness for Service				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Fitness for Service	900-508230-PDD-001	3	2026-07-18 2023-08-02	N
Fitness for Service (PRD)	900-508230-PRD-001	3	2027-01-21 2024-01-22	Y

4.5.7 Radiation Protection

Radiation Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Radiation Protection	900-508740-PDD-001	3.1	2026-10-24 2023-11-07	N
Radiation Protection (PRD)	900-508740-PRD-001	6	2028-01-23 2025-01-23	Y
Radiation Protection Action Levels	900-508740-LST-002	3	2028-09-15 2025-09-15	Y
Dose Control Points	900-508740-MCP-007	1.1	2027-05-06 2024-05-17	N
ALARA Review and Assessment –Planning and Control of Radiation Work	900-508740-MCP-026	2	2027-11-28 2024-11-29	N
Radiation Levels and Limits	900-508740-STD-019	0.2	2028-01-29 2025-03-14	Y
Design and Modification Considerations	900-508740-STD-005	0.1	2028-06-11 2025-06-12	N

4.5.8 Conventional Health and Safety

Conventional Health and Safety				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Occupational Safety and Health	900-510400-PDD-001	4	2027-02-14 2024-02-16	N
Occupational Safety and Health (PRD)	900-510400-PRD-001	3	2027-06-14 2024-06-14	Y
Electrical Safety	900-508150-PDD-001	1.1	2026-07-16 2023-07-17	N
Electrical Safety (PRD)	900-508150-PRD-001	2	2029-02-16 2026-02-16	Y

REDACTED

4.5.9 Environmental Protection

Environmental Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Environmental Protection	900-509200-PDD-001	4.1	2026-10-05 2023-10-16	N
Environmental Protection (PRD)	900-509200-PRD-001	6	2029-05-15 2026-05-15	Y
Chalk River Laboratories Integrated Environmental Monitoring Program Framework	900-509200-STD-020	1	2029-02-23 2026-02-23	Y
Administrative Levels and Action Levels for CRL's Radioactive Effluents and Emissions	900-509200-STD-008	4	2029-04-13 2026-04-13	Y
Derived Release Limits (DRLs) for CNL's Chalk River Laboratories	CRL-509200-RRD-001	3	*no expiry* 2024-01-30	Y
CRL Non-Radioactive Effluent and Emissions Verification Monitoring Plan	CRL-509200-PLA-003	2.1	2030-03-31 2025-03-31	N
CRL Radioactive Effluent and Emissions Verification Monitoring Plan	CRL-509200-PLA-004	2.1	2030-03-31 2025-03-31	N
Chalk River Laboratories Environmental Monitoring Plan	CRL-509200-PLA-007	1	2030-03-31 2025-03-31	N
Levels for CRL's Non-Radioactive Effluents and Emissions	900-509200-STD-014	4.2	2028-01-30 2025-01-30	Y

4.5.10 Emergency Management and Fire Protection

Emergency Management and Fire Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Emergency Preparedness	900-508730-PDD-001	3.1	2029-03-16 2026-03-16	N
Emergency Preparedness (PRD)	900-508730-PRD-001	3	2028-01-30 2025-03-10	Y
Chalk River Laboratories Site Emergency Response Plan	CRL-508730-PLA-001	5	2028-03-31 2023-03-31	N
Fire Protection	900-508720-PDD-001	4	2026-08-03 2023-09-07	N
Fire Protection (PRD)	900-508720-PRD-001	2	2028-07-01 2025-07-02	Y
Impairment, Notification and Compensatory Measures	900-508720-MCP-006	3	2029-01-17 2026-01-17	N
[redacted] Fire Hazard Assessment	[redacted]-508720-FHA-001	0	2024-03-12	Y

REDACTED

Emergency Management and Fire Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
			2019-03-12	
[redacted] Fire Hazard Analysis	10069933	0	2030-06-23 2025-06-23	Y
Building [redacted] Code Compliance Review	10069934	0	2030-06-23 2025-06-23	Y
[redacted] Fire Hazard Assessment	10069926	0	2030-06-19 2025-06-19	Y
[redacted] Code Compliance Review	10069924	0	2030-06-24 2025-06-22	Y
AECL CRL [redacted] Fire Hazard Analysis	NRU-508720-FHA-003	0	2012-05-28 2007-05-30	Y[2]
[redacted] Fire Hazard Analysis	10069932	0	2030-06-19 2025-06-20	Y
[redacted] Code Compliance Review	10069930	0	2030-06-18 2025-06-19	Y
[redacted] Plutonium Tower Fire Hazard Analysis	[redacted]-508720-FHA-002	1	2024-03-01 2019-03-01	Y
[redacted] Fire Hazard Analysis	10068146	0	2030-02-06 2025-02-07	Y
[redacted] Code Compliance Review	10068144	0	2030-02-06 2025-02-07	Y
AECL CRL [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2012-04-01 2007-04-03	Y[2]
Fire Hazard Analysis Building [redacted] - Former Liquid Dispersal Areas (LDA)	[redacted]-508720-FHA-001	0	2016-10-31 2011-11-02	Y
[redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2017-03-02 2012-03-02	Y
[redacted] Fire Hazard Analysis	10069915	0	2030-06-22 2025-06-23	Y
[redacted] Code Compliance Review	10069916	0	2030-06-22 2025-06-23	Y
[redacted] Fire Hazard Analysis	10065416	0	2029-12-19 2024-12-20	Y
Building [redacted] Fire Hazard Analysis	10069719	0	2030-06-22 2025-06-23	Y
Building [redacted] Code Compliance Review	10069633	0	2030-06-19 2025-06-20	Y
[redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2017-03-28 2012-03-29	Y[2]
[redacted] Analysis CRL- Buildings [redacted]	10064966	1	2030-08-11 2025-08-11	Y
[redacted] iance Report- Buildings [redacted]	10064964	0	2029-10-29 2024-10-30	Y

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Emergency Management and Fire Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
[redacted] Fire Hazard Analysis - Heavy Water Storage Facility	[redacted]-508720-FHA-001	0	2016-09-13 2011-09-13	Y[2]
[redacted] Fire Hazard Analysis	10064031	0	2029-09-29 2024-09-26	Y
[redacted] Code Compliance Review	10064029	0	2029-09-29 2024-09-26	Y
Building [redacted] Fire Hazard Analysis	10069238	0	2030-03-30 2025-03-31	Y
Building [redacted] Fire Hazard Assessment	[redacted]-508720-FHA-001	1	2025-04-01 2020-04-01	Y
Building [redacted] Fire Hazard Analysis	10065425	0	2029-12-19 2024-12-20	Y
Decontamination Building [redacted] - Fire Hazard Analysis	[redacted]-508720-FHA-001	1	2016-04-21 2011-04-21	Y
Building [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2017-03-28 2012-03-29	Y[2]
Building [redacted] Fire Hazard Analysis	10069929	1	2030-07-02 2025-07-03	Y
[redacted] Code Compliance Review	10069927	0	2030-06-21 2025-06-22	Y
Building [redacted] Fire Hazard Assessment	10069921	0	2030-06-03 2025-06-03	Y
[redacted] Code Compliance Review	10069922	0	2030-06-03 2025-06-03	Y
Building [redacted] Fire Hazard Assessment & CCR	10066984	0	2029-12-19 2024-12-18	Y
Building [redacted] Code and Fire Code Compliance Report	[redacted]-26005-REPT-004	0	2029-09-04 2024-09-03	Y
Building [redacted] Fire Hazard Analysis - Equipment Storage Facility	[redacted]-508720-FHA-001	0	2016-10-03 2011-10-05	Y[2]
Chalk River Laboratories – Building [redacted] Fire Hazard Assessment	10069920	0	2030-06-23 2025-06-23	Y
Chalk River Laboratories – Building [redacted] Fire Hazard Assessment	10065428	0	2029-12-20 2024-12-19	Y
Chalk River Laboratories – Building [redacted] Fire Hazard Assessment	10073859	0	2030-08-11 2025-08-11	Y
Phase: 3 [redacted] Fire Hazard Assessment	10035162	1	2026-09-14 2021-09-15	Y[2]
Phase: 3 [redacted] Code Compliance Review	10035161	1	2026-09-14 2021-09-15	Y[2]
AECL CRL [redacted] Fire Hazard Analysis	[redacted]-508720-FHA-001	0	2017-05-23 2012-05-23	Y[2]

REDACTED

Emergency Management and Fire Protection				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Fire Hazard Analysis Building [redacted] - Groundwater Collection Buildings and Building [redacted] Pump House	[redacted]-508720-FHA-001	0	2017-01-17 2012-01-19	Y[2]
[redacted] Business Hub Code Compliance Report	[redacted]-20000-REPT-001	0	2024-07-31 2019-07-31	Y
[redacted] Support Facility Code Compliance Report	[redacted]-20000-REPT-001	0	2024-07-31 2019-07-31	Y
Fire Hazard Analysis for Chem Pit Groundwater Remediation Facility	3611-508720-FHA-001	0	2021-04-28 2016-04-28	Y

4.5.11 Waste Management

Waste Management				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Waste Management	900-508600-PDD-001	5	2026-06-05 2023-06-30	N
Waste Management (PRD)	900-508600-PRD-001	5	2029-05-11 2026-05-11	Y
Cleanup	900-508300-PDD-001	5	2026-06-30 2023-06-30	N
Cleanup (PRD)	900-508300-PRD-001	6	2028-07-28 2025-07-28	Y
Chalk River Laboratories Overview Decommissioning and Cleanup Plan	225-508300-PLA-001	2	2028-06-21 2023-06-23	Y

4.5.12 Security

Security				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Security	900-508710-PDD-001	6.1	2029-04-10 2026-04-10	N
Security (PRD)	900-508710-PRD-001	5	2028-08-28 2025-08-29	Y
Nuclear Cyber Security	900-511400-PDD-001	4	2028-03-31 2025-03-31	N
Nuclear Cyber Security (PRD)	900-511400-PRD-001	5	2028-05-05 2025-05-05	Y
Chalk River Laboratories Nuclear Security Plan	119-508710-PLA-020 *(prescribed information)*	0	*no expiry* 2026-04-29	Y

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Security				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Chalk River Laboratories Tactical Response Plan	119-508710-PLA-002368 *(prescribed information)*	0	2028-05-22 2024-05-24	Y

4.5.13 Safeguards and Non-Proliferation

Safeguards and Non-Proliferation				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Nuclear Materials and Safeguards Management	900-508510-PDD-001	4	2025-10-24 2022-10-24	N
Nuclear Materials and Safeguards Management (PRD)	900-508510-PRD-001	4	2025-09-30 2022-09-30	Y

4.5.14 Packaging and Transport

Packing and Transport				
Document Title	**Document Number**	**Revision[1]**	**Expiry / Effective Date**	**Notification Requirement**
Transportation of Dangerous Goods	900-508520-PDD-001	3.2	2029-04-01 2026-04-01	N
Transportation of Dangerous Goods (PRD)	900-508520-PRD-001	3.2	2029-05-01 2026-05-01	Y

5. References

[1] Canadian Nuclear Safety Commission, *Chalk River Laboratories – Nuclear Research Test Establishment Operating Licence*, Licence Conditions Handbook, NRTEOL-LCH-01.01/2028 (Revision 0), 22-508760-HBK-002 (Revision 5), October 31, 2024.

[2] *Managing Regulatory Communications and Commitments*, 900-514300-MCP-005, 50978336.

[3] *Creation, Capture, and Use of Information Assets*, 900-511300-STD-003, 50746207.

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Radiological Areas and Zones

900-508740-MCP-027

Revision 3.0

Information Use

Approved by:	Anthony Masters	2025/05/29
	Director, Corporate Radiation	Date

Effective Date: 2025/05/29
Expiry Date: 2028/05/29

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Revision History

Rev. No.	Date	Details of Rev.	Authored By	Reviewed By	Approved By
3	2025/03/10	Issued as "Approved for Use"	A. Novalkowski	N. Astbury M. Jones J. Harrington	A. Masters
3D1	2024/12/11	Issued for Review and Comment Major Revisions: -Incorporation of lien 900-508740-DLF-006 -Removed Zone Signs and created separate templates -Changed process for Zone Change Requests -Removed annual Building Zone Plan Requirements and replaced with Radiological Safety Zoning Records	A. Novalkowski	A. Grosvenor N. Astbury M. Jones B. Carr J. Harrington L. Rasmussen J. Owens A. Onikosi A. Habra M. Boileau O. Kamaev A. Dash	
2D1	2019/11/30	Minor Revision: References Updated	C. Russell	V. Lim	G. Dolinar
1	2018/12/10	Issued as "Approved for Use" cancelled and supersedes CW-508740-PRO-204. There were no changes made to this document from Rev. 0 – the revision history page was updated to reflect a minor change that was missed in the Rev. 0 of cancelling CW-508740-PRO-204.	S. Godin	M. Boileau	G. Dolinar
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D1	2018/02/02	Issued for Review and Comment	A. Cassidy	M. Boileau V. Lim M. Jones Y. Dube L. Rasmussen A. Coulas S. McNitt	G. Dolinar

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1. Scope and Applicability

This document describes the pre-requisites, responsibilities, and processes, which are to be followed concerning segregation of CNL licensed sites into Radiological Areas and further division of these areas into Radiological Safety Zones based on the routine level of radiation and contamination hazards expected to be present.

This document is applicable to all CNL and non-CNL personnel entering a CNL licensed site or other sites where activities are governed by the Radiation Protection Requirements document [1].

This document is limited to defining the criteria and process for the assessment and designation of Radiological Areas and Safety Zones, posting of these areas and zones and their on-going maintenance and requirement of a Radiological Safety Zoning Record.

2. Purpose

In order to provide and maintain an effective provision of radiation protection, licensed CNL sites are segregated into radiological areas based on activities involving radioactive material and those areas further divided into radiological safety zones based upon the level of radiation and contamination hazards expected to be present during routine operating conditions.

The objectives in choosing a specific location and size of the Radiological Areas are to:

- Optimize the care and control of radioactive material and the radiation protection provided to CNL and non-CNL personnel entering licensed CNL sites, members of the public, and to the environment during normal operations, and
- Minimize the radiological consequence resulting from unplanned events or emergencies.

The objectives to segregate areas into Radiological Safety Zones are to:

- Assist in the effective management of radiological hazards,
- Identify and communicate the level of routine radiological hazards in a work area, required dosimetry and protection clothing for entering and the required contamination monitoring for leaving, and
- Assist in keeping doses to CNL and non-CNL personnel ALARA.

3. Pre-Requisites

Licensed CNL sites shall be segregated into Radiological Areas and those areas further divided into Radiological Safety Zones based upon the level of radiation and contamination hazards expected to be present. Radiological Safety Zones are reviewed and approved by Group 1 Radiation Protection personnel that have completed Group 1 Radiation Protection training. All CNL and non-CNL personnel entering a licensed CNL site shall adhere to the Radiation Protection requirements [1] regarding Radiological Areas and Radiological Safety Zones.

The requirements associated with radiological work stipulated in ALARA Review and Assessment of Radiation Work [2] and Radiological Work Permit (RWP) [3] are followed. Any

personal protective equipment and clothing (PPE&C) [4] required for work will be stipulated in the radiological documentation or entry requirements of the radiological safety zone sign [5].

3.1 General

4. Definitions and Acronyms

This document relies primarily on word meaning as found in common dictionaries. The current *Glossary of Controlled Terms and Acronyms [6]* contains specific meanings for those words that require further clarification.

For terms not defined below, see the Radiation Protection Program Description [7].

4.1 Definitions

Controlled Area	An area to which public access is controlled in order to protect individuals from exposure to radiation and radioactive materials.
Supervised Area	A defined area not designated as a controlled area but which occupational exposure conditions are kept under review even though no specific protection measures or safety provisions are normally needed.
Uncontrolled Area	Any CNL workplace that is not a Controlled or Supervised Area.

4.2 Acronyms

SRS	Senior Radiation Surveyor

5. Roles and Responsibilities

5.1 Radiation Protection Functional Support Manager

The Radiation Protection (RP) Functional Support Manager is responsible for approving the segregation of CNL sites into Radiological Areas.

5.2 Radiation Protection Program Manager(s)

RP Program Manager(s) is responsible for:

- Propose the designation of CNL site areas for FSM approval,
- Approving radioactive surface contamination levels higher than those specified in Appendix B in contamination zone 1

5.3 Group 1 Health Physicists

The Group 1 Health Physicist is responsible for:

- Advising designation of Radiological Zones based on RP Staff zoning surveys for zone/area reclassifications,
- Approving radiological work in the Uncontrolled and Supervised Areas,
- Reviewing the monitoring equipment used and the results of radiological surveys to ensure that they are adequate for the purposes of zoning designation of an area,
- Reviewing and approving Zone 5's,
- Reviewing Radiological Safety Zoning Records,
- Approving zone change forms for temporary and permanent zone changes [8],
- Review, document, and approve exceptions to requiring physical barriers between radiological safety zones.

5.4 Group 1 Senior Radiation Surveyors

The Group 1 Senior Radiation Surveyors are responsible for:

- Reviewing, updating, and completing routine compliance surveys as required [9],
- Preparing Radiation Safety Area Signs,
- Preparing zone change forms for temporary and permanent zone changes [8],
- Updating Radiological Safety Zoning Records,
- Verifying that Group 1 Radiation Surveyors are:
  - Confirming the zoning at the required frequency,
  - Assisting with the assessments of zones, posting of zones and related information,
  - Establishing monitoring routines for the zones.

5.5 Group 1 and Group 2 Radiation Protection Staff

RP Staff are responsible for:

- Confirming the radiological assessments of zones, posting of zones and related information,
- Reviewing surveys prior to removing temporary zones,
- Preparing zone change forms for temporary and permanent zone changes [8], and
- Establishing monitoring routines for the zones.

5.6 Facility Authority

The Facility Authority (or equivalent) is responsible for reviewing and ensuring the minimum bi-annual review of the radiological safety zoning record is performed.

5.7 Facility Managers/Prime Tenants

The Facility Managers/Prime Tenants (or equivalent) are responsible for:

- Coordinating with RP staff to ensure their facilities properly zoned in accordance with this MCP,

- Ensuring that their facilities/laboratories/buildings/areas have been surveyed and zoned,
- Ensuring zoning signs have been posted,
- Ensuring that their personnel are made aware of the zones within the areas in which they work,
- Communicating work conditions, which may affect the zoning of a particular area to the RP staff for either temporary or permanent reclassification, and
- Ensuring that the minimum bi-annual review of the compliance matrices is performed.

5.8 Line Managers/Facility/Laboratory Supervisors

The Line Managers/Facility/Laboratory Supervisors are responsible for:

- Maintaining the established zones,
- Enforcing any zoning-based requirements in areas for which they have been assigned responsibility, and
- Requesting changes when zones no longer meet the requirements.

5.9 Employees

CNL employees are responsible for:

- Understanding the significance and implications of working within the defined radiological areas and radiological safety zones, and
- Taking all precautions as posted at the entry points to these areas and zones.

6. Flowchart

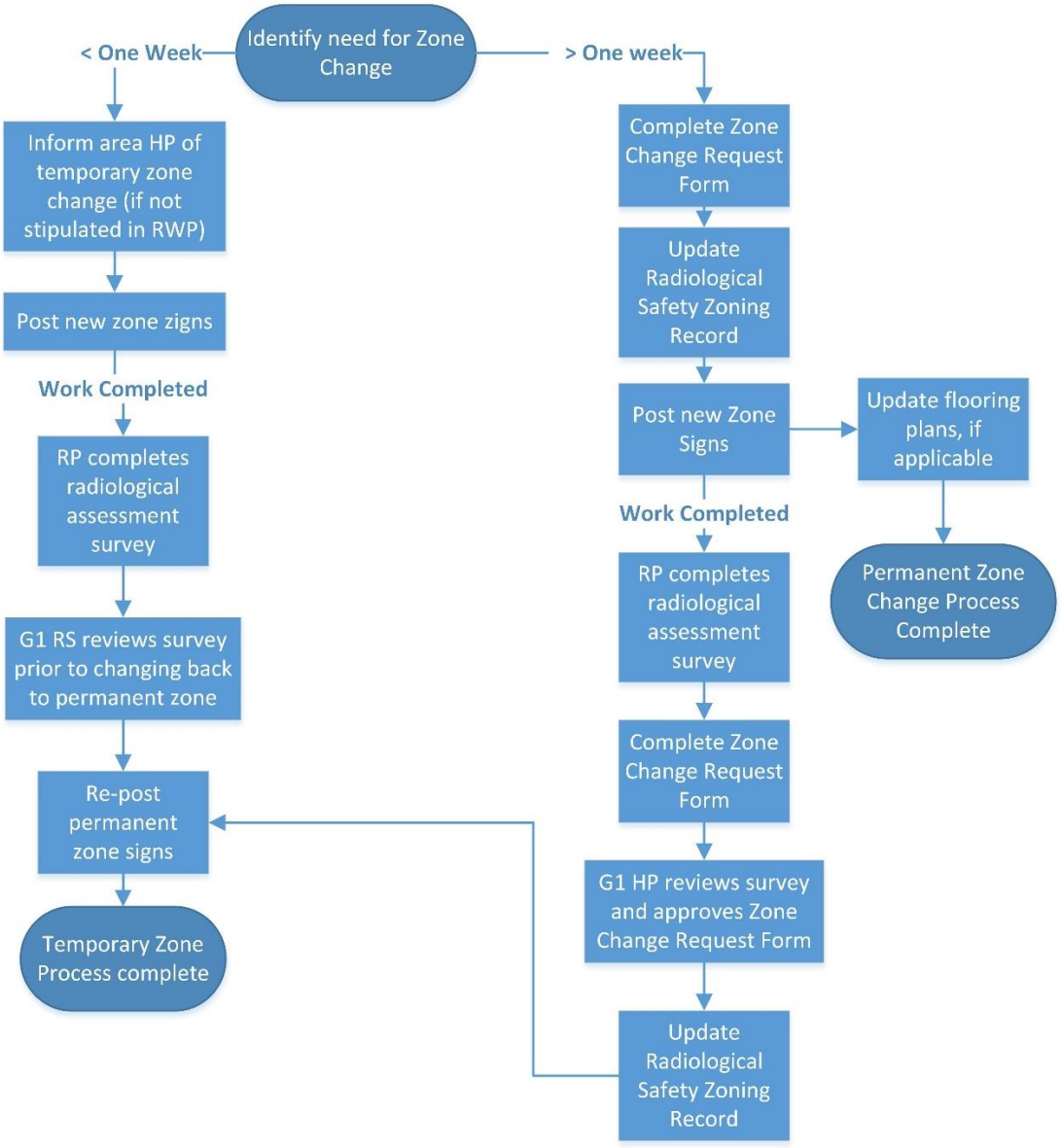


Figure 1. Zone Change Process

7. Process

7.1 Radiological Areas

CNL licensed sites shall be segregated into one or more levels of Controlled Areas, Supervised Areas, and Uncontrolled Areas. The location, number, and size of Controlled and Supervised Areas shall meet the objective of optimizing the radiation protection provided to personnel at

licensed CNL sites, members of the public, and to the environment during normal operations, as well as minimizing the radiological consequence resulting from unplanned events or emergencies.

The designation of CNL site areas is proposed by the responsible RP Program Manager and approved by the Functional Support Manager.

The classification of Radiological Areas shall be organized into five Radiological Safety Zones based on dose rate and contamination levels. The five zones in Appendix A are based on the potential for external and internal radiation exposures, and the probability of spread of radioactive contamination from activities to be carried out within an area. Radiological Safety Zones must be clearly delineated using a physical barrier where possible. The colours used for delineation shall be yellow and magenta. Exceptions for physical barrier will be reviewed, documented, and approved by a Group 1 Health Physicist.

7.1.1 Controlled Areas

Controlled Areas are areas in which:

- Any person working in that area is likely to receive an effective dose greater than 1 mSv/year,
- General (Accessible) whole body dose rates are in excess of 0.5 µSv/hr, or
- Where any loose contamination is likely to be present.

Current listings of CNL site Controlled Areas within CNL licenced sites are maintain by the CNL RP Program [10].

7.1.2 Supervised Areas

Supervised Areas are areas in which:

- There is no work with radiation sources, without approval from a Group 1 Health Physicist. Expectation of storage of radioactive material are captured in [11],
- The dose received by an individual should not exceed 1 mSv in one year,
- Where working conditions shall be kept under review by a Group 1 Health Physicist but where special radiation protection procedures are not normally needed.

7.1.3 Uncontrolled Areas

The uncontrolled areas are outside of the controlled and supervised areas and are not zoned but requires Group 1 Health Physicist approval when completing radiological work.

7.2 Radiological Safety Zoning Record

A Radiological Safety Zoning Record is a record detailing the designation of permanent and temporary Radiological Safety Zones in a facility, laboratory, building or area. Additionally, the

frequency of all routine radiological compliance surveys is listed. This record should contain, as a minimum, the following information:

- Building/Room/Area description,
- Zoning designation,
- Survey frequency – time periods when routine surveys are required are clearly indicated,
- Type of zone change I.e., Permanent or temporary,
- Radiological work permit number to be used within the radiological safety zone, if applicable,
- Date established, removed, and/or made permanent where applicable,
- Zone change description I.e., Existing zone designation and new zone designation,
- Compliance survey number, if applicable,
- Hyperlink to the uploaded Zone Change Request Form,
- Hyperlink to the uploaded Initial Use TVE Checklist, if applicable,
- Comments, if applicable.

The Radiological Safety Zoning Record shall be updated by the Group 1 Senior Radiation Surveyor and reviewed by the Facility Manager/Prime Tenant (or equivalent), Facility Authority (or equivalent), and Health Physicist, as a minimum bi-annually (every 6 months). Due to the need to keep the Radiological Safety Zoning Record as a working document, it shall be uploaded to an electronic document management system (EDMS) bi-annually.

Zoning records can be in the form of informal documents such as a zoning table, map or Compliance Matrix [12].

7.3 Classification of Radiological Safety Zones

7.3.1 General

In general, the greater the level of radiological hazard, the greater the level of access control and radiation protection measures (entry and exit requirements) required to ensure radiation safety and, consequently, the higher the zone number assigned [13].

Radiological Safety Zones are used to indicate a hazard level. There are two types of hazards to consider:

- External radiation dose rates (Radiation Zone); and
- Contamination levels (Contamination Zone).

The zone number reflects the relative level of total radiological hazard within the zone, which is detailed with numerical values in Appendix A. The overall Radiological Safety Zone for an area

is the higher of the radiation or contamination zone. For example, a room with a radiation Zone 2 and a contamination Zone 3 is assigned as a Radiological Safety Zone 3.

Surveys for the posted sign will be stored as a permanent record within an electronic document management system that can be kept for audit purposes, which will detail the hazard(s) and when the compliance survey was completed. The posted sign will identify the minimum entry and exit requirements, which may differ based on the details of the hazard and facility.

If the radiological hazards change within a zone, the zone shall be reassessed for reclassification.

If no obvious physical barrier exists between radiological safety zones, the area must be clearly delineated. This delineation must include a physical barrier where possible. The colours to be used for this delineation shall be yellow and magenta. Exceptions for a physical barrier are reviewed, documented and approved by a group 1 health physicist.

7.3.2 Permanent Zone Changes > 90 Calendar Days

All assigned permanent zone designations within buildings or facilities are recommended by the RP Staff and approved by Group 1 HP through a Zone Change Request Form [8]. The approved form shall be sent to the RP staff and the appropriate Radiological Safety Zoning Signs posted and Radiological Safety Zoning Record updated. In addition, when a zone change is permanent floor plans and any electronic document management system should be updated when the approved and signed Zone Change Form [8] is sent to >Radiation Protection, if applicable.

7.3.3 Temporary Zone Changes

Where radiological work is required to take place within a Radiological Safety Zone that is not appropriate for the level of radiological hazard present, there is a requirement to establish a temporary zoned area.

7.3.3.1 Temporary Zone Change < One Week

Where a Temporary Zoned Area is being erected for one week or less, or by following the requirements stipulated in a relevant Radiological Work Permit (RWP), there is no requirement for a Zone Change Request Form [8] to be completed or updated in the Radiological Safety Zoning Record. If the temporary zone change is not stipulated in a relevant RWP, the area HP must be informed of the change and any applicable hazard warning sign [14] posted. Upon completion of work, G1 RS shall complete a radiological assessment survey to confirm conditions prior to changing the zone back to the permanent zone. A Group 1 Surveyor shall review the compliance survey prior to removal of a temporary zone that is erected for a period of one week or less.

7.3.3.2 Temporary Zone Change > One Week and < 90 Calendar Days

Where a temporary zone change is being erected for a period of more than one week and less than 90 calendar days, a Zone Change Request Form [8] must be completed and approved by a

G1 Health Physicist and reviewed by the Facility Manager/Prime Tenant (or equivalent). The new temporary zone change must be recorded within the Radiological Safety Zoning Record and Radiological Safety zoning signs must be updated by G1 Radiation Surveyor staff, including any applicable hazard warning signs [14].

Upon completion of work, G1 RS shall complete a radiological assessment survey to confirm conditions prior to changing zone back to permanent zone and complete a Zone Change Request Form [8]. G1 Health Physicist shall review the survey and approve the Zone Change Request Form [8] and notify the Facility Manager/Prime Tenant of the change. The zone change must be recorded again in the Radiological Safety Zoning Record and Radiological Safety Zoning signs must be updated by G1 Radiation Surveyor staff, including any applicable hazard warning signs [14].

7.4 Radiological Safety Zoning Signs

Radiological Safety Zoning Signs shall be posted at all radiation and contamination zone changes where they will be:

- Easily visible,
- Durable,
- Legible considering the environment in which they are displayed.

A sign should be replaced if it is no longer legible or if the colours fade or change significantly. The radiological zones are surveyed as a minimum, the frequencies specified in Radiation and Contamination Workplace Monitoring Routines [9]. Survey results from routine monitoring shall be maintained and auditable.

Radiological Safety Zone 1 sign is used to notify personnel entering areas within a Controlled Area that they are entering into a Radiological Safety Zone 1. Radiological Safety Zone Sign 2 shall contain the words “CAUTION” and Radiological Safety Zone 3, 4 and 5 shall contain the words: “RAYONNEMENT-DANGER- RADIATION”.

Each Radiation Safety Zone shall have a different colour to represent that zone. This will be reflected in the Zone Sign and Radiological Safety Zoning Record.

- White for Zone 1
- Green for Zone 2
- Yellow for Zone 3
- Orange for Zone 4
- Red for Zone 5

Radiological Safety Zone Sign templates can be found in references [5][15].

Note: Where barcodes are utilized and where a Radiological Safety Zone Sign is to be used for a period great than 1 month, the Senior Radiation Surveyor will request a barcode from >Radiation Protection, to affix to the sign which will detail compliance survey results, who performed the survey and the date it was performed, if required. This information will be kept

in an electronic document management system. The use of barcodes on Radiological Safety Zone Signs is optional.

8. Documented Information

Creation, Capture and Use of Information Assets [16] provides current information on the storage, preservation, turnover and retention requirements for records.

Radiological Safety Zoning Records are kept as permanent records by the site RP Services and the Facility Manager (or equivalent) to which it applies and stored in an electronic document management system.

Zone Change Request forms [8] are entered into CNL's electronic document management system.

9. References

[1] *Radiation Protection,* 900-508740-PRD-001, 40766658

[2] *ALARA Review and Assessment of Radiation Work,* 900-508740-MCP-026, 12614087

[3] *Radiological Work Permit,* 900-508740-STD-003, 48527635

[4] *Personal Protective Equipment and Clothing,* 900-508740-MCP-016, 42076741

[5] *Radiological Safety Zone Template,* 900-508740-TMP-007616

[6] *Glossary of Controlled Terms and Acronyms*, https://cnllnc.sharepoint.com/sites/TermsandDefinitions.

[7] *Radiation Protection,* 900-508740-PDD-001, 12487852

[8] *Zone Change Request Form,* 900-508740-FM-026

[9] *Radiation and Contamination Workplace Monitoring Routines,* 900-508740-FID-001, 57136113

[10] *Controlled Areas at Canadian Nuclear Laboratories Licensed Sites,* 900-508740-LST-001, 52671637

[11] *Storage of Radioactive Material,* 900-508740-STD-009, 48526759

[12] *Compliance Matrix Template*, 900-508740-TMP-007615

[13] *Access Control,* 900-508740-STD-007, 40768836

[14] *Radiological Hazard Warning Signs,* 900-508740-MCP-029, 42072831

[15] *Zone 1 Sign Template,* 900-508740-TMP-007620

[16] *Creation, Capture and Use of Information Assets,* 900-511300-STD-003, 50746207.

Appendix A Classification of Radiological Safety Zones

Zone	Radiation Hazard Description	General (Accessible) Whole Body Dose Rate	Maximum (Accessible) Removable Surface Contamination Levels	General (Accessible) Removable Surface Contamination Levels using Ludlum 43-5 and 44-9.
1	Very Low	≤ 0.5 μSv/h (50 μrem/h)	< values in Appendix B*	≤ 23 cpm α ≤ 720 cpm βγ
2	Low	> 0.5 μSv/h (50 μrem/h) ≤ 10 μSv/h (1 mrem/h)	< values in Appendix B**	≤ 23 cpm α ≤ 720 cpm βγ
3	Moderate	> 10 μSv/h (1 mrem/h) ≤ 1.0 mSv/h (100 mrem/h)	≤ 10 times values in Appendix B	≤ 230 cpm α ≤ 7,200 cpm βγ
4	High	> 1.0 mSv/h (100 mrem/h ≤ 100 mSv/h (10 rem/h)	>10 times values in Appendix B	> 230 cpm α >7,200 cpm βγ
5	Very High	> 100 mSv/h (10 rem/h) ***	> 10 times values in Appendix B ***	> 230 cpm α >7,200 cpm βγ

*Removable radioactive surface contamination levels higher than those specified in Appendix B should only be allowed for zones 2 and higher. Exceptions shall only be short-term in nature and shall be individually justified to and authorized by the responsible RP Program Manager. Neither removable nor total contamination higher than the values in Appendix B is allowed in Zones 1.

** If removable radioactive surface contamination is found in a zone 2 it should be removed when found.

*** And Based on a Group 1 Health Physicist judgement of airborne contamination levels and/or external radiation fields present an acute hazard such that unplanned doses could realistically exceed regulatory limits or deterministic threshold level.

Appendix B Removable and Total Maximum Values for Surface Contamination

Nuclide Type	Removable*	Total**
Alpha emitters that are not low toxicity alpha emitters	0.01 Bq/cm^2	0.4 Bq/cm^2
All other radionuclides	0.2 Bq/cm^2	4.0 Bq/cm^2

*Removable is determined by swiping that area and assessing the amount of radioactive material on the swipe, divided by the area over which the swipe was taken.

**Total includes removable and fixed contamination, as measured by direct monitoring of the surface.

Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Radiation Protection Action Levels

900-508740-LST-002

Revision 3.0

Approved by:	Marc Jones	2025/07/28
	Manager, Corporate Radiation P	Date

Effective Date: 2025/09/15
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Refer to ATOM for current version. Printed copies should not be considered current without first consulting ATOM.

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Revision History

Rev. No.	Date	Details of Rev.	Authored By	Reviewed By	Approved By
3	2025/07/22	Issued as “Approved for Use”.	W. McIntyre	M. Jones O. Kamaev	M. Jones
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D1	2016/03/31	Issued for “Review and Comment”	C. Russell	M. Jones V. Lim L. Rasmussen	

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1. Scope and Applicability

This document contains all radiation protection action levels for the Canadian Nuclear Laboratories (CNL) as agreed to by the Canadian Nuclear Safety Commission (CNSC). Action Level is defined in the *Radiation Protection Regulations* [1].

Individual action levels (AL) are specific to a particular licence and only apply to activities covered by that licence. For example, action levels for the Whiteshell Laboratories do not apply to the Chalk River Laboratories.

Action levels that apply to air or liquid effluent released from CNL sites are excluded because they are considered part of the Environmental Protection Program referred to in licenses.

2. Purpose

The purpose of the document is to codify and present in one place, all radiation protection action levels across all licenses granted to CNL by the CNSC.

3. Roles and Responsibilities

3.1 Radiation Protection Functional Support Manager

The radiation protection functional support manager is responsible for updating this list to the current action levels in effect under the various licences held by CNL.

3.2 Radiation Protection Program Manager

The various radiation protection program managers are responsible for notifying the functional support manager when action levels are changed.

4. List

The following sections contain the action levels for the various licences held by CNL.

4.1 Nuclear Research and Test Establishment Operating Licence - Chalk River Laboratories (NRTEOL-01.01/2028) [8], [9]

Parameter	Quarterly (mSv)	Annual (mSv)
Effective Dose (NEW)	5	10
Effective Dose (Pregnant NEW)	0.5	0.75 [1]
Effective Dose (Other Worker)	0.5	0.75
Shallow Dose (NEW) [2]	10	15
Shallow Dose (Other Worker) [2]	0.5	1
Internal Committed Effective Dose	N/A	1
Extremity Dose [3]	50	100
Lens of an Eye	N/A	10
Localized Area of Skin Equivalent Dose [4]	50 mSv per single event	

Notes:

1. Balance of pregnancy, not annual.
2. Shallow dose is effective dose to the skin but does not include dose due to a localized area contamination event.
3. The extremity dose action level applies in situations where an extremity TLD has measured a dose exceeding the respective extremity dose values.
4. Localized area of skin equivalent dose is the dose received by the skin averaged over the 1 cm^2 area that received the highest dose during a single skin contamination incident.

4.2 Nuclear Substance and Radiation Device Licence – La Prade (No. 15193-4-26.2) [10]

No action levels have been specified in this licence.

4.3 Waste Facility Decommissioning Licence - Nuclear Power Demonstration (WFDL-W4-342.00/2034) [11], [12]

Parameter	Quarterly (mSv) [1]	Annual (mSv) [1]
Effective Dose (NEW)	3	9
Effective Dose (Pregnant NEW**)**	0.3	0.7 [2]
Effective Dose (Other Worker)	0.3	0.7
Equivalent Dose to the Skin (Shallow Dose)	30	90
Committed Effective Dose (Internal exposure)	N/A	1
Extremity Dose [3]	50	100
Equivalent Dose the Skin [4,5] (Skin Contamination)	50 mSv Single Exposure Event	

Notes:

1. Planned work for which exposures are anticipated that will or could exceed the Action Levels given in this table, shall not be undertaken without prior authorisation from the Radiation Protection Program Manager with concurrence from the RP Functional Support Manager.
2. Balance of pregnancy, not annual.
3. The extremity dose action level applies in situations where an extremity TLD has measured a dose exceeding the respective extremity dose values.
4. Applies to dose from a single skin contamination event, excluding dose to the skin and extremity monitored by a dosimeter.
5. When the skin is unevenly irradiated, the averaging area shall not be less than 1 cm^2, even in the case of a hot particle. When the skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose.

4.4 Waste Facility Decommissioning Licence - Douglas Point (WFDL-W4-332.03/2030) [13], [14]

Parameter	Quarterly (mSv) [1]	Annual (mSv) [1]
Effective Dose (NEW)	N/A	5
Effective Dose (Pregnant NEW**)**	0.3	0.7 [2]
Effective Dose (Other Worker)	0.3	0.7
Equivalent Dose to the Skin (Shallow Dose)	N/A	50
External Dose to the Whole Body	0.5 mSv Single Exposure Event [3]	
Equivalent Dose to the hand or foot (Extremity Dose)	50 mSv Single Exposure Event [4]	100
Committed Effective Dose (Internal exposure)	1 mSv Single Exposure Event [5] or 1 mSv Chronic Exposure [6]	
Equivalent Dose the Skin (Skin Contamination)	50 mSv Single Exposure Event [7, 8]	

Notes:

1. Planned work for which exposures are anticipated that will or could exceed the Action Levels given in this table, shall not be undertaken without prior authorization from the Radiation Protection Program Manager.
2. Balance of pregnancy, not annual.
3. Unplanned exposure to the whole body resulting from a work activity during a day shift (i.e. 8 to 12 hour shift). The exposure is taken to be 0.5 mSv greater than what is established as an appropriate margin for the conduct of the work as measured on the Personal Alarming Dosimeter (e.g. 0.5 mSv greater than Personal Alarming Dosimeter Dose Alarm).
4. Applies to an unplanned exposure from a single extremity TLD measurement dose result.
5. Applies to an unplanned acute intake for which the exposure can be treated as instantaneous for the purpose of assessing the resulting committed dose.

6. Applies to intakes received over an extended period of time which is not treated as a single instantaneous intake for the purposes of assess the resulting committed dose. The chronic intakes action level does not include the sum of separate assessed doses from multiple unplanned acute intake events.
7. Applies to dose from a single skin contamination event, excluding dose to the skin and extremity monitored by a dosimeter.
8. When the skin is unevenly irradiated, the averaging area shall not be less than 1 cm^2, even in the case of a hot particle. When the skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose.

4.5 Waste Facility Decommissioning Licence - Gentilly-1 (WFDL-W4-331.00/2034) [15], [16]

Parameter	Quarterly (mSv) [1]	Annual (mSv) [1]
Effective Dose (NEW)	N/A	5
Effective Dose (Pregnant NEW**)**	0.3	0.7 [2]
Effective Dose (Other Worker)	0.3	0.7
Equivalent Dose to the Skin (Shallow Dose)	N/A	50
External Dose to the Whole Body	0.5 mSv Single Exposure Event [3]	
Equivalent Dose to the hand or foot (Extremity Dose)	50 mSv Single Exposure Event [4]	100
Committed Effective Dose (Internal exposure)	1 mSv Single Exposure Event [5] or 1 mSv Chronic Exposure [6]	
Equivalent Dose the Skin (Skin Contamination)	50 mSv Single Exposure Event [7, 8]	

Notes:

1. Planned work for which exposures are anticipated that will or could exceed the Action Levels given in this table, shall not be undertaken without prior authorization from the Radiation Protection Program Manager.
2. Balance of pregnancy, not annual.
3. Unplanned exposure to the whole body resulting from a work activity during a day shift (i.e. 8 to 12 hour shift). The exposure is taken to be 0.5 mSv greater than what is established as an appropriate margin for the conduct of the work as measured on the Personal Alarming Dosimeter (e.g. 0.5 mSv greater than Personal Alarming Dosimeter Dose Alarm).
4. Applies to an unplanned exposure from a single extremity TLD measurement dose result.
5. Applies to an unplanned acute intake for which the exposure can be treated as instantaneous for the purpose of assessing the resulting committed dose.

6. Applies to intakes received over an extended period of time which is not treated as a single instantaneous intake for the purposes of assess the resulting committed dose. The chronic intakes action level does not include the sum of separate assessed doses from multiple unplanned acute intake events.
7. Applies to dose from a single skin contamination event, excluding dose to the skin and extremity monitored by a dosimeter.
8. When the skin is unevenly irradiated, the averaging area shall not be less than 1 cm^2, even in the case of a hot particle. When the skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose.

4.6 Waste Substance Licence – Unspecified Locations (WNSL-W2-2202.0/2026) [17]

As per the appendix B to the licence [17]:

"*The CNL company-wide action level for effective dose is 20 mSv per year. The CNL company-wide action level for effective dose is 6 mSv per 3-month period".*

The action levels for this licence will remain as stated until the licence is amended, reissued, or revoked.

4.7 Waste Nuclear Substance Licence – Port Hope Area Initiative – Waste Management Project (WNSL-W1-2310.00/2032) [18], [19]

Parameter	Four weeks or monthly [1] (mSv)	Thirteen weeks or quarterly (mSv)	Annual (mSv)
Effective Dose (NEW)	1	3	6
Effective Dose (Pregnant NEW) [2]	0.3	0.5	1 [3]
Skin Dose (NEW) [4]	1	3	6
Extremity Dose (NEW)	10	30	60
Internal Committed Effective Dose (NEW)	N/A	N/A	1

Note:

1. It is understood that some dosimetry providers provide “monthly” dosimetry instead of 4 weeks. For the purpose of ALs, a one-month dosimetry period is considered to have the same AL as “per four-week monitoring period”.
2. ALs referred are effective dose limits to the pregnant worker. The balance of the pregnancy is defined as the period from the moment the management is informed, in writing, of the pregnancy to the end of the pregnancy.
3. Balance of pregnancy, not annual.
4. When skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose. When the contamination is relatively uniform over the skin the averaging area of 100 cm^2 may be used for operational convenience but not if it significantly lowers the average dose.

4.8 Nuclear Research and Test Establishment Decommissioning Licence – Whiteshell Laboratories (NRTEDL-W5-8.00/2027) [20], [21]

Parameter	Quarterly (mSv) [1]	Annual (mSv) [1]
Effective Dose [2] (NEW)	0.5 mSv Single Exposure Event [3]	6
Effective Dose (Pregnant NEW**)**	0.3	0.7 [4]
Effective Dose (Other Worker)	0.3	0.7
Equivalent Dose to the Skin (Shallow Dose)	N/A	60
Equivalent Dose to the hand or foot (Extremity Dose)	50 mSv Single Exposure Event [5]	100
Committed Effective Dose (Internal exposure)	1 mSv Single Exposure Event [6] or Chronic Exposure [7]	
Equivalent Dose the Skin (Unmonitored local skin exposure)	50 mSv Single Exposure Event [8, 9]	

Notes:

1. Planned work for which exposures are anticipated that will or could exceed the Action Levels given in this table, shall not be undertaken without prior authorization from the Radiation Protection Program Manager.
2. External dose to the whole body.
3. Unplanned exposure to the whole body resulting from a work activity during a day shift (i.e. 8 to 12 hour shift). The exposure is taken to be 0.5 mSv greater than what is established as an appropriate margin for the conduct of the work (e.g. 0.5 mSv greater than Personal Alarming Dosimeter Dose Alarm or Radiological Control Hold Point- Back Out).
4. Balance of pregnancy, not annual.
5. Applies to an unplanned exposure from a single extremity TLD measurement dose result.
6. Applies to an unplanned acute intake for which the exposure can be treated as instantaneous for the purpose of assessing the resulting committed dose.
7. Applies to intakes received over an extended period of time which is not treated as a single instantaneous intake for the purposes of assess the resulting committed dose. The chronic intakes action level does not include the sum of separate assessed doses from multiple unplanned acute intake events.

8. Applies to dose from a single skin contamination or unmonitored local skin exposure event, excluding monitored skin and extremity doses.
9. When the skin is unevenly irradiated, the averaging area shall not be less than 1 cm^2, even in the case of a hot particle. When the skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose.

5. Definitions and Acronyms

This document relies primarily on word meaning as found in common dictionaries. The current *Glossary of Controlled Terms and Acronyms* [22] contains specific meanings for those words that require further clarification.

5.1 Definitions

Balance of Pregnancy	The period from the moment CNL is informed, in writing, of the pregnancy to the end of the pregnancy.
Dosimetry Period	The span over which a radiation dose is summed, unless varied in accordance with sections 13(5) or 14(2) of the *Radiation Protection Regulations* [1].
Extremity Dose	The highest equivalent skin dose received by the most exposed 1 cm^2 of the hands below the elbow or the leg below the knee [23].
Localized Area of Skin Absorbed Dose	The dose received by the layer of cells within the skin that are 7 mg/cm^2 below the surface and averaged over the 1 cm^2 area that received the highest dose.
Other Worker	A worker who has not been designated as a nuclear energy worker and is subject to the prescribed dose limit for the general public [24].
Pregnant NEW	A nuclear energy worker (NEW) who has given written notification to the licensee of their pregnancy. This does not include a NEW that is pregnant but has not given notification of their pregnancy.
Shallow Dose	Skin dose excluding *Localized Area of Skin Absorbed Dose*.

5.2 Acronyms

AL	Action Level(s)

6. References

[1] 2025 Action Level Review for Chalk River Laboratories – Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, RP 25-0496, 72234204.

[2] Review of the Radiation Protection Program Exposure Action Levels for the Nuclear Power Demonstration Waste Facility (NPDWF) – Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, RP 25-0479, 72703090.

[3] 2025 Action Level Review for Douglas Point Waste Facility - Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, RP-25-0905, 72344398.

[4] 2025 Action Level Review for Gentilly-1 Waste Facility - Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, RP-25-0906, 72344025.

[5] Port Hope Area Initiative [PHAI] Action Levels – 5 Years Review – Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, JV-2025-002, 71937049.

[6] WL Action Levels – 5 Year Review – Canadian Nuclear Laboratories Ltd., RADP-508740-021-000, RP-2025-002, 7006394.

[7] *Radiation Protection Regulations*, SOR/2000-203, Minister of Justice, Canada.

[8] *Nuclear Research and Test Establishment Operating Licence – Chalk River Laboratories*, (NRTEOL-01.01/2028), CRL-508760-130-0005, 63716013.

[9] *Chalk River Laboratories Nuclear Research and Test Establishment Operating Licence, NRTEOL-01.01/2028*, *Licence Conditions Handbook, NRTEOL-LCH-01.01/2028*, CRL-508760-HBK-002, 63980175.

[10] *Nuclear Substance and Radiation Device Licence – La Prade*, 15193-4-26.2, 62228184.

[11] *Waste Facility Decommissioning Licence – Nuclear Power Demonstration*, (WFDL-W4-342.00/2034), 64-508760-130-000-0019, 53827009.

[12] *Nuclear Power Demonstration Waste Facility Prototype Waste Facilities – Waste Facility Decommissioning Licence, WFDL-W4-342.00/2034, Licence Conditions Handbook, WFDL-LCH-W4-342.00/2034, 64-508760-HBK-001*, 61892027.

[13] *Waste Facility Decommissioning Licence – Douglas Point Waste Facility (WFDL-W4-332.03/2030)*, 22-00500-130-000-0001, 54145276.

[14] *Prototype Waste Facilities – Waste Facility Decommissioning Licence Douglas Point Facility WFDL-W4-332.03/2030*, Licence Conditions Handbook, WFDL-LCH-W4-332.03/2030, 22-508760-HBK-002, 54682168.

[15] *Waste Facility Decommissioning Licence – Gentilly-1 Waste Facility*, (WFDL-W4-331.00/2034), 61-508760-130-000-0005, 53820503.

[16] *Prototype Waste Facilities – Waste Facility Decommissioning License, Gentilly-1 Waste Facility*, WFDL-W4-331.00/2034, Licence Conditions Handbook, WFDL-LCH-W4-331.00/2034, 61-00580-HBK-001, 50152177.

[17] *Waste Nuclear Substance Licence – Unspecified Locations (WNSL-W2-2202.0/2026)*, 236-NOCN-20-0001-L, 53827508.

[18] *Waste Nuclear Substance Licence – Canadian Nuclear Laboratories Ltd. – Port Hope Area Initiative – Waste Management Project* (WNSL-W1-2310.00/2032), 58944762.

[19] *Port Hope Area Initiative Waste Management Project Waste Nuclear Substance Licence WNSL-W1-2310.00/2032, Licence Conditions Handbook, LCH-WNSL-W1-2310.00/2032, 4500-508760-HBK-001*, 59045644.

[20] *Nuclear Research and Test Establishment Decommissioning Licence – Whiteshell Laboratories*, (NRTEDL-W5-8.00/2027), WLD-508760-130-000, 68653202.

[21] *Whiteshell Laboratories Nuclear Research and Test Establishment Decommissioning Licence*, *NRTEDL-W5-8.00/2027, Licence Conditions Handbook, NRTEDL-LCH-08.00/2027, WLD-508760-HBK-003*, 68649040.

[22] *Glossary of Controlled Terms and Acronyms*, https://cnllnc.sharepoint.com/sites/TermsandDefinitions

[23] *Dosimetry, Volume I: Ascertaining Occupational Dose*, REGDOC-2.7.2, Canadian Nuclear Safety Commission, July 2021.

[24] *Glossary of CNSC Terminology*, REGDOC-3.6, Canadian Nuclear Safety Commission, July 2024.

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Administrative Levels and Action Levels for CRL's Radioactive Effluents and Emissions

900-509200-STD-008

Revision 4.0

Information Use

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Approved by:	Carla De Waele	2026/02/20
	Acting Director, Corporate Env	Date

Effective Date: 2026/04/13
Mandatory Review by Date: 2029/04/13

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Revision History

Rev. No.	Date	Details of Rev.	Authored By	Reviewed By	Approved By
4	2026/01/26	Issued for "Approval"	K. Lambert	R. Silke	C. De Waele
4D1	2025/12/17	Issued for "Review & Comment": Major Changes included: 1. Five-year review of all AdLs and ALs resulted in updates to the levels highlighted in pink in Appendix A. 2. Removed AdL and ALs for the following monitoring points which are no longer part of the Rad EVMP: [redacted] 3. The addition of a statement indicating general revisions to AdLs and ALs would only be made when there was >25% difference compared to existing levels, in line with CSA N288.8 guidance. Note: Meetings held with all facilities individually in order to review and accept levels.	K. Lambert	C. De Waele R. Silke L. Ogilvie A. Mantifel A. Coulas	
3	2023/09/26	Issued as "Approved for Use"	K. Lambert	C. De Waele	G. Dolinar
3D1	2023/09/05	Issued for "Review and Comment": Major Changes included: 1. Minor revisions to align with *Effluent Levels for CRL's Non-Radioactive Effluents and Emissions,* 900-509200-STD-014. 2. Updated title to align with CSAN288.5 wording. 3. Added AdLs and ALs for the following monitoring stations:	K. Lambert	C. De Waele L. Ogilvie S. Toelly	

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Rev. No.	Date	Details of Rev.	Authored By	Reviewed By	Approved By
		[redacted] 4. Updated AdLs and ALs for PPD → GA, GB & HTO 5. Modified title from "Administrative Levels and Action Levels for CRL Air and Liquid Radioactive Effluents" to "Administrative Levels and Action Levels for CRL's Radioactive Effluents and Emissions". Note: Meetings held with all facilities individually in order to review and accept level changes: [redacted] (PPD)			
2	2022/06/27	Issued as "Approved for Use"	K. Lambert	C. De Waele	G. Dolinar
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Rev. No.	Date	Details of Rev.	Authored By	Reviewed By	Approved By
		[redacted] (AdL only) 3. Re-instating the pre-existing AdL and AL for [redacted] 4. Removed airborne and liquid AdL and ALs for those parameters/ stations where they are no longer required to be monitored (details on removals are included in the first row of each facility table) except where the entire table was removed as was the case for the following: [redacted] Further justification for these removals can be found in 900-509200-PLA-004, *CRL Radioactive Effluent Verification Monitoring Plan*, Rev 2.			
1	2019/12/20	Issued as "Approved for Use".	C. Matasich	C. Gallagher	G. Dolinar
1D1	2019/12/18	Issued for "Review and Comment". Transferred to most current Management System Document template. Updated all of the administrative and action levels for the facilities. Added a new section to the table that describes what has changed in	C. Matasich	C. Gallagher Y. Dube C. Ball	G. Dolinar

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		facility operations during this revision period.			
0	2018/05/14	Issued as "Approved for Use"	C. Matasich	C. Gallagher	G. Dolinar
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1. Scope and Applicability

This document specifies the Administrative Level (AdL) values and Action Level (AL) values for all radiological air emission and liquid effluent verification monitoring final discharge points that are a part of the Chalk River Laboratories (CRL) radiological Effluent/Emissions Verification Monitoring Program (EVMP). This document applies to CRL only.

Specifically this document outlines:

- The development of each of the levels;
- The review period for the levels; and
- The reporting requirements for exceedances.

This document does not cover:

- Emissions of non-radiological contaminants; these are instead covered in *Effluent Levels for CRL's Non-Radioactive Effluents and Emissions* [1]; or
- The acceptability of liquid waste transfers to CRL's collection and treatment systems (e.g. Sanitary Sewer system, Active Drain system). These requirements are instead outlined in *Acceptability Criteria for Routine and Non-Routine Discharge of Liquids at Canadian Nuclear Laboratories Sites* [2]; or
- The use or rules around the recording or reporting of calculated exceedances based on unavailable equipment or failed calibration of effluent/emission verification monitoring equipment; this is instead covered in *Management and Monitoring of Effluents and Emissions* [3].

Any questions regarding the content or application of this document can be directed to the CRL Environmental Protection Program (EnvP) Manager (or equivalent).

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2. Purpose

This document provides relevant stakeholders with the AdL and AL values for all final discharge points that are part of the CRL Radiological EVMP for use in routine monitoring and evaluation of effluent/emissions verification monitoring results. The levels in this document were developed in compliance with the Canadian Standards Association N288.8 document *Establishing and implementing action levels for releases to the environment from nuclear facilities* [4]. In addition, this document describes the methodology used to set the AdL and AL values.

3. Prerequisites

Refer to 900-509200-STD-009, *Management and Monitoring of Effluents and Emissions* [3] for requirements regarding the following:

- Establishing AdLs and ALs;

- Planned effluents/emissions in excess of AdLs or ALs, and
- Reporting of exceedances of AdLs and ALs

4. Definitions and Acronyms

This document relies primarily on word meaning as found in common dictionaries. The current *Glossary of Controlled Terms and Acronyms* [5] contains specific meanings for those words that require further clarification.

For commonly used environmental definitions and acronyms, refer to *Environmental Protection Program Description Document* [6].

4.1 Definitions

Terms listed below are specific to this document:

Exceedance	Release which meets or exceeds an Administrative Level or Action Level.
Prospective Approach to developing AdLs and ALs	Levels are derived based on anticipated releases of either a new release or a change in an existing releases (i.e. where there is insufficient historical release data to calculate these levels).
Retrospective Approach to developing AdLs and ALs	Levels are calculated using sufficient historical final discharge data.

4.2 Acronyms

There are no acronyms specific to this document.

5. Roles and Responsibilities

For a description of responsibilities of Facility Managers/Authorities (or equivalent), the CNL Environmental Functional Support Manager (FSM), the CRL EnvP Program Manager (or equivalent), and Environmental Specialists concerning AdLs and ALs, refer to *Management and Monitoring of Effluents and Emissions* [3].

6. Standards

6.1 Methodology for Setting Administrative Levels

The purpose of AdLs is to provide warning of above normal effluent/emission levels with the intent of aiding in the application of the As Low As Reasonably Achievable (ALARA) process. Hence, AdLs are established for indicator parameters representative of key radionuclides in the effluent/emission stream at levels close to normal or predicted effluent/emission levels. They

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are calculated for each final discharge point using a combination of statistical parameters applied to a chosen set of historical effluent/emission data.

1. A minimum of three years of effluent/emission levels that are deemed representative of near-future effluents/emissions are used as the data set on which the AdL is based. The resulting data set should be comprised of a minimum of 36 data points to ensure the data set is of adequate size. In the case where three years of operational performance is not available, the AdL is set based on less than three years of operational performance if this history is deemed representative of near-future effluents/emissions, or on best estimates/predictions based on professional experience and judgement. The choice of a representative data set is made in consultation with facility staff to ensure that the resulting AdL reflects actual future operating conditions.
2. If item (1) above yields a data set that includes both detects and non-detects, the following truncating guidelines are considered. Note that there are varying approaches to truncating the data to ensure that the calculated statistical parameters appropriately reflect effluent/emission levels of a facility in operational mode. The following guidance ensures that the AdL is set at a level that differs from background and is representative of actual releases resulting from a facility during operation:
    a. Effluent/emission levels that do not differ statistically from analytical/instrument background, i.e., that are below the Critical Level (L_C), are removed from the data set as they most likely represent periods of inactivity and are not representative of regular operation.
    b. When it is unfeasible to differentiate periods of inactivity from periods of regular operation, then this $<L_C$ data is <u>not</u> removed from the data set. Experience and past reviews of release data reveals that it becomes unfeasible to differentiate between inactivity and regular operation when more than 75% of the data set is comprised of $<L_C$ data. For facilities that experience low effluent/emissions, retaining the $<L_C$ data makes for a data set that is representative of regular operations (i.e. the $<L_C$ measurements occur during operation).
3. Any data points within the data set that represent abnormal effluent/emission events are removed to yield a data set that is most representative of normal effluent/emission levels. This is done as follows:
    a. Any data point that is known to be the result of an abnormal effluent/emission event is removed from the data set.
    b. Any data point remaining within the data set after carrying out (a) above that is judged suspect, is inconsistent with the rest of the data and cannot be explained by an intermittent or temporary operation, is deemed to be an outlier, and is also removed. The mean and standard deviation are recalculated on the updated data set. If the removed suspect data point differs from the new mean by more

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than three standard deviations, then it is rejected as an outlier, otherwise it is reinstated in the data set.

4. It is imperative that the number of false positives, i.e., where an AdL exceedance is not related to an abnormal effluent/emission event but is instead due to normal operation, is kept to a minimum. To this effect, the AdLs are set as follows:

    a. The AdL is set at the upper limit of the 99.7% confidence interval for the data set. It is expected that AdL exceedances will occur occasionally due to normal variation; an acceptably low percentage of the data points, 0.15% ([100%-99.7%]/2), is expected to represent these false positive AdL exceedances. To calculate the upper limit of the 99.7% confidence interval, the statistical distribution of the data set is first determined, and an appropriate calculation method specific to the distribution is chosen.

    b. Environmental or effluent/emission data most often follows a normal or log-normal distribution. If the data does not fit a normal (or log-normal) distribution, this may be due to working with a 'combined' data set, i.e., a data set that represents more than one distinct process each reflecting a different situational condition. For example, a facility's airborne emissions may be duplicitous in that they vary according to intermittent campaign schedules or varying types of work based on customer requests. This results in a data set that effectively captures a combination of various operational modes. Interferences from other effluent/emission sources can also result in a combined data set. If the varying sources of effluents/emissions have different distributions parameters (e.g., one has consistently low effluents/emissions with little variability, and another has intermittent effluents/emissions with high variability), the combined data will not follow a normal (or log-normal) distribution.

    Because using such combined data sets decreases the fit of the effluent/emission data to the normal (or log-normal) distribution, this in turn affects the accuracy of the 99.7% confidence interval and thus the AdL. In this case, a coverage factor can be applied to the calculated AdL to decrease the number of false positives. This decision is made based on a review of historical operational performance, upcoming campaigns and work, potential for interferences, and professional judgement.

    Where histogram curves are poor due to very low-level results (non-detects) or a small dataset, log normal is used as a default. This is not uncommon with environmental of effluent/emission type data.

5. Finally, a risk-based lower cap on the AdL is applied to afford operational flexibility for those final discharge points that have historically operated at very low effluents/emissions close to background. The historical data although representative of past effluents/emissions, could be unrepresentative of the operational envelope of the facility. Therefore, the caps address the situation where a very small change in

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operation could trigger an exceedance that is unwarranted. The determination of the level for the lower cap is based on the professional judgement of the EnvP Program Manager (or equivalent).

6.2 Methodology for Setting Action Levels

ALs represent a level of effluent/emission that is significantly below the Derived Release Limits (DRLs), below the site release limits (equal to 0.3 x DRL) and higher than the AdLs and is sufficiently low and close to operational performance such that the requirement to keep doses ALARA is not jeopardized if this level is reached. In line with this requirement, individual ALs shall be set-to five times the respective AdLs, except in cases where a calculated AL is more than 50% of the respective site release limit when the above methodology is applied, in which case the AL shall be set at a value equal to 50% of the site release limit.

6.3 Review Process

The AdLs and ALs should be reviewed at least once every five years or more frequently if warranted such as a change in a facility's process that would alter the effluent/emission characteristics of the discharge.

In general, a revision of the AdL and AL is deemed necessary if there is a difference of >25% between the existing limit and the newly calculated limit.

Note: Changes to ALs will require notification to the Canadian Nuclear Safety Commission (CNSC).

6.4 Exceeding an Administrative or Action Level

Management and Monitoring of Effluents and Emissions [3] outlines the high-level requirements when either an AdL or AL is exceeded.

For a single AdL or AL exceedance:

1. Upon identification of an exceedance, EnvP staff confirm the results with the data provider or, if necessary, have the sample reanalyzed.
2. EnvP staff notify the responsible manager or designate that there has been an exceedance and raise a corresponding ImpAct using professional judgement to determine the significance level. Where there is no identifiable responsible manager, the EnvP FSM or designate will take responsibility for follow-up and reporting etc.
3. EnvP staff inform the EnvP FSM of AL exceedances who, in turn, may elect to inform the Executive Committee/Team of the exceedances.

For ≥ three (3) consecutive AdL or AL exceedances of the same parameter at the same monitoring point:

4. EnvP staff to consider creating a trend ImpAct, if deemed appropriate, raising the significance level according to professional judgement. Again, where there is no identifiable responsible manager, the EnvP FSM or designate takes responsibility.

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7. Documented Information

Creation, Capture and Use of Information Assets [7] provides current information on the storage, preservation, turnover and retention requirement for records

Table 1 below outlines the records which are required to be generated under this standard and their associated retention periods.

Table 1: Required Records and their Retention Periods

Record/Report	Responsible Position(s) or Group (s)	Retention Period	Regulatory Requirement	Retention Location	Record Type/ Report #
Record: AdL and AL calculations and methodology of decision making for each station/parameter combination.	Facility Manager, EnvP FSM	Permanent	CNSC - CSA N288.8 [4]	Electronic Document Retention Management System	Effluent/emissions point specific internal record (Microsoft Excel files)

8. References

[1] *Effluent Levels for CRL's Non-Radioactive Effluents and Emissions*, 900-509200-STD-014, Rev 4.2, 2025 January, 51059932

[2] *Acceptability Criteria for Routine and Non-Routine Discharge of Liquids at Canadian Nuclear Laboratories Sites*, 900-509200-MCP-005, Rev 1, 2021 February, 47096217

[3] *Management and Monitoring of Effluents and Emissions,* 900-509200-STD-009, Rev 1, 2022 December, 40812070

[4] *Establishing and implementing action levels for releases to the environment from nuclear facilities,* CAN/CSA N288.8-17, reaffirmed 2022

[5] *Glossary of Controlled Terms and Acronyms*, https://cnllnc.sharepoint.com/sites/TermsandDefinitions

[6] *Environmental Protection Program Description Document*, 900-509200-PDD-001, Rev 4.1, 2023 October, 40788125

[7] *Creation, Capture and Use of Information Assets,* 900-511300-STD-003, 50746207

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Appendix A Administrative Levels and Action Levels for Airborne Radioactive Emissions

A.1 National Research Universal (NRU) Reactor

Table A-1: National Research Universal (NRU) Reactor

National Research Universal (NRU) Reactor
Changes to this table are highlighted in pink and are the result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	NRU main reactor structure & building ventilation exhaust to reactor stack.	[redacted] Stack	Gross Alpha	Retrospective	1.15E+03	5.74E+03
			Gross Beta	Retrospective	2.57E+06	1.29E+07
			Tritium Oxide	Retrospective	6.43E+11	3.21E+12
	[redacted] NRU Rod Bays Fans [redacted] Only one of these fans operates at any one time.	[redacted] Fan [redacted]	Tritium Oxide	Retrospective	5.28E+11	2.64E+12
	Misc. D_2O/HTO and other active areas.	[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.27E+02	1.13E+03
			Gross Beta	Retrospective	2.03E+03	1.01E+04
			Tritium Oxide	Retrospective	9.25E+11	4.63E+12

A.2 [redacted] Nuclear Fuel Fabrication Facility (NFFF)

Table A-2: [redacted] Nuclear Fuel Fabrication Facility (NFFF)

[redacted] Nuclear Fuel Fabrication Facility (NFFF)
There were no changes to these Levels in this revision.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Has [redacted] Fan [redacted] as upstream source of original fume hoods (not a final effluen [redacted] vents other production areas. Exhausts via Roof vent.	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.30E+03	6.52E+03

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A.3 [redacted] Recycle Fuel Fabrication Laboratories (RFFL)

Table A-3: [redacted] Recycle Fuel Fabrication Laboratories (RFFL)

[redacted] Recycle Fuel Fabrication Laboratories (RFFL)
There were no changes to these Levels in this revision.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Fume hoods and glove boxes from [redacted]ty of rooms. Exhausts via roof vent [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.09E+02	1.05E+03
	Fume hoods and glove boxes from a[redacted]iety of rooms. Exhausts via roof vent [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.15E+02	5.75E+02

A.4 [redacted] Universal Cells (UC)

Table A-4: [redacted] Universal Cells (UC)

[redacted] Universal Cells (UC)
Changes to this table are highlighted in pink which are the result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Universal Cell #2. Exhausts via Roof vent Fan [redacted]	[redacted] Fan [redacted] Cell2	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.06E+04	5.32E+04
			Iodine-131 [1]	AdL - Retrospective AL - Prospective	1.26E+05	1.52E+08
	Cell 2 Fume hood. Exhausts via Roof vent [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
	Universal Cell #3. Exhausts via Roof vent Fan [redacted]	[redacted] Fan [redacted] Cell3	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	2.12E+03	1.06E+04
			Iodine-131 [1]	AdL - Retrospective AL - Prospective	3.85E+05	1.52E+08
	Cell 3 Upper Isolation room, Archive Storage Block. Exhausts via Roof vent Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.97E+02	1.49E+03
			Gross Beta	Retrospective	4.11E+03	2.06E+04
			Iodine-131	Retrospective	1.00E+05	5.00E+05
	Cell 3 Isolation room & Fume hood. Exhausts via Roof vent Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.77E+03	8.85E+03
			Iodine-131	Retrospective	1.00E+05	5.00E+05
	Tool Cupboard. Exhausts via Roof vent Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03

1. The Iodine-131 AdLs and ALs for [redacted] emissions were calculated as follows: Although AdLs were calculated using the general method outlined in this procedure, ALs reflect more appropriately the facility's operational envelope and are set based on emissions from 1998. The ability to perform Fuel and Material Cells (FMC) campaigns similar to that of 1998 is required to provide CANDU station surveillance and event investigation support such that Iodine-131 emissions during the year 1998 are deemed more representative of emissions that result from this type of work than recent years of operational history. In addition, many of the Iodine-131 ALs are set to the same value across many FMC and UC fans to provide flexibility to move work between the hot cells in the facility.

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A.5 Molybdenum-99 Production Facility (MPF)

Table A-5: Molybdenum-99 Production Facility (MPF)

Molybdenum-99 Production Facility (MPF)

Changes to this table are highlighted in pink and include:

1. Gross Alpha & I-131 Level changes which are the result of the routine 5-year review of emissions.
2. Addition of new Radon and Thoron Levels due to the Initial Sales Project (Ac-225 project) occurring in Universal Cell #1.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
Mo-99 Prod. Facility, [redacted]	[redacted] Universal Cell 1. Exhausts via [redacted] Stack.	[redacted] Stack [redacted]	Gross Alpha	Retrospective	1.84E+04	9.21E+04
			Gross Beta	Retrospective	9.71E+05	2.43E+06
			Iodine-131	Retrospective	5.21E+05	2.61E+06
			Radon (Rn-222)	Retrospective	5.07E+10	2.54E+11
			Thoron (Rn-220)	Retrospective	8.86E+10	4.43E+11

A.6 [redacted] Radioisotope Laboratories

Table A-6: Facilities Decommissioning - [redacted] Radioisotope Laboratories

Facilities Decommissioning – [redacted] Radioisotope Laboratories

Changes to this table include:

1. The removal of AdL and ALs for monitoring at: [redacted]-Fan [redacted] Fan [redacted] Fan [redacted]- Reasoning: building is undergoing decommissioning, exhaust fans at the facility are no longer in use and not expected to be used again in the future.
2. Level changes are highlighted in pink and are the result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted] (North)	[redacted] North radioisotope laboratories, not associated with the former Tritium Laboratory. Exhausts via roof Fan [redacted]	[redacted] NorthFans	Gross Alpha	Retrospective	2.24E+03	1.12E+04
			Gross Beta	Retrospective	2.83E+04	1.41E+05
			Tritium Oxide	Retrospective	1.40E+09	7.01E+09

REDACTED

A.7 Waste Treatment Centre (WTC) and Associated Facilities

Table A-7: Waste Treatment Centre (WTC) and Associated Facilities

Waste Treatment Centre (WTC) and Associated Facilities
Changes to this table are highlighted in pink and are the result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Tanks & Thin Film Evaporator (TFE). Exhausts to Fan[redacted]	[redacted] Fan[redacted]	Gross Alpha	Retrospective	1.55E+02	7.77E+02
			Gross Beta	Retrospective	2.13E+03	1.06E+04
			Tritium Oxide	Retrospective	3.42E+08	1.71E+09
			Iodine-131	Retrospective	1.00E+05	5.00E+05
	Receiving & Baler. Exhausts to Fan [redacted]	[redacted] Fan[redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Tritium Oxide	Retrospective	1.42E+08	7.09E+08
	Main liquid waste evaporator. Exhaust to Fan [redacted]	[redacted] Fan[redacted]	Gross Alpha	Retrospective	3.69E+02	1.85E+03
			Gross Beta	Retrospective	4.54E+03	2.27E+04
			Tritium Oxide	Retrospective	4.39E+08	2.20E+09
			Iodine-131	Retrospective	1.28E+05	6.38E+05
[redacted]	Holding Tanks.	[redacted] Fan[redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Tritium Oxide	Retrospective	1.16E+09	5.82E+09
			Iodine-125	Retrospective	1.01E+03	5.03E+03
			Iodine-131	Retrospective	1.00E+05	5.00E+05
	Holding Tanks.	[redacted] Fan[redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Tritium Oxide	Retrospective	2.88E+07	1.44E+08
			Iodine-125	Retrospective	1.38E+03	6.89E+03
			Iodine-131	Retrospective	1.00E+05	5.00E+05

REDACTED

A.8 [redacted] Fuel and Material Cells (FMC)

Table A-8: [redacted] Fuel and Material Cells (FMC)

[redacted] Fuel and Material Cells (FMC)

Changes to this table include level changes (highlighted in pink) which are:

1. The result of the routine 5-year review of emissions; and,
2. Addition of new Radon and Thoron Levels due to the Initial Sales Project (Ac-225 project).

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Cells 1 and 2. Exhausts via Fan [redacted]	[redacted] Fans [redacted]	Gross Alpha	Retrospective	1.06E+03	5.32E+03
			Gross Beta	Retrospective	5.39E+04	2.70E+05
			Iodine-131 [1]	AdL - Retrospective AL - Prospective	3.77E+06	1.52E+08
	MTC 1, 2, & Isolation area. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Radon (Rn-222)	Retrospective	1.42E+10	7.09E+10
			Thoron (Rn-220)	Prospective	1.25E+09	6.24E+09
	Cell 3. Exhausts via Fan [redacted]	[redacted] -Fan [redacted] Cell3	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	5.04E+03	2.52E+04
			Iodine-131 [1]	AdL - Retrospective AL - Prospective	6.29E+06	1.52E+08
	Cell 10 & 11. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.44E+02	7.18E+02
			Gross Beta	Retrospective	1.08E+04	5.42E+04
			Iodine-131 [1]	AdL - Retrospective AL - Prospective	1.00E+05	1.52E+08
	Fume [redacted] in [redacted] Cell MTC [redacted] Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.49E+03	7.46E+03
			Gross Beta	Retrospective	2.55E+04	1.28E+05

1. The Iodine-131 AdLs and ALs for [redacted] emissions were calculated as follows: Although AdLs were calculated using the general method outlined in this procedure, ALs reflect more appropriately the facility's operational envelope and are set based on emissions from 1998. The ability to perform FMC campaigns similar to that of 1998 is required to provide CANDU station surveillance and event investigation support such that Iodine-131 emissions during the year 1998 are deemed more representative of emissions that result from this type of work than recent years of operational history. In addition, many of the Iodine-131 ALs are set to the same value across many FMC and UC fans to provide flexibility to move work between the hot cells in the facility.

REDACTED

A.9 Waste Management Areas (WMA)

Table A-9: Waste Management Areas (WMA)

Waste Management Areas (WMA)
Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Waste Handling Building Compacter. Exhausts to Roof fan [redacted]	[redacted] AE COMP	Gross Alpha	Retrospective	1.46E+02	7.30E+02
			Gross Beta	Retrospective	1.94E+03	9.71E+03
			Tritium Oxide	Retrospective	1.94E+09	9.69E+09
			Iodine-125	Retrospective	8.23E+03	4.12E+04
			Iodine-131	Retrospective	4.97E+04	2.14E+05
	Waste Handling Building Working Area. Exhausts to Roof Fan [redacted]	[redacted] AE	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Tritium Oxide	Retrospective	5.95E+09	2.97E+10
			Iodine-125	Retrospective	4.86E+03	1.29E+04
			Iodine-131	Retrospective	3.47E+04	9.25E+04
[redacted]	Fuel Packaging and Storage Facility [redacted] Working Area. Exhausts to Roof Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	5.65E+02	2.82E+03
			Gross Beta	Retrospective	6.13E+03	3.07E+04
[redacted]	Shielded Modular Above Ground Storage [redacted] Exhausts to Wall Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.10E+03	5.52E+03
			Gross Beta	Retrospective	1.00E+04	5.00E+04
			Iodine-125	Retrospective	3.60E+04	1.80E+05
			Iodine-131	Retrospective	1.81E+05	2.75E+05
[redacted]	Shielded Modular Above Ground Storage [redacted] Exhausts to Wall Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	8.94E+02	4.47E+03
			Gross Beta	Retrospective	1.93E+04	4.83E+04
			Iodine-125	Retrospective	3.16E+04	1.58E+05
			Iodine-131	Retrospective	2.23E+05	3.89E+05
[redacted]	Shielded Modular Above Ground Storage [redacted] Exhausts to Wall Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.33E+03	6.65E+03
			Gross Beta	Retrospective	1.12E+04	4.91E+04
			Iodine-125	Retrospective	2.40E+04	1.20E+05
			Iodine-131	Retrospective	1.26E+05	3.79E+05
[redacted]	Sort and Segregation Facility. Exhausts to Wall Fan [redacted]	[redacted] FAN [redacted]	Gross Alpha	Retrospective	6.05E+02	3.03E+03
			Gross Beta	Retrospective	5.06E+03	2.53E+04
			HTO	Retrospective	3.82E+09	1.91E+10

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			Iodine-131	Retrospective	1.49E+05	7.44E+05
	Sort and Segregation Facility. Exhausts to Wall Fan [redacted]	[redacted] FAN [redacted]	Gross Alpha	Retrospective	6.05E+02	3.03E+03
			Gross Beta	Retrospective	4.51E+03	2.26E+04
			HTO	Retrospective	4.26E+09	2.13E+10
			Iodine-131	Retrospective	1.68E+05	8.42E+05

A.10 [redacted] Tritium Facility

Table A-10: [redacted] Tritium Facility

[redacted] Tritium Facility Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	Tritium Facility a[redacted]hausts via Fan [redacted]	[redacted] Fan [redacted]	Tritium Oxide	Retrospective	1.26E+12	6.31E+12
			Elemental Tritium	Retrospective	1.14E+12	5.71E+12

A.11 NRX Reactor & Fuel Storage Bays

Table A-11: Facilities Decommissioning – NRX Reactor & Fuel Storage Bays

Facilities Decommissioning - NRX Reactor & Fuel Storage Bays Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions. All levels are now retrospective (versus prospective) as the facilities are now in active decommissioning.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	Main Reactor Hall. Exhausts via the main roof vent [redacted]	[redacted] Fan [redacted] Main	Gross Alpha	Retrospective	4.37E+02	2.19E+03
			Gross Beta	Retrospective	3.16E+05	1.58E+06
			Tritium Oxide	Retrospective	8.15E+10	4.08E+11
[redacted]	[redacted] Isolation Bay area. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	5.41E+02	2.71E+03
			Gross Beta	Retrospective	2.01E+04	1.01E+05
	Bowser filter room. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03

REDACTED

A.12 [redacted] Decontamination Centre

Table A-12: [redacted] Decontamination Centre

[redacted] Decontamination Centre Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	Decontamination Centre [redacted] Rod Bays side of Building.	[redacted] Rod	Gross Alpha	Retrospective	1.39E+02	6.96E+02
			Gross Beta	Retrospective	1.71E+03	8.53E+03
	Decontamination Centre [redacted] Steam pit and loop.	[redacted] SteamPit	Gross Alpha	Retrospective	1.80E+02	8.99E+02
			Gross Beta	Retrospective	2.26E+03	1.13E+04
			Tritium Oxide	Retrospective	1.27E+10	6.35E+10
			Iodine-125	Retrospective	9.71E+03	4.86E+04
			Iodine-131	Retrospective	1.00E+05	5.00E+05

A.13 [redacted] Iodine Preparation Laboratory

Table A-13: [redacted] Iodine Preparation Laboratory

[redacted] Iodine Preparation Laboratory There were no changes to these Levels in this revision.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted] Iodine Prep Lab	Charcoal Filter testing prep Lab.	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Iodine-131	Retrospective	3.70E+04	1.48E+05

A.14 [redacted] Radiochemistry Applications Laboratory

Table A-14: [redacted] Radiochemistry Applications Laboratory

[redacted] Radiochemistry Applications Laboratory Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	Radiochemistry Applications Laboratory (Target Alpha Therapy), [redacted] Class B. Exhausts to [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.38E+02	1.19E+03
			Gross Beta	Retrospective	2.66E+03	1.33E+04
		[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.26E+02	1.13E+03
			Gross Beta	Retrospective	2.52E+03	1.26E+04

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A.15 [redacted] NRU/NRC Storage Equipment/ Surplus Materials Building

Table A-15: [redacted] NRU/NRC Storage Equipment/ Surplus Materials Building

[redacted] NRU/NRC Storage Equipment/ Surplus Materials Building
Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Enclosures for the storage of equipment and materials. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
			Tritium Oxide	Retrospective	3.41E+08	1.70E+09

A.16 [redacted] Reactor Chemistry and Corrosion Group (RCCG)

Table A-16: Reactor Chemistry & Corrosion Group (RCCG)

[redacted] – The Reactor Chemistry & Corrosion Group (RCCG)
There were no changes to these Levels in this revision.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Medium Activity Material Testing Facility (MAMTF). The Reactor Chemistry & Corrosion Group (RCCG) [redacted] as a Class B Lab (Medium Activity Material Testing Facility). Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Beta	Prospective	2.51E+06	8.35E+06

A.17 [redacted] Research Reactor Fuel Development Laboratories & Deformation Technology Radioactive Specimen Preparation Lab

Table A-17: Research Reactor Fuel Development Laboratories & Deformation Technology Radioactive Specimen Preparation Lab with Laser Ablation System

[redacted] Research Reactor Fuel Development Laboratories & Deformation Technology Radioactive Specimen Preparation Lab with Laser Ablation System
Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.

Building	Source Description	Sampling Station	Parameter	Approach	Administrative Level (Bq/wk)	Action Level (Bq/wk)
[redacted]	Laser Ablation System as well as all labs in the north wing on first floor [redacted] in the basement of the building. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	2.98E+02	1.49E+03
			Gross Beta	Retrospective	4.09E+03	2.05E+04

REDACTED

A.18 [redacted] FISST Storage Tank Transfer Area

Table A-18: FISST Storage Tank Transfer Area

[redacted] FISST Storage Tank Transfer Area Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	Target Residue Material (TRM) Retrieval and Transfer (R&T) system. Exhausts via Fan [redacted]	[redacted] Fan [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03

A.19 Decommissioning Ventilation Exhaust Skids

Table A-19: Decommissioning Ventilation Exhaust Skids

Decommissioning Ventilation Exhaust Skids Changes to this table are highlighted in pink. Changes to [redacted] are the result of the routine 5-year review of emissions. New levels were developed for additional ventilation skids which are now permanent monitoring stations in the EVMP and its schedule.						
Building	**Source Description**	**Sampling Station**	**Parameter**	**Approach**	**Administrative Level (Bq/wk)**	**Action Level (Bq/wk)**
[redacted]	[redacted] MDES [redacted] exhausts the basement of the building, and various temporary ventilated enclosures in different areas of the building when active decommissioning work is underway.	[redacted] MDES [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
	[redacted] MDES [redacted] exhausts the basement of the building, and various temporary ventilated enclosures in different areas of the building when active decommissioning work is underway	[redacted] MDES [redacted]	Gross Alpha	Retrospective	1.25E+02	6.23E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
[redacted]	[redacted] MDES [redacted] exhausts the former bays and various temporary ventilated enclosures in different areas of the building when active decommissioning work is underway.	[redacted] MDES [redacted]	Gross Alpha	Retrospective	2.98E+02	1.49E+03
			Gross Beta	Retrospective	2.18E+03	1.09E+04
[redacted]	[redacted] MDES [redacted] exhausts various temporary ventilated enclosures in different areas of the building when active decommissioning work is underway.	[redacted] MDES [redacted]	Gross Alpha	Retrospective	1.26E+02	6.29E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
	[redacted] MDES [redacted] exhausts various temporary ventilated enclosures in different areas of the building when active decommissioning work is underway.	[redacted] MDES [redacted]	Gross Alpha	Prospective	1.26E+02	6.29E+02
			Gross Beta	Prospective	1.50E+03	7.50E+03
[redacted]	[redacted] HEPA [redacted] together with [redacted] HEPA [redacted] exhausts the south end of the building's basement, exhausting various temporary ventilated enclosures in different areas of the basement when active decommissioning work is underway.	[redacted] HEPA [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03
	[redacted] HEPA [redacted] together with [redacted] HEPA [redacted] exhausts the south end of the building's basement, exhausting various temporary ventilated enclosures in different areas of the basement when active decommissioning work is underway.	[redacted] HEPA [redacted]	Gross Alpha	Retrospective	1.00E+02	5.00E+02
			Gross Beta	Retrospective	1.50E+03	7.50E+03

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Appendix B Administrative Levels and Action Levels for Liquid Radioactive Effluents

Table B-1: Administrative Levels and Action Levels for Liquid Radioactive Effluents

All Site Liquid Effluents
Changes to this table are highlighted in pink and are a result of the routine 5-year review of emissions.

Discharged To	Sampling Station	Station Code	Parameter	Approach	Administrative Level (Bq/month)	Action Level (Bq/month) [1]
Ottawa River	Process Sewer Outfall	PRO	Gross Alpha	Retrospective	3.01E+07	1.51E+08
			Gross Beta	Retrospective	2.40E+08	1.20E+09
			Tritium Oxide	Retrospective	7.49E+11	3.74E+12
	Sanitary Sewer Treatment Facility	STP	Gross Alpha	Retrospective	9.34E+05	4.67E+06
			Gross Beta	Retrospective	2.00E+07	9.99E+07
			Tritium Oxide	Retrospective	4.97E+09	2.48E+10
	Powerhouse Discharge	PPD	Gross Alpha	Retrospective	6.41E+04	3.20E+05
			Gross Beta	Retrospective	8.96E+05	4.48E+06
			Tritium Oxide	Retrospective	1.39E+10	6.93E+10
	Storm Outfall 03	030	Gross Alpha	Retrospective	8.92E+06	NA
			Gross Beta	Retrospective	5.83E+07	NA
			Tritium Oxide	Retrospective	9.24E+09	NA
	Storm Outfall 05	050	Gross Alpha	Retrospective	7.13E+05	NA
			Gross Beta	Retrospective	1.12E+07	NA
			Tritium Oxide	Retrospective	3.05E+09	NA
	Storm Outfall 08	080	Gross Alpha	Retrospective	5.47E+05	NA
			Gross Beta	Retrospective	3.96E+06	NA
			Tritium Oxide	Retrospective	3.79E+08	NA
	Storm Outfall 01	010	Gross Alpha	Retrospective	3.45E+07	NA
			Gross Beta	Retrospective	1.91E+08	NA
			Tritium Oxide	Retrospective	6.15E+10	NA
	Manhole/ Storm Outfall 4F6	4F6	Gross Alpha	Retrospective	3.01E+06	NA
			Gross Beta	Retrospective	6.38E+07	NA
			Tritium Oxide	Retrospective	9.04E+11	NA

[1] All stations highlighted in orange (storm outfalls) do not require Action Levels according to the CSA Standard N288.8 (Section 5.4.1(c)) which states that Action Levels are not required on effluent streams where a loss of control event is very unlikely [4].

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Discharged To	Sampling Station	Station Code	Parameter	Approach	Administrative Level (Bq/month)	Action Level (Bq/month) [1]
	Manhole/ Storm Outfall 4F7	4F7	Gross Alpha	Retrospective	1.91E+04	NA
			Gross Beta	Retrospective	4.19E+04	NA
			Tritium Oxide	Retrospective	4.79E+09	NA
Maskinonge Lake	Perch Creek Weir	PCW	Gross Alpha	Retrospective	1.60E+07	NA
			Gross Beta	Retrospective	3.70E+09	NA
			Tritium Oxide	Retrospective	1.88E+12	NA
	Duke Stream Weir	DSW	Gross Alpha	Retrospective	2.18E+06	NA
			Gross Beta	Retrospective	1.72E+07	NA
			Tritium Oxide	Retrospective	3.58E+10	NA
	Bulk Storage Stream	BSW	Gross Alpha	Retrospective	2.52E+06	NA
			Gross Beta	Retrospective	1.49E+07	NA
			Tritium Oxide	Retrospective	1.24E+10	NA
	Lower Bass Lake Inlet Weir	LBL	Gross Alpha	Retrospective	8.55E+05	NA
			Gross Beta	Retrospective	1.79E+08	NA
			Tritium Oxide	Retrospective	1.04E+10	NA

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Chalk River Laboratories Annual Compliance Monitoring Report for 2025

CRL-00583-ACMR-011607

Revision 0

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	Senior Director, Compliance	Date
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	Chief Nuclear Officer	Date

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0D2	2026/03/04	Issued for "Review and Comment".	H. Puvanendran	L. Campagna E. Edwards C. Gallagher M. Geroux Z. Melnyk M. Orfali N. Walters	
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Rev. No.	Date	Details of Rev.	Prepared By	Reviewed By	Approved By
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EXECUTIVE SUMMARY

This Annual Compliance Monitoring Report (ACMR) for the 2025 calendar year has been prepared as per licence condition Licence Condition 3.2 of the Chalk River Laboratories (CRL) Licence NRTEOL-01.01/2028 and Canadian Nuclear Safety Commission (CNSC) REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills* as a summary report of annual compliance monitoring and operational performance.

Canadian Nuclear Laboratories (CNL) acknowledges that its operations take place on ceded, unceded, and unsurrendered traditional territories of numerous First Nations. At CNL, we recognize the unique history, spiritual beliefs, cultural practices, and languages of Indigenous People in Canada, and we appreciate the responsibility they have as stewards of the environment. We remain firmly committed to being an active participant in Canada's journey towards healing and reconciliation.

This document provides CNL compliance monitoring and performance information for CRL and is organized by CNSC's 14 Safety and Control Areas (SCA). This report provides site-specific information to supplement information in the *ACMR for CNL for 2025* [1], which provides programmatic updates and performance of the 14 SCAs and CNL's Public Information and Disclosure Program as applicable to all CNL sites.

The following is a list of overall performance highlights at CRL for 2025:

- All licensed activities continue to be carried out safely and securely.
- No members of the public received a radiation dose that exceeded any regulatory limit.
- No worker received a radiation dose in excess of any of the respective radiation dose limits for Nuclear Energy Workers, as defined by the Radiation Protection Regulations.
- All releases of radioactive material were below their respective Derived Release Limits. Effluent monitoring data is provided in a separate report, *Effluent Verification Monitoring at CRL in 2025*.

Through routine meetings, community engagement, and monitoring involvement, CNL also worked to deepen relationships with Indigenous Nations with rights and interests on and around the CRL site. CNL also facilitated Indigenous-led monitoring at CRL with weekly on-site environmental fieldwork opportunities for the Algonquins of Pikwàkanagàn First Nation's (AOPFN) Neyagada Wàbandàngakì Guardians. Other key engagement activities included leadership meetings with Kebaowek First Nation and AOPFN.The following is a summary of key 2025 initiatives and improvements at CRL which are further described in the relevant SCA sections of this report.

Management System

- Six external audits, 12 internal audits, and 101 self-assessments were conducted at CRL in 2025 to ensure that the management system is functioning according to expectations

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and that any policy, programmatic, or procedural deficiencies are identified and appropriate actions taken to resolve them.

- In 2025, Chalk River Laboratories demonstrated a strong reporting culture, with 3648 Improvement Actions (ImpActs) raised to document and remediate problems, identify opportunities for improvement, and highlight trends.
- Chalk River Laboratories also had 54 IAEA inspections, nine CNSC inspections, and one management review. The CNSC inspections of the Tritium Laboratory, CRL's Operating Performance, and the ZED-2 Reactor Facility resulted in no Notices of Non-Compliance (NNC). These outcomes demonstrate strong regulatory performance and reflect the effectiveness of the facilities' operational and compliance programs.

Human Performance Management

- The overall performance and health of the Human Performance Program remained positive, with many programs and facility personnel across CRL continuing to reach out for human performance support, training, and services.
- CRL continued to maintain a sufficient number of qualified workers to carry on the licensed activities safely and in accordance with the *Nuclear Safety and Control Act* and the regulations made under the Act.

Operating Performance

- The Conduct of Operations Program continued executing activities to transition the Radioisotope Laboratories Protocols to Operating Envelope documents for CRL's radioisotope labs, with seven Operating Envelopes submitted to CNSC in 2025, one of which was later cancelled in 2025.The Construction Program continued to support construction of the Advanced Nuclear Materials Research Centre, achieving three milestones in 2025. **Safety Analysis**
- The Safety Analysis Program continued to issue technical documents in support of CRL activities and completed six periodic scoping reviews. Three time-limited amendments to criticality safety documents were submitted to CNSC staff, and four safety analysis reports were under revision in 2025.

Physical Design

- CNL's Design Authority and Design Engineering Program continued to maintain and control the design basis for all activities performed at CRL.The Authorized Inspection Agency Services Agreement between TSSA and CNL was renewed and is valid until 2028 March 20.

Fitness for Service

- CRL continued to execute activities under the Aging Management Implementation Plan in 2025 with a total of 66 active System Performance Monitoring Plans at the end of the year, including 5 for site infrastructure systems.

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- A total of 4,192 mandatory and regulatory preventative maintenance activities were completed.

Radiation Protection

- The CRL RP progressed several site-specific initiatives in 2025 aimed at reducing dose by minimizing time spent in radiological areas, increasing distance through use of remote tools, and improving shielding and work controls. In 2025, there were no instances of a dose control point exceedance, action level exceedance, or regulatory dose exceedance at CRL.

Conventional Health and Safety

- 229 site health and safety inspections were completed at CRL to proactively identify and assess potential hazards across the site.

Environmental Protection

- An update to the Environmental Risk Assessment for the CRL site was issued in 2025. An external International Organization for Standardization (ISO 14001) audit of the CRL Environmental Management System took place in 2025 May. The audit demonstrated that CRL has an effective, adequate and mature environmental protection program.

Emergency Management and Fire Protection

- All drill and exercise requirements outlined in the CRL & Satellite Five Year Drill and Exercise Plan were completed. During the 2025 Integrated Response Exercises, no major gaps were identified. There were no unplanned emergency events in 2025 that resulted in activation of the CRL Emergency Operations Centre.
- The Fire Protection Program continued executing activities under the Fire Hazard Assessment Completion Plan, with 20 Fire Hazard Analyses submitted to CNSC staff.

Waste Management and Decommissioning

- The Waste Management Program Launched the Waste Insight Dashboard, a data-driven tool that consolidates waste management metrics across CRL and provides real-time insights to support informed decision making and continuous improvement.
- Seven Detailed Decommissioning Plans were accepted by CNSC staff in 2025, and one additional Detailed Decommissioning Plan was submitted to CNSC for acceptance.

Security

- Nuclear Security Officers continued to meet the physical and psychological fitness requirements for Security Officers as required by the CRL licence.
- Improvements to electronic access control measures were made in several facilities, ensuring best access management practices while maintaining safe entry and egress processes for emergency preparedness.

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- Relocated the dedicated nuclear material safeguard computing area, improving security and providing better access to high sensitivity devices while ensuring they receive appropriate physical- and technical safeguards aligned with their information protection requirements.

Safeguards and Non-Proliferation

- The International Atomic Energy Agency conducted a total of 54 inspections at CRL in 2025, including, but not limited to, safeguards seals changes, human surveillance, implementation and/or maintenance of safeguards monitoring equipment, and technical visits.

Packaging and Transport

- CRL commissioned the testing of a new combination Type A packaging for small quantities of liquids and solids by road transport. This will eventually replace the currently approved combination Type A packaging once approved.
- All Transportation of Dangerous Goods (TDG) shipments in 2025 were compliant to program requirements.

Other Matters of Regulatory Interest

- CRL continued to enhance engagement in 2025 through the CNL Public Information and Disclosure Program. CRL participated in dozens of public events, including local, industry, and trade-specific events, hosted over 20 on-site tours and in-class presentations through the CNL Education Outreach Program, and delivered 10 webinars to the local community and interested parties on activities related to the CRL campus and key projects. In 2025, the CRL Environmental Stewardship Council (ESC) held three in-person meetings, and the Community Advisory Panel (CAP) held four meetings.
- CNL and AOPFN deepened their relationship through consistent engagement, including weekly virtual and in-person meetings and increasing collaboration on Section 82 projects under the Impact Assessment Act. A key milestone was the completion of the first Long-Term Relationship Agreement Implementation Review since the agreement was signed in 2023, reinforcing accountability, transparency, and shared priorities.
- The Neyagada Wàbandàngakì Guardian Program saw expanded participation at Chalk River Laboratories, with Guardians engaging in over 70 field monitoring activities in 2025. Guardians were regularly involved in biodiversity and environmental monitoring, participated in site walkdowns and laboratory tours, and received training in Geographical Information System, mapping, and field orienteering, reflecting a growing, on-the-ground Indigenous presence in environmental stewardship.

Facilities (operating nuclear facilities, facilities in extended shutdown, facilities undergoing decommissioning, and non-nuclear facilities):

- All licensed activities at Chalk River Laboratories facilities in 2025 were carried out safely and securely, with radiation doses to workers and releases to the environment

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remaining within regulatory limits. Operating nuclear facilities supported Science and Technology, isotope production, waste management, and commercial activities, while maintaining compliance with applicable licence requirements and minimum staffing levels.

- Construction and pre-construction activities also advanced in 2025; notably, continued construction of the Advanced Nuclear Materials Research Centre and ongoing design and regulatory work for major future projects. Across all facilities, preventive maintenance, inspections, and testing of safety-related systems were completed as required, with no significant safety system failures reported.

In the 2025 calendar year, CRL continued to carry out our program of work with an unwavering commitment to safe operations. During this period, CRL successfully protected the health and safety of persons, the environment, national security and international obligations, while implementing improvements to strengthen our performance into the future. This enabled CRL to perform its three missions on behalf of Canadians - restoring and protecting the environment, developing clean energy technologies for today and tomorrow, and improving the health of Canadians.

ACKNOWLEDGEMENT

The “Author” of this document would like to thank the many authors and reviewers from Functional Support Areas (FSAs) and Facilities for their production of the individual sections of the report.

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Introduction

Name: Chalk River Laboratories

Location: 286 Plant Road
Chalk River, Ontario
K0J 1J0

Licence Information and Reporting Period

This Annual Compliance Monitoring Report is produced to comply with Licence Condition 3.2, Reporting Requirements [2], in accordance with the compliance verification criteria Compliance Monitoring: Annual Report of the *Licence Conditions Handbook (LCH) for CRL,* herein referred to as *LCH for CRL* [3], and section 3, Annual Compliance Monitoring Report, of CNSC REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills* [4]. Information included in this report is for the period of 2025 January 01 to December 31.

This report provides site-specific information to supplement information in the *ACMR for CNL for 2025* [1] (herein referred to as *ACMR for CNL for 2025)*, which provides corporate updates on the 14 Safety and Control Areas as they are applied across all of CNL. Effluent and emissions monitoring information required under Section 3.2 of the *LCH for CRL* [3] is provided in a separate report, *Annual Compliance Monitoring Report Effluent/Emissions Verification Monitoring at Chalk River Laboratories* for 2025 [5].

The intent of this report is to provide sufficient detail to demonstrate how CRL programs are meeting the regulatory requirements as specified in the licence [2] and the *LCH for* CRL [3].

Changes to Organizational Structure

As discussed in the *Annual Compliance Monitoring Report for Canadian Nuclear Laboratories* [1], CNL operates with a Government-Owned, Contractor-Operated model where CNL is responsible for the operation of the facilities while the contractor provides management of CNL. On 2025 December 11, a new contractor, Nuclear Laboratory Partners of Canada (NLPC), formally assumed management of CNL.

Mr. John Osborne was appointed to the position of CRL Site Licence Holder, effective 2025 December 11 [6].

Facilities Included in this Report

Appendices A through J of the report provide an operational overview of each of the operating Class I nuclear facilities. Appendices K through N provide an operational overview of the

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operating Class II nuclear facilities and Class II prescribed equipment. Appendices O, P and Q provide information on licenced facilities currently in pre-construction or construction, namely the Near Surface Disposal Facility (NSDF), Advanced Nuclear Materials Research Centre (ANMRC), and Modernized Combined Electrolysis and Catalytic Exchange Facility (MCECE) facility. The final four appendices detail operations at other licensed facilities, namely: Appendix R, Radioisotope Laboratories and Other Facilities that Handle Nuclear Material; Appendix S, Nuclear Facilities in Extended Shutdown State; Appendix T, Nuclear Facilities in Storage-with-Surveillance State; and Appendix U, Nuclear Facilities Undergoing Decommissioning Activities.

Summary of Licensed Activities

All licensed activities continue to be carried out safely and securely, and in compliance with the requirements of the license [2].

Summary of New Licensing Activities

There were no new licensed activities undertaken in 2025 at CRL.

Site Development, Investment and/or Decommissioning Strategies

The CNL Capital Mission is responsible for revitalizing the CRL campus through the construction of new facilities, the acquisition of modern equipment, and the upgrade of existing infrastructure. In 2025, the mission continued to advance the ANMRC project (see Appendix P) and progressed multiple upgrades across site-wide utility systems, facility infrastructure, and asset recapitalization initiatives.

CNL also advanced the replacement of the original CRL switchyard with a new installation located south of the Supervised Area. Notable achievements included awarding the full design contract and completing the 60% design milestone, authorizing procurement of long-lead equipment, submitting a feasibility study to Hydro One Networks, and completing geotechnical investigations. As a risk-mitigation measure, a skid-mounted transformer system remains available should an unexpected switchyard failure occur.

Using innovative relining technology, CNL extended the service life of 3,350 feet, approximately 50% of the CRL fire-water system's main distribution lines by an estimated 50 years. This work covers roughly 80% of the mains within the site's Controlled Area. CNL also initiated an options analysis for the strategic revitalization of CRL's utility generation and distribution systems, which will inform the launch of Class IV power and water distribution revitalization projects in 2026. Additionally, the replacement of the Building [redacted] substation improved power reliability and increased capacity to several key facilities in the Supervised Area. Upgrades to the Building 323 exhaust fan and the HEPA filter duct bank also supported the relocation of the heavy-water laboratory from the National Research Universal (NRU) facility to Building [redacted]

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CNL continued to modernize Information Technology systems, including upgrades to the Facility Asset Management Information System and the ATOM document-management system. Key vehicle replacements during the year included a pumper truck, a light armoured vehicle, and a compact wheeled loader. Procurements were also completed for StressVest and SAAB long-range laser engagement systems, as well as specialized wildland firefighting equipment. In addition, a new scanning electron microscope and several other science and technology laboratory instruments were acquired to support ongoing research activities.

Financial Guarantees

CNSC was previously provided a letter from the Honorable G. Rickford [7], advising that as an agent of His Majesty in Right of Canada, Atomic Energy of Canada Limited's (AECL's) liabilities associated with the decommissioning of nuclear facilities at CRL are ultimately liabilities of His Majesty in Right of Canada (note: AECL retains ownership of the lands, assets and liabilities associated with CNL's licences). This financial guarantee remains valid and in effect. This was reaffirmed in 2025 in the correspondence between CNL and CNSC [8][9].

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1 Management System

1.1 Management System Program

CRL adheres to CNL's Management System FSA. Refer to Section 1 of the *ACMR for CNL for 2025* for details [1].

Management system document revisions in 2025 specific to CRL were provided to CNSC staff in the submissions identified in the table below. For a list of management system document submissions applicable to multiple sites, refer to Section 1 of the *ACMR for CNL for 2025* [1].

Table 1: CRL Management System Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
Conduct of Operations, 900-508200-PRD-001	To update requirements. To address CNSC Comments.	CRL-CNNO-25-0003-L CRL-CNNO-25-0027-L
Conduct of Operations, 900-508200-PDD-001	Mandatory review cycle	CRL-CNNO-25-0003-L
Configuration Management, 900-508130-PRD-001	To update requirements	CRL-CNNO-25-0026-L
Configuration Management, 900-508130-PDD-001	To update document	CRL-CNNO-25-0026-L

PRD – Program Requirements Document; PDD – Program Description Document.

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1.2 Audits, Inspections and Self-Assessments

As per the requirements of the *Canadian Nuclear Laboratories Management System* [10], both SCAs and Facilities conduct various audits, inspections, and self-assessments to ensure that the management system is functioning according to expectations and that any policy, programmatic, or procedural deficiencies are identified and appropriate actions taken to resolve them. CNL utilizes its Integrated Assessment Plan [11] to provide a collection of the internal and external assessment activities that are planned to be carried out for a specific year. The plan incorporates a three-year rolling plan for assessment activities and helps to ensure all SCAs are assessed during the cycle and allows CNL to plan targeted assessments based on data sources.

1.2.1 Audits

Refer to Section 1.2 of the *ACMR for CNL for 2025* [1] for a list of all CNL-wide audits for the reporting year 2025.

All actions resulting from audits, inspections, reviews, and self-assessments are managed and tracked through CNL's Problem Identification and Resolution Program.

1.2.1.1 External Audits

The external audits conducted at CRL in 2025 are summarized in REF _Ref20908636 \h Table 2

Table 2: External Audits

Title	Type of Audit	No. of Non-Conformances Raised	No. of Actions Raised[a]	No. of Actions Completed
CRL Drinking Water Program Audited by: Intertek Desktop 2025 Jan 9	Drinking water requirements (Federal & Provincial)	1	1	1
TSSA Audit 2025 March 10-14	Re-Accreditation – Pressure Boundary	1	1	1
ISO 9001:2015 Surveillance Audit 2025 Mar 11-13	ISO 9001:2015 Quality Management System Recertification Audit	2	2	2
Actinium-225 (Ac-225) Audit 2025 May 22-23	AC-225 Audit based on ISO 9001:2015 (Manufacture, testing, release of shipment of Ac-225 Crude)	3	3	2
ISO 14001:2015 Surveillance (S1) Audit Audit by: Intertek 2025 May 27-29	ISO 14001: 2015 Environmental Management System Recertification Audit	1	16	16
CANPAC Audit (Science and Technology (S&T)) 2025 November 17-21	3rd Party Audit, auditing to Canadian Standards Association (CSA) N299.1-16, CSA N286-12 & CSA N287.7-16	4	7	7

[a] The actions raised may also include opportunities for improvement.

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1.2.1.2 Internal Quality Audits

The internal audits completed by the Quality Audits and Processes branch 2025 are summarized in Table 3.

Table 3: Internal Quality Audits

Title	Audit Scope	No. of Non-Conformances Raised	No. of Actions Raised[a]	No. of Actions Completed
Nuclear Pressure Boundary	Nuclear pressure boundary program elements requiring compliance with CSA N285.0-17, including TSSA nuclear pressure boundary demonstration item activities performed under Request for Engineering Assistance number 234881.	4	15	14
S&T Analytical Chemistry Branch Laboratories	Verify the ACB Quality Plan and associated processes align with CNL's management system and Certificate of Accreditation, and verifying conformity through field observations, interviews, and a review of documented information for the test methods.	0	0	0
ZED-2 Reactor	Assess implementation of Conduct of Operations requirements during facility activities.	4	2	2
Electrical Safety Program	Assess the execution of work packages for adherence to requirements pertaining to Electrical Safety and Hazardous Energy Control.	1	1	1
FSA - Waste Management	Assess processes and activities related to the WM program at CRL, including observations and reviews of sampled facilities and functional groups, and flow of wastes through the stages of the Waste Management lifecycle.	4	11	3
Honeywell Detectors – Calibration & Associated Failures	Assess the effectiveness of CNL processes in addressing occurrence of repeat nonconformances of "as-found" out-of-tolerance gas detectors.	3	2[b]	0

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Title	Audit Scope	No. of Non-Conformances Raised	No. of Actions Raised[a]	No. of Actions Completed
Dosimetry Program	Assess Dosimetry Program documentation for regulatory and internal alignment, evaluating implementation through field observations, interviews, document review, and sampling compliance records, and verifications related to personnel qualification, self-assessments, corrective actions, and responses to previous evaluations.	2	0[c]	0
Nuclear Materials and Safeguard Management	Assess Material Balance Area operational implementation, controls, and safeguard of equipment as per NMSM program requirements for CRL and PH sites.	1	0[d]	0
FSA – Environmental Protection Program	Evaluate controls and maintenance activities associated with the implementation of the EnvP Program at CRL, WL, and PG.	4	0[c]	0
Repair or Service of Pressure Relief Valves	Assess Original valve manufacturers' parts or original valve manufacturers' approved replacement/equivalent parts to be used for repair and service work activities conducted at CRL shop setting.	3	12	9
Supply Chain Logistics	Assess the logistics aspects of the Supply Chain program, warehouse operations, materials management at CRL.	4	0[c]	0
ASD Software – S&T	Assess adherence to the ASD Software program with respect to the development, maintenance, acquisition, qualification and use of in-house developed and third-	4	0[c]	0

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Title	Audit Scope	No. of Non-Conformances Raised	No. of Actions Raised[a]	No. of Actions Completed
	party acquired software within the Material Science Branch.			

[a] The actions raised may also include opportunities for improvement.

[b] Corrective action plan has not been fully completed and is in progress.

[c] Audit report issued near year end; no actions raised to date.

[d] Actions have not been raised as it has not been reviewed by the Corrective Action Review Board yet. Number of actions will be determined upon review by the board.

1.2.2 Inspections

Canadian Nuclear Safety Commission Inspections

The following CNSC inspections were conducted at CRL.

Table 4: Canadian Nuclear Safety Commission Inspections Conducted at Chalk River Laboratories in 2025

Inspection No.	Area Inspected	No. of NNCs	No. of NNCs Closed [a]
CNL-CRL-2025-01	Tritium Laboratory	0	N/A
CNL-CRL-2025-02	Chalk River Laboratories' Operating Performance	0	N/A
CNL-CRL-2025-03	Chalk River Laboratories' Safety Analysis Program	3	2
CNL-CRL-2025-04	ZED-2 Reactor Facility	0	N/A
CNL-CRL-2025-05	Chalk River Laboratories' Security	N/A[b]	N/A
CNL-CRL-2025-06	Facility Specific Waste Management Areas B, D, and H	1	0
CNL-CRL-2025-07	General Inspection of Shutdown Facilities	N/A[b]	N/A
CNL-CRL-2025-08	Chalk River Laboratories Baseline General Inspection	N/A[b]	N/A
CNL-CRL-2025-09	Facility Specific General Inspection (Decommissioning)	N/A[b]	N/A

NNC – Notice of Non-Compliance

[a] Closed as of 2025 Dec 31

[b] Reports not received as of 2025 December 31

International Atomic Energy Agency Inspections

The following International Atomic Energy Agency (IAEA) inspections were conducted at CRL.

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Table 5: International Atomic Energy Agency Inspections Conducted at Chalk River Laboratories in 2025

Site	Inspection						Total
	PIV	DIV	RII	IIV	UI	CA	
CRL	17	22	0	12	2	1	**54**

PIV Physical Inventory Verification
DIV Design Information Verification
RII Random Interim Inspection
IIV Interim Inventory Verification
UI Unannounced Inspection
CA Complimentary Access

To date, 53 of the above 54 inspections have been assigned a satisfactory rating by the IAEA. CNL received an unsatisfactory rating for material balance area CNDD (i.e., CRL Waste Management Area [redacted]). CNL has addressed this issue with the CNSC, and a recovery plan is in place.

Inspections by Other Regulatory Bodies

There were no inspections conducted at CRL by other regulatory bodies in 2025.

1.2.3 Self-Assessments

In 2025, there were 101 self-assessments conducted at CRL covering various aspects of the management system, including both SCAs and various facilities.

Table 6: List of Self-Assessments Conducted at CRL in 2025

Title	SCA	Facility (if applicable)
Effectiveness of Project Documentation Activities (National Security & Critical Infrastructure Directorate)	Management System	Radioisotope Laboratories
Foreign Material Exclusion	Management System	ZED-2
Facility-Specific Key Documents	Management System	Class II
Facility-Specific Key Documents	Management System	ZED-2
Facility-Specific Key Documents	Management System	N/A
Implementation of Information Management practices (Materials and Fuels Performance Testing Branch)	Management System	Radioisotope Laboratories
Facility-Specific Key Documents	Management System	Van de Graaff
Records Management	Management System	N/A

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Title	SCA	Facility (if applicable)
Records Management of Outputs for Universal Cells from the Conduct of Operations FSA and Compliance to LCH for Operating Performance SCA.	Operating Performance	Universal Cells
Implementation of the Conduct of Operations program in the Class 1 and 2 facilities at CRL	Operating Performance	CRL Facilities
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Radioisotope Laboratories
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Fuels and Materials Cells
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Universal Cells
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Radioisotope Laboratories
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Radioisotope Laboratories
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Radioisotope Laboratories
Foreign Material Exclusion	Management System	N/A
Foreign Material Exclusion	Management System	ZED-2
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Fuels and Materials Cells
Job Safety Analysis (JSA) / Job Hazard Analysis (JHA) for laboratories under the directorate are to be assessed annually for potential revisions.	Management System Conventional Health and Safety	Radioisotope Laboratories
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories

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Title	SCA	Facility (if applicable)
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations under CSD-35	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations under CSD-34	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations under CSD-31	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations under CSD-3	Safety Analysis	Recycle Fuel Fabrication Laboratories (RFFL)
Nuclear Criticality Safety for operations under CSD-37	Safety Analysis	ZED-2
Nuclear Criticality Safety for operations under CSD-8	Safety Analysis	N/A
Nuclear Criticality Safety for operations under CSD-49	Safety Analysis	Fuels and Materials Cells
Nuclear Criticality Safety for operations under CSD-28	Safety Analysis	Universal Cells
Nuclear Criticality Safety for operations under CSD-1	Safety Analysis	Fissile Solution Storage Tank (FISST)/ MPF
Nuclear Criticality Safety for operations under CSD-21	Safety Analysis	N/A
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Tritium Facility
Nuclear Criticality Safety for the following area: Radiobiology and Health (non-Nuclear Criticality Controlled Area)	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations under CSD-39	Safety Analysis	Radioisotope Laboratories
Nuclear Criticality Safety for operations of the Waste Management Areas	Safety Analysis	WMAs

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Title	SCA	Facility (if applicable)
Adherence to the Pressure Boundary Program in the Hydrogen Technologies Branch	Physical Design	Radioisotope Laboratories
Preventative Maintenance	Fitness for Service	Class II
Radiation Protection Supervisor Field Oversight	Radiation Protection	N/A
Radiation Protection	Radiation Protection	Tritium Facility
Radiation Protection	Radiation Protection	Van de Graaff
Radiation Protection	Radiation Protection	Class II
Radiation Protection	Radiation Protection	Combined Electrolysis and Catalytic Exchange Upgrading and Detritiation (CECEUD)
Radiation Protection	Radiation Protection	RFFL
Radiation Protection	Radiation Protection	Universal Cells
Radiation Protection	Radiation Protection	ZED-2
Radiation Protection	Radiation Protection	Fuels and Material Cells
Evaluate the field implementation of a Radiation Protection Program Management Control Procedure or Standard, Q2	Radiation Protection	[redacted]
Evaluate the field implementation of a Radiation Protection Program Management Control Procedure or Standard, Q3	Radiation Protection	[redacted]
Electrical Safety Program	Conventional Health and Safety	N/A
Environmental Protection	Environmental Protection	Fuels and Materials Cells
Environmental Protection	Environmental Protection	Universal Cells
Environmental Protection	Environmental Protection	Molybdenum-99 Facility
Environmental Protection	Environmental Protection	Tritium Facility
Environmental Protection	Environmental Protection	Van de Graaff
Environmental Protection	Environmental Protection	CECEUD
Environmental Protection	Environmental Protection	Class II
Environmental Protection	Environmental Protection	RFFL
Environmental Protection	Environmental Protection	N/A
Environmental Protection	Environmental Protection	ZED-2

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Title	SCA	Facility (if applicable)
Assessment of the Environmental Monitoring Program	Environmental Protection	N/A
Assessment of the Effluent Verification Monitoring Program	Environmental Protection	N/A
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Emergency Preparedness	Emergency Management and Fire Protection	ZED-2
Emergency Preparedness	Emergency Management and Fire Protection	RFFL
Emergency Preparedness	Emergency Management and Fire Protection	Tritium Facility
Emergency Preparedness	Emergency Management and Fire Protection	N/A
Emergency Preparedness	Emergency Management and Fire Protection	Fuels and Materials Cells
Emergency Preparedness	Emergency Management and Fire Protection	Universal Cells
Emergency Preparedness	Emergency Management and Fire Protection	Molybdenum-99 Facility
Emergency Preparedness	Emergency Management and Fire Protection	Class II
Emergency Preparedness	Emergency Management and Fire Protection	N/A
Emergency Preparedness	Emergency Management and Fire Protection	Molybdenum-99 Facility
Emergency Preparedness	Emergency Management and Fire Protection	Radioisotope Laboratories
Quarterly Fire Protection Program Oversight Assessment - Q1	Emergency Management and Fire Protection	N/A
Quarterly Fire Protection Program Oversight Assessment - Q2	Emergency Management and Fire Protection	N/A

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Title	SCA	Facility (if applicable)
Quarterly Fire Protection Program Oversight Assessment - Q3	Emergency Management and Fire Protection	N/A
Emergency Preparedness	Emergency Management and Fire Protection	N/A
Waste Management	Waste Management	Fuels and Materials Cells
Waste Management	Waste Management	Fuels and Materials Cells
Waste Management	Waste Management	Universal Cells
Waste Management	Waste Management	Molybdenum-99 Facility
Waste Management	Waste Management	N/A
Roadmap to Remediation	Waste Management	N/A
Security	Security	N/A
Compliance to REGDOC 2.12.1	Security	N/A
Nuclear Material & Safeguards Management	Safeguards and Non-Proliferation	Fuels and Materials Cells
Nuclear Material & Safeguards Management	Safeguards and Non-Proliferation	Universal Cells
Nuclear Material & Safeguards Management	Safeguards and Non-Proliferation	Fuels and Materials Cells
Nuclear Material & Safeguards Management	Safeguards and Non-Proliferation	Universal Cells
Infrastructure and Work Environment (Radiobiology and Health)	N/A	Radioisotope Laboratories
Planning, scheduling, and delivering work of commercial contracts (Materials & Fuels Performance Testing (MFPT) Branch)	N/A	Radioisotope Laboratories
2024 Annual verification of Hazardous Information Risk Assessment Guidelines for Canadian Drinking Water Quality and Ontario Regulation 169/03	N/A	N/A
2025 Annual verification of Hazardous Information Risk Assessment Guidelines for Canadian Drinking Water Quality and Ontario Regulation 169/03	N/A	N/A

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1.3 Problem Identification and Resolution

1.3.1 Trending of Events Related to Operational Activities

As events at CRL occur, they are recorded in the ImpAct[1] system. This information is regularly reviewed to identify any trends.

Formal event-based trend reports continue to be prepared monthly to predict any adverse trends and identify improvements. Table 7 contains a list of the identified trend ImpAct records along with the title and number of actions raised to address identified causal factors.

Table 7: Trend ImpActs Raised at CRL in 2025

ImpAct #	Title	No. of Actions Raised
BUS MGMT-25-4508	Trend identified in contractor PPE&C compliance within Capital Projects	0[a]
BUS MGMT-25-2597	Trend - supplier Loucon Metal Limited	1
HSSE&Q-25-0876	Trend - Errors/Inaccuracies related to Fire Pre-Incident Plans (PIP) Across All Sites	7
CTA-25-0645	Trend – Repeat deviation from requirements	2
BUS MGMT-25-4372	Trend - Distributor BDI 14 Nonconformities over 1 week period	1
ERM-25-4710	Seatbelts not being worn	1
HSSE-25-2742	Trend ImpAct raised for contamination events in Universal Cells (UC), [redacted]	1
HSSE-25-2771	Respirator sent to a facility for use with a plug in the filter	1
ERM-25-2115	Honeywell Gas detectors have previously been found out of calibration	1
S&T-25-0355	Quality Review of Ac-225 batches ACF-RA-0002, ACF-RA-0003, ACF-RA-0004, and ACF-RA-0005.	2
S&T-25-0140	Trend - Eight NCRs on Balance [redacted] for over Nine-Year Period	1
ERM-25-0016	Trend ImpAct - [redacted] occupants report strong chemical smell following scheduled maintenance	1

a While no formal action was raised, the information was reviewed and discussed with contractor management and Supply Chain representatives.

The following table summarizes ImpActs raised over the past five years by Significance Level[2].

[1] ImpAct – Abbreviation for Improvement and Action. It is an internal process used to identify events, problems, non-conformities, opportunities for improvements, and personnel injuries. The process also identifies and tracks actions to correct or remediate problems.

[2] Significance Level: Levels assigned to an event (SL1 being most significant, SL4 being least significant) based on the actual or potential result in safety, environmental, or business consequences.

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Table 8: Number of ImpActs Raised at CRL in 2025

Year	Level 0[a]	Level 1	Level 2	Level 3	Level 4	Total
2021	23	0	16	621	2329	2989
2022	55	0	10	448	2288	2801
2023	60	1	21	587	2442	3111
2024	78	0	34	435	2611	3158
2025	144	0	7	479	3018	3648

[a] Level 0 will be assigned if the ImpAct is deemed to be a "non- problem" and a recommendation to close the Impact will be given.

1.4 Management Reviews

A CRL Quality Assurance Program/Management System Review was completed for the Quality Plan CRL's Drinking Water Program in 2025 to evaluate the effectiveness of the management system. The review identified one action (non-conformance) which is completed.

A CNL Management System Review was completed for period 2024 January – 2025 March to evaluate the effectiveness of the management system. The review included CRL and concluded that the CNL management system is suitable to meet the necessary requirements, adequate, aligned with the strategic direction, and effective at supporting CNL to achieve corporate objectives. Four recommendations were actioned as part of the share transfer due diligence activities held in 2025 July – August for the new contractor, NLPC, assuming management of CNL.

1.5 Safety Culture

In 2025, CRL was included in the company-wide CNL internally led focused assessment on safety culture. Refer to Section 1.4 of the *ACMR for CNL for 2025* for details [1].

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2 Human Performance Management

2.1 Human Performance Program

CRL adheres to CNL's Performance Assurance, and Human Resources FSAs. Refer to Section 2 of the *ACMR for CNL for 2025* for details [1].

CNL's corporate Human Performance articles are reviewed as part of the safety brief in meetings across the CRL site, including Management Review Meetings, team meetings, and plan of the day meetings. Injury/illness reports are provided to managers weekly via email, and Operating Experience (OPEX) bulletins and inclement weather warnings, which could impact work activities at the CRL site, are communicated to managers or all staff.

Pre-job briefs are held prior to the commencement of work activities at CRL. The pre-job brief may be verbal or written depending on the scope of work, duration, complexity, other work activities, and any other factor that may affect the performance of the work. Reminders of human performance aids such as Event Free Tools and error precursors are suggested. As part of pre-job briefs, CRL staff have been engaged to foster a healthy questioning attitude by promoting and submitting work stoppages, utilizing the STOP/PAUSE condition capture cards in DevonWay to record unwanted and expected conditions in the field. Additionally, CRL staff are encouraged to stop when unsafe or unexpected conditions present themselves. Conditions for stopping work, emergency response responsibilities, and the location of the emergency assembly areas, are also reviewed. In accordance with the integrated work control (IWC) process, workers acknowledge that they have received and understood the information provided by the pre-job briefing.

Post-job reviews are performed as job tasks are completed. A review of work activities is performed by looking at how the work progressed in relation to what was expected, or if any conditions changed, such as tools and/or equipment. Post-job reviews may be verbal or written in accordance with the IWC process. The lessons learned during post-job reviews are recorded in CNL's DevonWay application.

The overall performance and health of the Human Performance Program remain positive and is consistent with previous years. Many programs and facility groups across CRL continued to reach out for Human Performance support, training, and services. CRL continues to operate the 'good catch program', a valuable morale-boosting initiative that acknowledges individuals who demonstrate "good catch" behaviour, going above and beyond in their job, giving up their own time to help a co-worker, coming with a positive attitude, streamlining and improving processes and procedures, demonstrating leadership qualities, eliminating waste and redundancies, improving personal and site safety, and for any other reason that deserves recognition.

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The effectiveness of the Human Performance Program at CRL has been enhanced through the following improvements:

- Building on pilot work initiated in 2024, the Human Performance department collaborated with training coordinators to revamp and deliver updated Pre-Job Brief Training for leaders and staff. The updated training places greater emphasis on the purpose and rational behind effective Pre-Job Briefs, reinforcing that Pre-Job Briefs are foundational activities that establish expectations, promote professional conduct, and support healthy safety cultures. The training promotes open engagement, worker autonomy, and overall safety and wellbeing of CNL employees.

There are no CRL-specific licensing basis documents under the Human Performance Program.

2.1.1 Hours of Work Exceedances

As per REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* [12] sections 4.2 and 4.3, CNL has recorded all exceedances of hours of work for Security's safety-sensitive positions. Refer to Table 9 for a list of exceedances at CRL.

In Q1, eight exceedances of the 16-hour limit in a 24-hour period were recorded. These were primarily attributable to an unplanned Highway 17 closure following a major traffic accident, which prevented relief officers from reporting on time.

For the remainder of 2025, most exceedances occurred when officers were required to remain on duty to maintain minimum complement until replacement staff could be secured, or when officers worked scheduled overtime outside their regular shifts to maintain compliance with site licence requirements. These occurrences were primarily driven by staffing shortages related to:

- attrition resulting in vacant Nuclear Response Force (NRF) positions,
- extended sick leave or parental leave,
- short-term medical accommodations, and
- an overall increase in sick-leave utilization associated with amendments to Canada Labour Code sick-leave entitlements.

The increased frequency of short-notice absences reduced the availability of qualified officers eligible for overtime without triggering exceedances. Where applicable, restorative rest measures were implemented in accordance with REGDOC-2.2.4, *Managing Worker Fatigue* [12].

To mitigate ongoing staffing pressures, Security Management implemented several measures, including adjustments to the NRF standby coverage clause in the collective agreement, improvements to the recruiting and onboarding process, and the launch of an additional recruitment campaign. Security Management has also established a committee focused on

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strengthening workplace culture within Security Operations, with the objective of improving retention.

To address trends in absenteeism, Security Management continues to work closely with Human Resources to appropriately manage absenteeism. When necessary, non-mandatory training has been temporarily deferred, and training-shift personnel reassigned, to ensure minimum complement requirements were met and to prevent further exceedances.

Table 9: Hours of Work Exceedances for Nuclear Security Officers and Nuclear Response Force at CRL

Limits	2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
>16 hrs in a 24-hour period	0	0	0	0	8	1	4	1
>28 hrs in a 48-hour period	0	0	0	0	0	0	0	2
> 60 hrs in a 7-day period	1	3	4	5	0	3	7	4
Min recovery 48 hrs after 2 consecutive nights	5	8	13	8	2	11	6	2
Min recovery 72 hrs after 3 consecutive nights	0	0	0	1	0	5	1	0
> 6 consecutive 12 hr shifts	0	2	0	1	1	2	1	0
Total	6	13	17	15	11	22	19	9

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2.2 Training Program

CRL adheres to the Training and Development FSA. Refer to Section 2 of the *ACMR for CNL for 2025* for details [1].

The effectiveness of the Training Program at CRL has been enhanced through the following improvements and accomplishments:

- Increased collaboration between training personnel (Training Coordinators, Training Consultants, Technical Trainers, and Line Trainers) to design and implement a complex training schedule for the Waste Treatment Centre Block Training, resulting in a 99% attendance rate.
- Delivered concentrated Facilities Decommissioning Block Training, comprising two weeks of coordinated classroom training and practical field checkouts that supported 1,162 training registrations across 112 training sessions, including critical readiness testing such as 47 respirator fit tests and 95 asbestos baseline assessments. This intensive training delivery model enabled efficient qualification and requalification of a large cohort of workers in a compressed timeframe, strengthening workforce readiness,

reducing scheduling constraints during operational periods, and ensuring timely access to required safety training.

- Increased number of Environment, Decommissioning, Growth, and Education sessions delivered to facilities within Decommissioning and Environmental Remediation, providing employees with increased understanding of decommissioning processes and showcasing innovative tools being used. Feedback was overwhelmingly positive. Field subject matter experts (SMEs), particularly from Waste, appreciated the opportunity to share feedback and build stronger relationships with training participants. The engagement fostered future collaboration and strengthened the client/service provider dynamic, with participants expressing intent to continue connecting with SMEs and facilitators.
- Conducted pilots of automated Learning Management System checklists to document practical training field checkout assessments. This initiative has streamlined workflows by eliminating manual updates and reducing administrative steps, improving data accuracy and visibility.
- Hosted the Conexus Training peer group meeting, welcoming training professionals from across the nuclear industry to the CRL site. This meeting strengthens industry collaboration and fosters the exchange of best practices in training governance, delivery, and compliance.
- Observed field exercises to assess post training effectiveness and task performance under realistic emergency conditions, providing direct evidence of workforce readiness while identifying targeted opportunities to strengthen training content, task clarity, and operational preparedness at CRL.
  - Observation of Sim Cell and Emergency Operations Centre (EOC) activation during a simulated roof collapse emergency confirmed strong coordination, communication, and professionalism, while identifying opportunities to improve equipment readiness, technology usability, and access to rapid deployment tools (e.g., visual reconnaissance). These insights informed improvements to emergency preparedness training and reinforced the value of integrating technology and equipment readiness into exercise planning.
  - Observation of Driver and Utility Worker role execution during the Emergency Management Dispersal Area exercise validated effective safety messaging, coaching, and teamwork, while revealing gaps in role clarity and task expectations. Outcomes included the addition of load securement training to the Driver training analysis and training plan and the identification of a requirement to add traffic control training for Utility Workers, strengthening alignment between training programs and real-world emergency response duties.

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2.2.1 Required Training

CRL maintains a sufficient number of qualified workers to carry on the licensed activities safely and in accordance with the *Nuclear Safety and Control Act* [13] and the regulations made under the NSCA.

There are no CRL-specific licensing basis documents under the Training Program.

CRL applies the Systematic Approach to Training for positions and roles identified on the *Application of the Systematic Approach to Training (SAT) at CNL* [14] controlled list. The Systematic Approach to Training (SAT) enlists the Training Analysis method – Job/Task Analysis to identify training requirements to be documented in role-specific Training Plans. The positions and roles at CRL that are on the controlled list [14] include:

- NRU Certified Health Physicist
- Group 1 Health Physicist
- Group 1 Radiation Surveyor
- Nuclear Response Force
- Firefighter
- Nuclear Criticality Control Officer
- Dangerous Goods Handler
- Dangerous Goods Shipper
- Emergency Operations Centre – Commander
- Emergency Operations Centre – Health Environment Authority
- Facility Supervisor – [redacted] Universal Cells (UC)
- Facility Supervisor – Fuels and Materials Cells (FMC)
- Operations Supervisor – Waste Management Areas (WMA) (renamed Facility Supervisor – WMA)
- NRU Facility Supervisor
- NRU Nuclear Operator 1
- NRU Nuclear Operator 2
- UC Operator
- FMC Technician
- MPF Operator
- RFFL Technician
- WMA Waste Management Technical Officer – CRL
- WTC Operator
- ZED-2 Reactor Operator
- ZED-2 Operator-in-Charge
- Facility Supervisor (previously Production Supervisor) - [redacted]
- [redacted] Operator

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- R&D Officer performing operations involving the transfer of Tritium in the dispensing IAGB (Inert Atmosphere Glovebox)

In 2025, all CRL SAT-listed positions were reassessed for inclusion on the controlled list [14] based on the new SAT applicability assessment tool, as reported in the *ACMR for CNL for 2025* [1]. The reassessment determined that the following positions and roles no longer required a SAT-compliant training program, however the training program was maintained until the next revision of the controlled list [14] in early 2026:

- Delegated Design Authority
- Certified Industrial Hygienist
- Industrial Hygiene Technician
- MPF Facility Supervisor – Molybdenum-99 Production Facility (MPF)

These changes to the controlled list [14] were documented using the applicable change control processes.

All CRL personnel, both employees and contractors, are adequately trained (including refresher training) to ensure safe operation of their facilities and to conduct work under the licence [2]. At no time in 2025 were employees assigned work for which they were not trained and qualified. Table 10 lists the federally and provincially legislated training roles included in position-specific training plans at CRL. Table 11 provides the 2025 CNL employee and manager/supervisor required training certifications at CRL.

Beginning in 2025, the percent completion metric reflects only those employees who were required to complete training within the calendar year (i.e., new hires and employees newly assigned training due to role assignment or operational need). This metric does not represent the total number of employees at CRL who are qualified in each role or certification.

This change represents a deliberate shift from past reporting practice, in which completion percentages were calculated using the total number of employees assigned the training, regardless of whether they were due for completion in that year. The revised metric is based on industry benchmarking and will provide a more accurate reflection of the annual training demand.

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Table 10: Status of Federally/Provincially Legislated Training at CRL in 2025

Role	% Complete
ES – Electrical Safety Watcher (Consolidated List)	79.3%
ES – Qualified Electrical Worker (Consolidated List)	68.9%
OSH – Aerial Platform Operator – Articulating Boom 60 ft or less (Consolidated List)	84.9%
OSH – Aerial Platform Operator – Articulating Boom 85 ft Consolidated List)	100%
OSH – Aerial Platform Operator – Rough Terrain Scissor Lift (Consolidated List)	86.0%

Role	% Complete
OSH – Aerial Platform Operator – Scissor Lift (Consolidated List)	85.3%
OSH – Aerial Platform Operator – Single Up-Up (Consolidated List)	82.6%
OSH – Aerial Work Platform – Boom Lift 105-185ft (Consolidated List)	73.1%
OSH – Asbestos – Advanced Asbestos Awareness (Consolidated List)	86.2%
OSH – Asbestos Type 1 & 2 Abatement Worker (Ontario) (Consolidated List)	6.3% *(1 of 16)
OSH – Asbestos Type 3 Abatement Worker (Ontario) (Consolidated List)	71.4%
OSH – Confined Space Entry (Consolidated List)	82.8%
OSH – Crane – Indoor Overhead Crane Operator – Bridge Crane (Consolidated List)	65.7%
OSH – Crane – Indoor Overhead Crane Operator – Gantry Crane (Consolidated List)	63.5%
OSH – Crane – Indoor Overhead Crane Operator – Hoist Only (Consolidated List)	12.5% *(1 of 8)
OSH – Crane – Indoor Overhead Crane Operator – Jib Crane (Consolidated List)	42.4%
OSH – Crane – Indoor Overhead Crane Operator – Monorail Crane (Consolidated List)	58.4%
OSH – Excavation Worker (Consolidated List)	88.2%
OSH – First Aid Attendant (Consolidated List)	76.5%
OSH – Hazardous Energy Control – Affected Individuals (Consolidated List)	80.8%
OSH – Hazardous Energy Control – Authorized Individuals (Consolidated List)	94.8%
OSH – Hazardous Energy Control – Contractor Representative (Consolidated List)	100%
OSH – Hazardous Energy Control – Equipment Owner (Consolidated List)	50.0% *(1 of 2)
OSH – Hazardous Energy Control – Equipment System/Expert (Consolidated List)	60.4%
OSH – Hazardous Energy Control – Operator (Consolidated List)	100%
OSH – Hazardous Energy Control – Primary Authorized Individual (Consolidated List)	59.5%
OSH – Hoisting & Rigging – Advanced Rigger (Consolidated List)	92.1%
OSH – Lift Truck Operator – Counter Balance (Consolidated List)	66.7%
OSH – Lift Truck Operator – Electric Pallet Jack (Consolidated List)	55.2%
OSH – Lift Truck Operator – Non-Electric Pallet Jack (Consolidated List)	44.8%
OSH – Lift Truck Operator – Reach Truck (Consolidated List)	69.2%
OSH – Silica Worker and Supervisor (Consolidated List)	95.7%
OSH – Worker Operating/Using Ladders (Consolidated List)	98.5%
OSH – Working at Heights Worker (Consolidated List)	80.5%

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*Note: For roles with a small number of assigned trainees, the completion rates may be skewed by small sample sizes. Accordingly, the number of completions versus assigned trainees is presented below the percentage (e.g., 1 of 8) to support accurate interpretation.

Table 11: Status of CNL Employee and Manager/Supervisor Required Training at CRL in 2025

Certification Title	% Complete
Employee Required Training	
CNL General Safety Orientation	95.8%
Cyber Security (9 courses)	97.8%
Emergency Procedure	94.9%
Fire Prevention Training	92.9%
Hazard Prevention Program	98.9%
Human Performance Awareness – Fundamentals and Nuclear Safety Culture	98.9%
Indigenous Relations at CNL	98.4%
Information Asset Protection (IAP) Training	98.1%
Introducing the ImpAct Process at CNL	98.9%
Introduction to CNL's Management System	97.5%
Security Awareness	99.0%
Values and Ethics at CNL	88.6%
Violence and Harassment Prevention	86.7%
Waste Management Awareness	98.0%
WHMIS – 2015	99.1%
Fire Extinguisher (On-site worker only)	91.8%
Nuclear Criticality Safety Program Awareness (On-site worker only)	98.7%
Sanitary Drain Discharges (On-site worker only)	97.8%
Manager Required Training	
Continuous Behavioural Observation Program	84.6%
Responsibility in Supervising Employees (RISE)	37.5%
Radiation Protection Required Training	
Group 4 Radiation Protection Training	90.8%
Group 3 Radiation Protection Training	81.9%
Group 2 Radiation Protection Personnel	100%

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Certification Title	% Complete
Group 2 Radiation Protection Training	74.0%
Group 1 Health Physicist - CRL	100%
Group 1 Radiation Surveyor - CRL	87.8%

2.2.1.1 Analysis of Trends

When interpreting the in-year completion metric for 2025, it is important to recognize that CNL continues to apply a performance expectation of 90% completion for required training. Under the revised in-year metric, this benchmark reflects the proportion of individuals who were assigned training during the calendar year and successfully completed it within that same period. Lower in-year percentages do not indicate that employees are broadly unqualified or that CNL is unable to meet its licensing obligations; rather, they reflect that individuals newly assigned training or progressing through multi-step qualification pathways may not complete all requirements within the same year. For small cohorts, even one or two outstanding completions can significantly affect the percentage. During 2025, employees were assigned work appropriate to their qualifications and role expectations. For individuals newly appointed to manager or supervisor roles, required role-based training (including RISE) may be completed within the established onboarding period (up to six months after appointment). During this period, individuals perform managerial duties commensurate with their prior experience and under existing organizational controls. At no time in 2025 were employees assigned work for which they were not trained and qualified.

Federally and Provincially Legislated Training

In 2025, CRL demonstrated strong responsiveness for high-volume safety training (e.g., Ladders, Silica, Hazardous Energy Control, etc.) as well as generally solid performance for aerial work platform training, with lower completion rates observed for specialized variants. In-year completions were more variable for electrical and lifting/material handling competencies, particularly crane operations and pallet jack roles, and were notably lower for asbestos abatement and first aid training.

These results indicate that routine, high frequency safety and compliance training is being completed in a manner that supports operational needs at CRL. In contrast, more advanced and specialty roles require further examination to understand factors influencing in-year completion rates, such as class availability relative to demand, employee awareness of recertification timelines, equipment availability for practical training, and sequencing of training assignments. To mitigate completion risks, proactive measures were implemented throughout 2025, including securing rental agreements for practical training equipment, increasing the number of scheduled training offerings, and issuing automated weekly Learning Management

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System learner role matrix reports to improve visibility of training requirements and qualification status.

CNL Employee and Manager/Supervisor Required Training

In 2025, CRL achieved high completion rates for the majority of Employee Required Training, indicating strong responsiveness to company-wide required training. Notable exceptions include the manager/supervisor training modules (RISE and Continuous Behavioural Observation Program) and select Radiation Protection (RP) qualifications, which reflect small cohort volatility, scheduling, and progression-based challenges rather than systemic capacity constraints.

For Managers/Supervisor RISE training, completion rates continue to be influenced by workforce attrition, a backlog of managers and supervisors assigned training in 2024, and employees newly assigned in 2025. While additional RISE offerings were scheduled during Q4 2025 to address the demand; overall in-year completion declined. An action to further investigate barriers to RISE training completion and identify improvement opportunities has been identified for 2026.

Overall, CRL demonstrated strong performance for RP training, particularly for high volume qualification such as Group 4 Radiation Protection. Moderate in-year completion rates for Group 2 and Group 3 Workers (i.e., employees assigned RP training based on job requirements but not designated as RP personnel) reflect manageable gaps among small cohorts assigned training during the year. For Group 1 roles, completion rates reflect active qualifications that are in progress rather than a reduction in qualified capability: Group 1 Health Physicist training achieved full in-year completion, while the lower completion rate for Group 1 Radiation Surveyor at CRL is attributable to newly assigned trainees who remain in progress toward qualification. These results indicate that RP competencies are being maintained while supporting progression of personnel through structured training programs.

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2.2.2 Contractor Training

Before accessing the CRL site, contractors completed at a minimum, the following training:

- Contractor Safety Orientation (site-specific, includes CNL Contractor Code of Conduct)
- Radiation Protection Group 4

Remote contractors that do not access the CRL site completed, at a minimum, CNL Contractor Code of Conduct.

These courses are provided to contractors via computer-based training and are hosted by a third party, contracted by CNL, to manage the Contractor Management database.

CRL utilizes the contract terms and conditions, training, and the contractor data held within the Contractor Management database to ensure that contractors are qualified to work at CRL. CNL contractor representatives are required to verify contractor training records prior to the commencement of work.

CRL oversees contractors' work in the field and all CRL work control protocols apply.

2.2.3 Training Evaluations Summary

In 2025, a total of 115 Trainer Observations and 78 Post Training Effectiveness Observation and Coaching evaluations were completed at CRL. These evaluation completions represent increases of 83% and 179% respectively from 2024, demonstrating a significant strengthening of evaluation practices at the site. The increases directly reflect the company-wide focus on improving the consistency of evaluations across CNL, as described in the *ACMR for CNL for 2025* [1]. Evaluation results are reviewed by Human Performance and Training specialists and discussed through Curriculum Review Committee meetings, with resulting improvements managed through established training change processes.

Employees have opportunities to provide feedback on all training courses completed using manual and online course critique forms. In 2025, 404 individual employee responses were collected using the online form and 171 courses utilized manual forms to collect employee responses, which collectively represents a 55% increase from 2024 in employees providing direct feedback on training. Course critique forms are reviewed periodically to identify opportunities for improvement and changes are managed through the applicable training change processes.

Curriculum Review Committees serve as a method of evaluating training program health and the training program's overall effectiveness. In 2025, 13 Curriculum Review Committees were held quarterly at CRL for 28 SAT-based positions/roles on the controlled list [14]. An additional 12 Curriculum Review Committees were held periodically throughout the year for individual FSAs, programs and facilities with positions/roles not on the controlled list [14] (e.g., the Class II Licensed Nuclear Facilities, Site Infrastructure and Maintenance, Occupational Safety and Health, and Reactor Decommissioning). Though not a requirement for these positions/roles, the use of the Curriculum Review Committee as an evaluation tool was leveraged to provide oversight of their training programs.

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2.3 Staffing and Certification

CNL continues to maintain two NRU Certified Health Physicist positions at the CRL site. There were no new initial certifications of NRU Certified Health Physicists in 2025 as efforts to qualify new candidates were impacted by staff attrition. The current NRU Certified Health Physicists are due for recertification in 2026 September and 2027 December, respectively. Given the NRU reactor's permanent safe shutdown state [3] and associated reduction in radiological hazards, CNL is currently evaluating the continued need for appointment of NRU Certified Health Physicists and will provide appropriate justification to the CNSC in 2026.

3 Operating Performance

3.1 Operating Program

CRL adheres to CNL's Conduct of Operations, Construction, Commissioning, and Configuration Management FSAs. Refer to Section 3.1 and Section 11.2 of the *ACMR for CNL for 2025* for details [1].

In 2025 February, CNSC staff conducted an inspection of the Operating Program at CRL to verify compliance with the NSCA, associated regulations, licence conditions, and the LCH. The inspection identified no items of non-compliance, and highlighted strong performance, particularly in document control, engineering change control, commissioning processes, and staff training and qualifications.

Operating Program document revisions in 2025 specific to CRL were provided to CNSC staff in submissions identified in the table below.

Table 12: CRL Operating Performance Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
Operating Room Environmental Radiochemistry in Building [redacted] **-508200-OE-006342**	Supersedes and replaces Radiological Laboratories Protocol (RLP)	145-CNNO-25-0001-L
Operating Envelope for Radiochemistry Research Laboratory in Building [redacted] **-508200-OE-007782**	Supersedes and replaces RLP	145-CNNO-25-0009-L
ICP-MS Laboratories in Building [redacted] **508200-OE-008117**	Supersedes and replaces RLP	CRL-CNNO-25-0008-L
Operating Envelope for Waste Characterization Services in Building [redacted] **213-508200-OE-007925**	Supersedes and replaces RLP Cancellation of Operating Envelope	145-CNNO-25-0010-L CRL-CNNO-25-0053-L
Operating Room Environmental Radiochemistry in Building [redacted] **-508200-OE-004295**	Supersedes and replaces RLP	CRL-CNNO-25-0049-L
Fuel Assembly Science and Technology Laboratory in Building [redacted] **153-508200-OE-009084**	Supersedes and replaces RLP	CRL-CNNO-25-0034-L
Operating Envelope for the XPS Laboratory in Building [redacted] **5082200-OE-006292**	Supersedes and replaces RLP	CRL-CNNO-25-0034-L

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3.1.1 Operations

Operational details on facilities identified in the *Designated Representatives of the Licensee, Sites Licenses, Certifications and Permits* [15] list are provided in the appendices of this report.

3.1.1.1 Conduct of Operations

The effectiveness of the Conduct of Operations FSA at CRL was enhanced in 2025 through the following activities:

- The project to transition from radioisotope laboratory protocols to operating envelope documents continued to progress, with seven operating envelope documents submitted to CNSC staff, one of which was later cancelled in 2025. The Operating Envelope documents improve the rigour and consistency of information on the safety basis of the radioisotope laboratories. See Table 12 above for details.
- Minor revisions were made to seven program documents, including *Operational Control, Order to Operate, and Surveillance Testing.*

3.1.1.2 Construction

The effectiveness of the Construction FSA at CRL was enhanced in 2025 through the following activities and initiatives that have strengthened the construction and installation activities by improving consistency, communication, and readiness across all sites, directly contributing to safer operations and more reliable project execution:

- A Field Construction Coordinator was assigned to the ANMRC project to provide dedicated support.
- Continued support of the ANMRC project to achieve three milestones in Q4 of 2025:
  - The South building was made weather tight.
  - The Active Liquid Waste System [redacted] pit bases were poured.
  - All four [redacted] South floor slabs were poured.

3.1.1.3 Commissioning

The Commissioning FSA at CRL in 2025 completed the following major commissioning activities:

- Completed commissioning activities of the Battery Energy Storage System.
- Completed commissioning activities in Building [redacted] Science Collaboration Centre.

For information on commissioning activities conducted in licensed facilities at CRL in 2025, refer to the applicable appendices of this report.

3.1.1.4 Configuration Management

Permanent and temporary modifications to nuclear facilities at CRL are performed in accordance with the *Engineering Change Control* procedure [16]. In 2025, the Engineering

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Change Control office processed a total of 71 engineering change control items for work/phases in the Class I facilities that have been declared fully operational or in service/implemented.

In 2025, the following were completed by the *Engineering Change Control* process [16]*:*

- 9 Engineering Change Control requests (2 Category I and 7 Category II).
- 37 Reduced Risk Engineering Changes.
- 25 Item Equivalency Evaluation Requests.

For information on the configuration management activities conducted in licensed facilities at CRL in 2025, refer to the applicable appendices of this report.

3.2 Reporting Requirements

There are no CRL-specific licensing basis documents under Reporting Requirements.

3.2.1 Reportable Events to the Canadian Nuclear Safety Commission

In 2025, there were 37 events that occurred at CRL that were deemed reportable to the CNSC. They are listed in Table 13. All reportable events are posted on the external CNL website on a quarterly basis.

Table 13: Reportable Events to the Canadian Nuclear Safety Commission at Chalk River Laboratories in 2025

Event No.	Title	SCA	Facility (If Applicable)
HSSE-25-0066	Unplanned Impairment - [redacted] Fire Water Break	Emergency Management and Fire Protection	N/A
ERM-25-0088	Type B Packaging Design Authority Identifies a Potential Misalignment with Annual Leak Test Requirement Specified in Safety Analysis Report for Packaging (SARP) and Maintenance Testing Procedure Specified by Design Authority	Packaging & Transport	N/A
HSSE-25-0006	Nuclear Security Officer slipped on ice, resulting in injury	Conventional Health and Safety	N/A
HSSE-24-1975	Use of Legacy Kr-85 Bot Engineering beta Source that is not approved by the CNSC	Radiation Protection	N/A
HSSE&Q-25-0456	Unplanned [redacted] Underground Fire Water Break	Emergency Management and Fire Protection	N/A
ERM-25-0405	Flask Missing O-Ring	Packaging & Transport	N/A
ERM-25-0859	Incoming Radioactive Shipment from Uni-Vert Arrives with No Placards	Packaging & Transport	N/A
HSSE-25-1040	Past due calibration instrument used for RP Purposes in FMC	Radiation Protection	FMC

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Event No.	Title	SCA	Facility (If Applicable)
HSSE-25-1023	Security Camera Outage at Waste Management Area [redacted]	Security	WMA
HSSE-25-1237	Unplanned Impairment [redacted] Fire Alarm Panel - Notification Devices Inoperable	Emergency Management and Fire Protection	N/A
S&T-25-1527	Tritium-in-Air Room Alarm - Alarming overnight in [redacted]	Radiation Protection	Tritium Facility
ERM-25-1536	Unplanned [redacted] Fire Alarm Imp[redacted]ent – Smoke Detector in Room [redacted]	Fire Protection	N/A
CTA-25-1671	Notice of Strike Action	Operating Performance	N/A
HSSE-25-1555	Gooseneck Flow rater used when outside of calibration range	Radiation Protection	N/A
HSSE-25-1682	RP instrument used when passed its Calibration expiry date in [redacted] Isolation Room [redacted] Ante-room	Radiation Protection	UC
ERM-25-2331	Tritium Detected on SRBT Shipment	Packaging & Transport	N/A
HSSE-25-2484	Reportable Security Event	Security	N/A
S&T-25-2402	Continuation of work in Lab [redacted] involving actinide halides	Safety Analysis	N/A
HSSE-25-2630	Fire Response to Small Equipment Fire at Waste Management Area [redacted]	Emergency Management and Fire Protection	WMA
ERM-25-2873	Broken IAEA Seals on WMA [redacted] Concrete Canister	Safeguards and Non-Proliferation	WMA
HSSE-25-2674	Extremity Performance Test June 2025 Fail	Radiation Protection	N/A
CTA-25-2826	Transfer of fissionable material to an off-site location completed without proper documentation	Safeguards and Non-Proliferation	N/A
HSSE-25-3070	Failure to meet CNSC commitment, and license condition.	Radiation Protection	N/A
ERM-25-3190	Identification of Legacy Bunker Non-Compliance During Nuclear Material Verification Activities	Safeguards and Non-Proliferation	WMA
ERM-25-3377	Sampling activities conducted within a Nuclear Criticality Controlled Area without required Nuclear Criticality Safety Program engagement	Safety Analysis	WTC
S&T-25-3453	Cf-252 Source in HPNG fails to return to shielded position [redacted]	Radiation Protection	Health Physics Neutron Generator (HPNG)
HSSE-25-3356	Unposted accessible dose rate >25uSv/h exterior to [redacted] FMC	Radiation Protection	FMC
HSSE-25-3630	Submission of Unplanned Event Report: WMA LAV Impairment, HSSE-25-3630	Security	WMA

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Event No.	Title	SCA	Facility (If Applicable)
HSSE&Q-25-3594	Contamination found after Building [redacted] Sewage Pump House maintenance wor	Waste Management	N/A
BUS MGMT- 25-3650	Import Exceeded Authorized Amount of Thorium	Import and Export	N/A
ERM-25-3675	Non-compliant package received from SRBT	Packaging & Transport	N/A
CTA-25-3576	Transfer of fissionable material to an off-site location completed without an Inventory Change Document	Safeguards and Non-Proliferation	N/A
ERM-25-4111	Contamination release to ground in WMA-[redacted]	Environmental Protection	WMA
S&T-25-4227	Quantity of flammable liquids in MTC-1 greater than 500 ml	Emergency Management and Fire Protection	FMC
HSSE-25-4214	Extremity Performance Test 2025 October failure on Coefficient of Variation	Radiation Protection	N/A
S&T-25-4465	Personnel exposed to radon after opening unlabelled drum	Radiation Protection	UC
S&T-25-4570	Legacy Charcoal Filters in RFFL not Accounted for in TLA	Safety Analysis	RFFL

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The table below summarizes the annual count of reportable events over the last five years, as part of ongoing compliance monitoring.

Table 14: Number of Reportable Events over the Last 5 Years

2021	2022	2023	2024	2025
39	39	49	27	37

3.2.2 Reportable Events to Other Regulators

Reports to other regulatory agencies consisted of:

- 30 Hazardous Occurrence Investigation Reports made to Employment and Social Development Canada (Refer to Section 8 Conventional Health and Safety for further details).
- 0 immediately reportable (for releases of over 100 kg).
- 8 halocarbon releases of between 10 and 100 kg reported in the semi-annual reports to Environment and Climate Change Canada.

4 Safety Analysis

4.1 Safety Analysis Program

CRL adheres to CNL's Safety Analysis FSA. Refer to Section 4.1 of the *ACMR for CNL for 2025* for details [1]. Activities performed by the Safety Analysis FSA at CRL include the following:

- Investigation of nuclear safety considerations for the site selection process of new or modified nuclear facilities.
- Issuance of technical documents in support of activities in science and technology, engineering change control, decommissioning, and waste management. These documents include hazard identification and assessment, consequence of failure, radiological dose assessments, and reports on safety analysis.
- Ongoing review and scoping assessment of existing safety analysis documents.

4.1.1 Safety Analysis Reports

Safety Analysis Reports (SARs) are produced to demonstrate that CNL's facilities are appropriately designed to meet health, safety, security, environmental and regulatory requirements, and operate safely. These SARs form part of the basis for the limiting conditions for safe operation that are documented within Facility Authorizations for each nuclear facility.

The following updates to CRL Safety Analysis documents were completed in 2025:

- A periodic scoping review of the Nuclear Fuel Fabrication Facility (NFFF) SAR was completed. The review concluded that an update to the NFFF SAR is not required as [redacted] NFFF ceased operation and is transitioning to decommissioning, whereby the Safety Analysis Report will be superseded by a Detailed Decommissioning Plan.
- A periodic scoping review of the Tritium Facility Safety Analysis Report was completed. The review recommended an extensive revision to the SAR to address new requirements in REGDOC-2.4.4, *Safety Analysis for Class IB Nuclear Facilities* [17] and incorporate the changes that will be made for the Unity-2 project.
- A periodic scoping review of the Molybdenum-99 Production Facility SAR was completed. The review recommended that if the facility is transferred to decommissioning, a revision is not required because risks and hazards within the facility have decreased, and the SAR will be replaced by a Detailed Decommissioning Plan. If the facility is refurbished for continued use, an extensive revision of the SAR would be required.
- A periodic scoping review of the Gamma Beam Irradiator Facility SAR was completed. The review recommended that an extensive update of the Gamma Beam Irradiator Facility is recommended.
- A periodic scoping review of the Health Physics Neutron Generator SAR was completed. The completed Failure Modes and Effects Analysis study for the interlock system and recent radiological dose assessment confirmed that current operations continue to

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meet safety requirements and regulatory dose limits, ensuring continued safe operation of the facility in the interim. Given the uncertainty surrounding the future of the facility, revision of the SAR has been postponed until a final determination is made regarding the preferred option for the accelerator in the facility.

- A periodic scoping review of the Van de Graaff SAR was completed. The review recommended an extensive revision to the SAR; however, the plan to draft the revision will be determined once there is certainty on the future of the Van de Graaff accelerator.

Revisions to SARs for the following facilities were in progress during 2025:

- Fuels and Materials Cells
- Recycle Fuel Fabrication Laboratories
- ZED-2
- Waste Treatment Centre

There were no revisions to CRL Safety Analysis Program documents submitted to CNSC staff during the reporting period.

4.2 Nuclear Criticality Safety Program

CRL adheres to CNL's Nuclear Criticality Safety (NCS) FSA. Refer to Section 4.2 of the *ACMR for CNL for 2025* for details [1].

The effectiveness of the NCS program at CRL has been enhanced through the improvements outlined in Section 4.2 of the *ACMR for CNL for 2025* [1].

4.2.1 Nuclear Criticality Safety Documents

NCS Program document revisions in 2025 specific to CRL were provided to CNSC staff in submissions identified in the table below. **Table 15: CRL Nuclear Criticality Safety Program Document Submissions in 2025**

Document Title and Number	Reason for Change	Correspondence #
CSD-34 TLA – Allowance for Halides and Salts, [redacted] 123450-TLA-009233	Document to support non-routine activity	153-CNNO-25-0001-L
CSD-9 TLA – Intrusive Characterization in the Chemical Pit, WMA-123450-TLA-006852	Document to support non-routine activity	WMA-CNNO-25-0010-L
Time-Limited Amendment for Relocation of the Fuel Assembly Science & Technology (FAST) Laboratory CSD-35 from [redacted] FAST-123450-TLA-008075	Address NCS Panel Comments	190-CNNO-25-0002-L

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5 Physical Design

5.1 Design Program

CRL adheres to CNL's Design Authority and Design Engineering FSA. The Design Authority and Design Engineering FSA maintains and controls the design basis for all design activities performed at CRL, and it ensures that design is planned, executed, verified and documented according to applicable codes, standards, and regulatory and customer requirements.

Refer to Section 5.1 of the *ACMR for CNL for 2025* for details [1].

There are no CRL-specific licensing basis documents under the Design Program.

5.1.1 Items Important to Safety

In 2025, the Design Authority and Design Engineering Program ensured that items important to safety met and maintained their design basis, and any changes made were controlled through the *Engineering Change Control* process [16]. New systems, or modifications to existing systems, were reviewed to ensure that they meet the requirements of the SCAs as defined in the LCH for CRL [3].

5.2 Pressure Boundary Program

CRL adheres to CNL's Pressure Boundary FSA. Refer to Section 5.2 of the *ACMR for CNL for 2025* for details [1].

CRL Nuclear Pressure B*oundary Quality Assurance* [18] and *CSA B51 Pressure Boundary Quality Control Manual* [19] define the pressure boundary measures applicable to CRL facilities and are consistent with CNL's Pressure Boundary Program requirements. The Technical Standards and Safety Authority (TSSA)-issued Certificates of Authorization define the scope of activities permitted at CRL and are valid until 2028 March 20.

The TSSA is retained by CRL to provide Authorized Inspection Agency (AIA) services under a service agreement valid through 2028 March 31. In this role, the AIA registers designs and procedures, conducts on-site inspections and record reviews through AIA inspectors, and performs triennial recertification audits of the CRL Pressure Boundary program.

As per the *LCH for CRL* [3], CNSC staff have been notified of revisions to the following Pressure Boundary documents (refer to Section 1.1, Management System, of the *ACMR for CNL for 2025* [1] for a complete list).

Pressure Boundary Program document revisions in 2025 specific to CRL were provided to CNSC staff in submissions identified in the table below.

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Table 16: CRL Pressure Boundary Program Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
CRL Nuclear Pressure Boundary Quality Assurance Plan, CRL-508140-QAP-001	Periodic Update	CRL-CNNO-25-0007-L & CRL-CNNO-25-0009-L
CRL CSA [redacted] Pressure Boundary Quality Control Manual, CRL-508140-QAP-003	Periodic Update	CRL-CNNO-25-0007-L & CRL-CNNO-25-0009-L
Authorized Inspection Agency Services Agreement between Technical Standards and Safety Authority and Canadian Nuclear Laboratories Ltd 2025 April 01 through 2028 March 31, CRL-508140-141-69403876	Renewal	CRL-CNNO-25-0006-L

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6 Fitness for Service

6.1 Fitness for Service Program

CRL adheres to CNL's Fitness for Service FSA through its Maintenance, Equipment Reliability, and Work Management Programs. Refer to Section 6.1 of the *ACMR for CNL for 2025* for details [1].

There were no revisions to CRL Fitness for Service Program documents submitted to CNSC staff during the reporting period.

6.1.1 Planned Maintenance, Testing & Inspections

Planned maintenance activities are scheduled by the work management process. Preventive maintenance (PM) activities, condition monitoring tasks, and inspections are scheduled through this process to ensure that trades resources are well utilized, and activities are executed on time.

Key highlights in 2025 regarding planned maintenance, testing, and inspections include the following:

- A total of 4,192 mandatory and regulatory preventative maintenance (PM) activities were completed.
- The fifth year of a multi-year IWC PM conversion project was executed to enhance the instructions provided to trades and to comply with the IWC standards and expectations. 1,425 PM activities were converted in 2025, bringing the total to 8313 or 95.1% of all PMs.
- The fifth year of a multi-year PM optimization project was executed to categorize equipment and develop or improve maintenance strategies. This includes incorporating condition-based vibration analysis of large rotating equipment.

6.1.2 Equipment Fitness for Service/Equipment Performance

Equipment fitness for service is managed by the Maintenance and Equipment Reliability Programs. PM strategies are developed in consideration of:

- Maintenance category
- Equipment type
- Duty cycle
- Service conditions
- Original Equipment Manufacturer recommendations
- Regulatory requirements
- Operating experience

The resulting maintenance strategies enable equipment to meet the required reliability and availability.

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6.1.3 Condition of Structures

In the 2025/2026 fiscal year, CNL continued to complete its five-year Building Condition Assessments (BCAs) across all sites, where 13 BCAs were completed on buildings operated by S&T and Decommissioning & Waste Management. These condition assessments analyze the health of the base building systems and assess the estimated life expectancy against the remaining life expected.

The average age of the assessed buildings is approximately 39.9 years, highlighting the maturity of the existing infrastructure. Based on the information compiled to date, the assessed buildings have an average Facility Condition Index (FCI) of 16.65%. Considering the industry benchmark of 10–12% for buildings in good condition, the current average reflects an overall fair condition across the assessed portfolio.

CNL's approved 10-Year Capital Investment Plan continues to outline priorities for renewal, replacement, and new capability investments across all asset groups. Consistent with this plan, the goal remains to improve keeper buildings to an FCI of 15%, while maintaining bridging buildings at their current condition levels through 2035.

6.1.4 Aging Management Program

Aging Management is executed through the Equipment Reliability Program. System Performance Monitoring Plans (SPMPs) are created to document the performance, reliability, and condition metrics for safety-related systems in Class l nuclear facilities. System Health Reports are periodically generated to document and trend the metrics developed in the SPMPs. The frequency at which System Health Reports are generated is determined based on the considerations in the SPMPs, such as the anticipated rate of degradation in the safety systems, the consequence of failure, and the failure modes of the system.

Aging Management Plans are fulfilled by the completion of the SPMPs and the System Health Reports. A summary of the approved SPMPs for CRL facilities is provided in Table 17. The schedule and frequency of System Health Reports are variable and will be dictated by the SPMPs, once completed.

CRL continued to execute activities under the Aging Management Implementation Plan in 2025 with a total of 66 active SPMPs at the end of the year, including 5 for site infrastructure systems.

Note: Aging Management documents (SPMPs and System Health Reports) for buildings in decommissioning are captured in the Detailed Decommissioning Plans and Storage with Surveillance Plans.

A summary of the status of Aging Management Plans for CRL Class I facilities is provided in Table 17.

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Table 17: Status of CRL System Performance Monitoring Plans

Facility	System	Status
Fuels and Materials Cells	Backup Air Supply	Approved
	Fire Protection System	Approved
	Exhaust Ventilation System and Fume Hoods	Approved
	Class III Power	Approved
	Radiation Monitoring and Alarms	Approved
	Shielding Structures	Review & Comment (R&C)
	Indicating Lights	Approved
Universal Cells	Shielding Structures	Approved
	Active Exhaust Ventilation System	Approved
	Emergency Electrical Power	Approved
	Air System	Approved
	Fire Protection System	Approved
	Radiation, Airborne Activity, and Contamination Monitoring Systems	Approved
	Active Liquid Waste System	Approved
	Supervisor Alarm System	Approved
Recycle Fuel Fabrication Laboratories	Active Ventilation System	Approved
	Radiation Monitors and Alarms	Approved
	Emergency Power System	Approved
	Air System	Approved
	Gloveboxes and Fume hoods System	Approved
Tritium Laboratory	Active Ventilation Exhaust and Secondary Confinement Barriers	Approved
	Argon Gas Supply	Approved
	Class III Power	Approved
	Fire Detection and Protection System	Approved
	Tritium-in-Air Monitors and Tritium Compliance Monitors	Approved
	Tritium Dispensing Clean-up System / Tritium Handling Apparatus	R&C

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Facility	System	Status
	Gas Standards Rig	Approved
	[redacted] Deionized Water System	Approved
ZED-2 Reactor	Fire Detection and Protection/Security System	R&C
	Radiation Monitoring System	Approved
	Class III Power [redacted]	R&C
	Safety System Trip Circuit	Approved
	Fuel Storage and Support Structures	Approved
	Moderator Systems	Approved
	Engineered Manual Controls	Approved
	Process Air and Ventilation Systems	Approved
Molybdenum-99 Production Facility	Retrieval and Transfer System Secondary Confinement Active Ventilation System	Approved
	Fire Protection and Suppression System	Approved
	FISST Cooling and Heating System	Approved
	Retrieval and Transfer System Leak Detection and Pump Control Loop, FISST Leak Detection, FISST and [redacted] Temperature Monitoring and Alarm System, and Supervisory Alarm System	Draft
	Class I and II Power, Continue Air Monitoring System, Area Radiation Monitors	Approved
	Shielding Structures, Shielded Waste Flasks, Container Transfer Shield, and Pipe Chase from [redacted]	R&C
Waste Management Area [redacted]	Tile Holes, Shielding Structures, and Secondary Confinement	Approved
	Cylindrical Bunkers including concrete cover	Approved
	Flask Adaptor Pads	Approved
	WMA Waste Transfer Flasks	Approved
	Active Ventilation Systems	Approved
	Radiation Monitoring Systems	Approved
	Class II and III Power	Approved

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Facility	System	Status
	Fire Detection and Protection Systems	Approved
	[redacted] Supercompactor	Approved
Waste Management Area [redacted]	Ventilation and Fume Hoods	Approved
	Fire Protection and Detection	Approved
	Secondary Containment and Leak Detection System	Approved
Waste Management Area [redacted]	Fire Protection and Detection	Approved
	SMAGS Concrete Structures	Approved
	SMAGS an MAGS Liquid Control and Drainage	Approved
	SMAGS and MAGS Building Exhaust Ventilation	Approved
Waste Management Area [redacted]	Building Envelope, Liners	Approved
Waste Management Area [redacted]	Canisters	Approved
	Fire Protection and Detection	Approved
	Class II & III Power Systems	Approved
Waste Treatment Centre and Associated Facilities	[redacted] Tanks & Piping for HD Waste Streams	Approved
	[redacted] Shielded Secondary Containment Structures	Approved
	[redacted] Shielded Secondary Containment Structures	Approved
	[redacted] Tanks & Facility Piping for HD Waste Streams	R&C
	[redacted] Tanks & Facilit[redacted]ing for HD Waste Streams [redacted]	Draft
	[redacted] Tanks and Facility Piping for HD Waste Streams and [redacted] Tanks and Facility Piping for HD Waste Streams	R&C
	See [redacted] Tanks and Facility Piping. [redacted] Tanks and Facility Piping for HD Waste Streams	Draft
	[redacted] Tanks and Facility Piping for HD Waste Streams	Draft
NRU	Cranes	R&C

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Facility	System	Status
	Fire Protection & Detection	Approved
	Radiation Warning & Protection	Approved
	Class 3 Power	R&C
	Reactor Ventilation	Approved
	Active Ventilation	R&C
	Rod Storage Bays	Approved
	Building Structure	R&C

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7 Radiation Protection

7.1 Radiation Protection Program

CRL adheres to CNL's RP FSA. Refer to Section 7 of the *ACMR for CNL for 2025* for details [1]. The RP FSA at CRL oversees the development and management of the Corporate RP Program, while providing operational support to various functional groups at CRL including S&T, Waste Management, and Facilities Decommissioning.

In addition to the company-wide improvements outlined in Section 7 of the *ACMR for CNL for 2025* [1], and the topics listed under Section 7.1.1 below, CRL executed the following site-specific RP actions in 2025:

- Initiated a large-scale Nuclear Energy Worker (NEW) de-registration campaign at CRL, resulting in the reduction of NEW designations, following the introduction of a formal process designed to reduce administrative burden for workers whose dose potential does not warrant NEW status.
- Commissioned and deployed whole-body contamination monitoring at CRL, including gasless Mirion Argos [redacted] units in Building [redacted] (NRX), Building [redacted] and Building [redacted] thereby reducing reliance on [redacted] gas and minimizing operational interruptions.
- Sustained instrumentation oversight through governance processes and executed structured testing and approval activities to demonstrate instruments are selected, tested, and calibrated for their intended use, supporting RP program requirements at CRL.
- Developed and deployed a PowerBI-based instrumentation status view at CRL to provide improved visibility of calibration status and due dates, reducing the risk of overdue-calibration RP instrument use.
- Progressed technical maintenance and readiness improvements at CRL, including restoring dosimetry capability, updating neutron instrument calibration methods, and implementing iCAM monitoring enhancements to support high-energy alpha monitoring needs.
- Submitted closure justification for the remaining five NNCs from the 2024 CNSC Compliance Inspection CNL-CRL-2024-03. CNL received acceptance from CNSC staff of these closures, leaving the RP program with no open NNCs by the end of 2025.
- Conducted self-assessment of key facilities to evaluate implementation of the RP Program and to ensure a consistent approach to program implementation across facilities and business lines, see section 1.2 for details.

There are no CRL-specific licensing basis documents under the Radiation Protection Program.

7.1.1 ALARA Initiatives and Activities

At CRL, As Low As Reasonably Achievable (ALARA) is implemented through a balanced combination of engineered controls (e.g., shielding and optimized monitoring), administrative

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controls (e.g., improved Radiological Work Permit (RWP) dose tracking and post-job reviews), and continuous improvement of contamination control and work practices.

In addition to broader corporate ALARA initiatives identified in the *ACMR for CNL for 2025* [1], CRL progressed several CRL-specific initiatives in 2025 aimed at reducing dose by minimizing time spent at locations with elevated radiation fields, increasing distance through use of remote tools, and improving shielding and work controls.

Key ALARA initiatives and activities implemented or progressed at CRL in 2025 include:

- Continued to improve local contamination control and reduce the footprint of controlled/contaminated areas where appropriate. A notable example was the down-zoning of the NRU top-of-reactor area from Radiation Zone 3, Contamination Zone 3 ([redacted]), where moderate contamination is expected, to [redacted] where no contamination is expected. Temporary higher-control zoning was applied only when needed to control contamination at the source, reducing unnecessary Personal Protective Equipment and Clothing (PPE&C) burden and minimizing time spent in the zone.
- Initiated a STOP/PAUSE to reassess radiological controls and support safe resumption of high-energy alpha work. Enhancements included updated ALARA planning, strengthened PPE&C and contamination controls, enhanced oversight, and optimized monitoring strategies (including dedicated air monitoring and lower alpha detection thresholds, where justified by risk) to better prevent shallow-dose and contamination events.
- Completed a drone-based radiation survey around Building [redacted] to provide high-resolution dose-rate mapping that supported improved planning and engineered control decisions (e.g., shielding placement). RP also continued driving implementation of durable and secure shielding solutions in localized high-dose areas, where warranted.
- Implemented corrective actions following dose tracking and Personal Alarming Dosimeter (PAD) visibility issues by strengthening RWP dose-tracking expectations, conducting post-work ALARA reviews, trialing tele-dosimetry approaches, and coaching personnel on visible PAD wear and STOP/PAUSE practices. A CRL RWP improvement task force also progressed improvements to templates and practices to strengthen RWP adherence and reduce rework or unplanned exposure.
- Executed the Cf-252 HPNG source recovery work with actual doses significantly below pre-job estimates by applying strong ALARA practices, conducting strong readiness reviews, providing clear work instructions/JHAs, delivering pre-job briefs, and using remote techniques such as drones and robotics to improve planning and reduce time in higher-dose areas where appropriate. Following contamination events, CRL implemented focused changes to reduce contamination spread and the need for rework/cleanup or repeated entries into radiological areas. More specifically, pausing specific manual practices and introducing safer alternatives (e.g., in Building [redacted] labs, the manual use of sandpaper to grind samples was stopped until an appropriate

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alternative, a holder to create distance, could be implemented), and improving dress/undress practices (e.g., in Building [redacted] to prevent cross-contamination during bootie removal).

Overall, CRL achieved measurable ALARA improvements in 2025, including reduced time and PPE&C burden through zoning optimization, effective use of remote tools and readiness reviews, and strengthened administrative controls supporting learning and continuous improvement. Challenges associated with high-energy alpha work and localized elevated dose rates were addressed through enhanced characterization, strengthened controls, and targeted engineered and administrative improvements.

Building on the initiatives progressed in 2025, 2026 efforts for CRL will focus on completing remaining in-progress improvements and further strengthening work controls, engineered protections, and monitoring consistency to reduce individual and collective dose and improve control of radiological hazards.

7.1.2 Contamination Control

CRL performs routine contamination monitoring of personnel, tools, equipment, and work areas. The type and frequency of monitoring are determined by the radiological zone classification and the potential for contamination associated with the work being conducted. A personnel contamination event is defined as the presence of radioactive contamination above defined levels stated in Table 18 that cannot be attributed to Naturally Occurring Radioactive Material, unless the Naturally Occurring Radioactive Material isotopes are produced as part of a licensed activity.

Table 18 summarizes the contamination events recorded at CRL from 2021 to 2025, including occurrences involving skin, personal clothing, radiological work clothing, workplace surfaces, and vehicles or materials.

Table 18: Contamination Events

Year	Skin and Clothing Contamination				Workplace Contamination	
	Skin[a]	Personal Clothing[b]	Radiological Work Clothing[c]	Total	Surface[d]	Vehicle/ Materials[e]
2021	8	11	27	46	21	30
2022	4	12	12	28	22	10
2023	2	18	4	24	23	5
2024	2	7	7	16	21	3
2025	2	10	16	28	14	1

[a] Contamination found is greater than 4 Bq/cm^2 (~750 cpm over 15.5 cm^2 on a Ludlum 44-9 detector) beta-gamma and/or greater than 0.4 Bq/cm^2 alpha (alpha limit established at 23 cpm on a Ludlum 43-5 detector).

[b] Contamination detected above background on clothing not supplied as radiological work clothing by CNL.

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[c] Contamination detected is greater than 4 Bq/cm^2 beta/gamma and/or greater than 0.4 Bq/cm^2 alpha.
[d] Fixed/loose contamination in excess of limits specified for the applicable radiological zone.
[e] Surface contamination detected above background, including removable and fixed contamination.

A review of contamination events from 2021 to 2025 shows a strong overall improvement in contamination control performance across the site with total events steadily decreasing from 2021 to 2024. Although the total skin and clothing contamination events increased in 2025 compared to the previous two years, this rise was primarily driven by radiological work-clothing contamination rather than a broad decline in site-wide controls. Skin contamination events remained consistently low since 2022, and contamination involving vehicles or materials showed reduction over the five-year period.

In 2025, one notable exception was a contractor vacuum truck contamination event associated with sewage/sludge removal at Building [redacted] Unmarked waste (likely clearable) containing contaminated items was inadvertently transported offsite, resulting in a release of radioactive-contaminated material to a local area in Deep River. RP subsequently confirmed beta/gamma contamination at the truck's rear discharge area where dried sludge was present. The event was reported to the CNSC.

While 2025 saw an increase in contamination detected on radiological work clothing, these events were largely limited to a small number of specific work areas and were identified and controlled within designated radiological zones. Importantly, these events did not impact the public, the environment, or uncontrolled site areas, and no worker received a dose of health or safety significance.

In 2025, there were no contamination events that required a formal skin dose assessment.

7.1.3 Dose Control

CRL managers establish and confirm Dose Control Points (DCPs) for workers based on the planned scope of work and a review of individual dose histories. DCPs are set conservatively below both CNSC regulatory limits and CNL action levels and function as administrative tools to support routine individual dose management by supervisors and managers. Exceedance of a DCP is not reportable to the CNSC.

In 2025, there were no DCP exceedances, no action level exceedances, and no regulatory dose exceedances at CRL.

To prevent unplanned exposure to elevated dose rates, CNL maintained enhanced radiological work planning, use of radiological hold-points, contamination and dose-rate control strategies, and pre-job briefings. During field execution, workers relied on PADs for real-time monitoring and immediate feedback when encountering elevated dose rates.

Maximum PAD dose and dose rate results for the five-year period (2021–2025) are summarized in Table 19. In 2025, the maximum daily dose remained low (0.55 mSv), and the maximum instantaneous dose rate remained consistent with short-duration excursions near localized

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dose-rate sources while sampling the Stored Liquid Waste (SLW) Tanks (i.e. [redacted]).

In 2025, there were six recorded events where a radiological control back-out point was reached during radiological work due to unexpected radiological conditions. Three events involved PAD dose alarms, while the other three events were non-PAD back-outs.

Table 19: CRL Personal Alarming Dosimeter Dose Summary

	2021	2022	2023	2024	2025
PAD – Maximum Daily Dose (mSv)	0.81	0.37	0.31	0.27	0.55
PAD – Maximum Dose Rate (mSv/h)	44.3	48.1	17.8	9.5	33.5

7.1.4 Sealed Sources

As of 2025 December 31, CRL maintained 219 registered sealed or contained sources, and 34 X-ray emitting devices. CNL continues to maintain an inventory of sources that are below the CNSC exemption quantity. In 2025, there were no instances of radiation sources confirmed or suspected to be lost or stolen.

Two sealed-source events were reported in CNL's ImpAct system during 2025. Verifications conducted in Building [redacted] identified a total of 16 sources with administrative discrepancies, including incorrect or duplicate tagging, missing intended-use information, unregistered tritium sources, and sources not available for observation. One source was fully decayed and requires de-registration and disposal. All sources remained safely contained at all times, and corrective actions were promptly initiated, including updating registry data, correcting labels, registering unlisted sources, transferring responsible users, and initiating disposal of the decayed source. These actions strengthen compliance and improve the accuracy and integrity of the sealed-source management program.

During a 2024 review, legacy BOT Engineering Krypton-85 beta check sources were determined by the CNSC to meet the definition of radiation devices and were found to be in use without valid CNSC certification resulting in a reportable event [20]. The Douglas Point unit had already been removed from service, and an extent of condition identified three additional uncertified units at CRL, all of which were immediately taken out of service with no evidence of leakage or damage.

7.2 Dosimetry

CRL uses the CRL licensed Dosimetry Service Provider for external and internal dosimetry for site/facility staff and contractors. CRL staff who work or frequently enter the Controlled Areas are assigned Thermoluminescent Dosimeters (TLDs) to monitor for external radiation exposures.

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7.2.1 Interpretation of Reported Dose Quantities

For persons monitored at CRL, the effective dose is shown in Table 20. The effective dose (Total Whole Body) is the sum of the following components: external penetrating, neutron, tritium and non-tritium committed effective dose. External penetrating dose can be interpreted as Hp(10) for photons and is obtained by reading the thick chip TLD.

Equivalent dose to the skin is shown in Table 21. Equivalent dose to the skin (shallow) is the sum of following components: external surface, neutron, and tritium committed effective dose. External Surface dose can be interpreted as Hp(0.07) for photons and betas and is obtained by reading the thin chip TLD.

In Table 22, equivalent dose to the hands and feet is provided, equal to the extremities' component, and obtained by reading the extremity TLD.

The individual components are summarized in Table 23.

7.2.2 Radiation Doses to Personnel

The dose data presented in all tables represent the doses delivered at CRL for all monitored persons, which includes employees (including those in temporary employment such as students), contractors (including sub-contractors), and visitors.

Doses are not broken down by individual facilities because monitored individuals routinely move between facilities without changing their TLDs. This makes it impractical to accurately attribute dose to a single facility.

The doses in this report reflect the person's current designation (employee, contractor, or visitor) at the time of reporting and do not represent their designation throughout the entire calendar year.

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Table 20: Distribution of Effective Dose for CRL

Monitored Person Type		Dose Range (mSv)							Total # of Persons	Individual Dose (mSv)			Collective Dose (person·mSv)
		0	0.01-0.50	0.51-1.00	1.01-5.00	5.01-10.00	10.01-20.00	>20.00		Max	Avg All [a]	Ø Avg [b]	
		Number of Persons											
NEW	Employee	149	3308	129	60	1	0	0	3647[c]	5.94	0.26	0.27	952.65
	Contractor	138	513	6	4	0	0	0	661[d]	2.32	0.16	0.20	104.76
	Visitor[e]	63	114	0	0	0	0	0	177[f]	0.40	0.11	0.17	19.93
Non-NEW	Employee	71	88	0	0	0	0	0	159	0.32	0.04	0.07	6.15
	Contractor	251	27	0	0	0	0	0	278	0.27	0.01	0.07	1.99
	Visitor	1484	5	0	0	0	0	0	1489	0.17	0.00	0.08	0.42
Totals		2156	4055	135	64	1	0	0	6411	-	-	-	1085.90

a Average of all measured doses that include the zero dose value, rounded to two decimal places.

b Average of all measured doses that exclude the zero dose value, rounded to two decimal places.

c The number of NEW Employees is 3647 in Tables 20 and 21, and 3646 in Table 23. The additional person is an employee who was terminated in 2025 January and therefore did not have any accumulated dose (XP)/ effective dose (XS) samples. Their Tritium result was their close-out sample.

d The number of NEW Contractors is 661 in Tables 20 and 21, and 659 in Table 23. The difference of two is due to contractors who wore temporary TLDs at DPWF and G1WF, while their tritium doses are from CRL.

e Visitor NEWs are persons who were historically employee and/or contractor NEWs but have returned to the site as visitor while retaining their historical NEW status.

f The number of NEW Visitors is 177 in Tables 20 and 21, and 176 in Table 23. The extra individual is a visitor who wore temporary TLDs at DPWF, but their tritium dose is from CRL.

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Table 21: Distribution of Equivalent Dose to the Skin for CRL

Monitored Person Type		Dose Range (mSv)							Total # of Persons	Individual Dose (mSv)			Collective Dose (person·mSv)
		0	0.01-0.50	0.51-1.00	1.01-5.00	5.01-10.00	10.01-20.00	>20.00		Max	Avg All [a]	Ø Avg [b]	
		Number of Persons											
NEW	Employee	149	3229	186	81	2	0	0	3647	6.67	0.28	0.29	1022.13
	Contractor	138	509	10	4	0	0	0	661	3.07	0.17	0.21	110.02
	Visitor [c]	63	113	1	0	0	0	0	177	0.53	0.11	0.18	20.00
Non-NEW	Employee	71	88	0	0	0	0	0	159	0.40	0.04	0.07	6.33
	Contractor	251	27	0	0	0	0	0	278	0.31	0.01	0.08	2.25
	Visitor	1484	5	0	0	0	0	0	1489	0.22	0.00	0.09	0.47
Totals		2156	3971	197	85	2	0	0	6411	-	-	-	1161.20

a Average of all measured doses that include the zero dose value, rounded to two decimal places.
b Average of all measured doses that exclude the zero dose value, rounded to two decimal places.
c Visitor NEWs are persons who were historically employee and/or contractor NEWs, but have returned to the site as visitor while retaining their historical NEW status.

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Table 22: Distribution of Equivalent Dose to the Hands and Feet for CRL

Monitored Person Type		Dose Range (mSv)							Total # of Persons	Individual Dose (mSv)			Collective Dose (person·mSv)
		0	0.01-0.50	0.51-1.00	1.01-5.00	5.01-10.00	10.01-20.00	>20.00		Max	Avg All [a]	Ø Avg [b]	
		Number of Persons											
NEW	Employee	28	50	27	61	13	8	7	194	54.58	3.01	3.52	584.23
	Contractor	2	9	2	5	1	0	0	19	5.35	1.24	1.39	23.58
	Visitor [c]	-	-	-	-	-	-	-	-	-	-	-	-
Non-NEW	Employee	0	1	0	0	0	0	0	1	0.01	0.01	0.01	0.01
	Contractor	-	-	-	-	-	-	-	-	-	-	-	-
	Visitor	0	1	1	0	0	0	0	2	0.62	0.39	0.39	0.78
Totals		30	61	30	66	14	8	7	216	-	-	-	608.60

a Average of all measured doses that include the zero dose value, rounded to two decimal places.

b Average of all measured doses that exclude the zero dose value, rounded to two decimal places.

c Visitor NEWs are persons who were historically employee and/or contractor NEWs, but have returned to the site as visitor while retaining their historical NEW status.

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Table 23: Summary of Dose Components Received as a Result of Licensed Activities for 2025 [a]

Monitored Person Type		External Penetrating Dose (mSv)					External Surface Dose (mSv)					Extremity Dose (mSv)				
		Total # Persons	Max	Avg All [b]	Ø Avg [c]	Collective (p·mSv)	Total # Person	Max	Avg All [b]	Ø Avg [c]	Collectiv (p·mSv)	Total # Persons	Max	Avg All [b]	Ø Avg[c]	Collective (p·mSv)
NEWs	Employee	3646	5.94	0.26	0.27	950.71	3646	6.67	0.28	0.29	1020.19	194	54.58	3.01	3.52	584.23
	Contractor	659	2.32	0.16	0.20	104.73	659	3.07	0.17	0.21	109.99	19	5.35	1.24	1.39	23.58
	Visitor [d]	176	0.40	0.11	0.17	19.93	176	0.53	0.11	0.18	20.00	-	-	-	-	-
Non-NEWs	Employee	159	0.32	0.04	0.07	6.15	159	0.40	0.04	0.07	6.33	1	0.01	0.01	0.01	0.01
	Contractor	278	0.27	0.01	0.07	1.99	278	0.31	0.01	0.08	2.25	-	-	-	-	-
	Visitor	1489	0.17	0.00	0.08	0.42	1489	0.22	0.00	0.09	0.47	2	0.62	0.39	0.39	0.78
Total		6407	-	-	-	1083.93	6407	-	-	-	1159.23	216	-	-	-	608.60

Monitored Person Type		Tritium Committed Effective Dose (mSv)					Non-Tritium Committed Effective Dose (mSv)					Neutron Dose (mSv)				
		Total # Persons	Max	Avg All [b]	Ø Avg [c]	Collective (p·mSv)	Total # Person	Max	Avg All [b]	Ø Avg [c]	Collectiv (p·mSv)	Total # Persons	Max	Avg All [b]	Ø Avg [c]	Collective(p·mSv)
NEWs	Employee	198	0.15	0.01	0.05	1.94	-	-	-	-	-	39	0.00	0.00	-	0.00
	Contractor	19	0.02	0.00	0.02	0.03	-	-	-	-	-	1	0.00	0.00	-	0.00
	Visitor [d]	1	0.00	0.00	-	0.00	-	-	-	-	-	-	-	-	-	-
Non-NEWs	Employee	4	0.00	0.00	-	0.00	-	-	-	-	-	1	0.00	0.00	-	0.00
	Contractor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Visitor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		222	-	-	-	1.97	0	-	-	-	0	41	-	-	-	0.00

a All quantities are measured in mSv unless otherwise noted.
b Average of all measured doses that include the zero dose value, rounded to two decimal places.
c Average of all measured doses that exclude the zero dose value, rounded to two decimal places.

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d Visitor NEWs are persons who were historically employee and/or contractor NEWs but have returned to the site as visitor while retaining their historical NEW status.

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Lens of the eye dosimetry was not required for any of the work performed at the CRL in 2025 as there was no work conducted that was assessed to have a potential exposure to the lens of the eye of greater than 1 mSv.

7.2.2.1 Discussion of Dose Data

In 2025, no worker received a radiation dose greater than any of the respective radiation dose limits for Nuclear Energy Workers, as defined by the Radiation Protection Regulations [21].

The CRL site collective effective dose in 2025 was 1086 person-mSv (see Table 20), slightly less than 2024 (1091 person-mSv).

The regulatory limit for effective dose in any one year is 50 mSv for persons designated as a NEW. Specific to 2025, the highest effective dose assigned to a NEW (a Material Sciences Technologist, in Material Science department) was 5.94 mSv (Table 20). At CRL, the Action Level for yearly effective dose is 10 mSv.

The regulatory effective dose limit for a NEW over a fixed five-year period is 100 mSv. The relevant regulatory-defined block of five years is from 2021 to 2025. The maximum individual effective dose during the current five-year period (2021 January 01 – 2025 December 31) is 18.65 mSv, received by a Nuclear Operator 1 in Facility & Compliance Management department.

The regulatory limit for equivalent dose to the skin in any one year is 500 mSv for persons designated as NEW. Specific to 2025, the highest equivalent dose to the skin to a NEW (a Material Sciences Technologist, in the Material Science department) was 6.67 mSv (Table 21). The yearly action level for equivalent dose to the skin is 15 mSv.

For other dose components (Table 23), the highest tritium dose of 0.15 mSv was received equally by two persons, both Tritium Facility Technologists in the S&T Facilities Operation Division.

The highest accumulated extremity dose of 55 mSv in 2025 (see Table 22), was recorded by a S&T RFFL Technician, in the S&T Facilities Operation Division. For a NEW, the regulatory limit of extremity is 500 mSv annually and the action level is 50 mSv per quarter. Although the total dose accumulated over the year is notable, only in one instance did an individual's dose exceed 10 mSv but remained well below the action level.

The neutron dose received by all 41 staff members who were issued a neutron dosimeter was zero, resulting in a collective neutron dose of zero for 2025 (see Table 23).

In 2025, the maximum individual effective dose from the time the pregnancy was declared was 0.19 mSv. The regulatory limit for pregnant nuclear energy workers is 4 mSv for the balance of their pregnancy. The CRL annual action level for the balance of pregnancy for a pregnant NEW is 0.75 mSv.

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There were 1926 non-NEW persons (comprising employees, contractors and visitors) whose effective dose has been assessed in 2025 calendar year. For non-NEWs, the highest annual external penetrating dose and the highest annual external surface dose were 0.32 mSv and 0.40 mSv respectively (see Table 23). The CRL annual action level for a non-NEW effective dose is 0.75 mSv.

There were 177 NEW visitors whose designation is largely resulting from individuals who are subcontracted to perform work for CNL at CRL and require frequent access to Controlled Areas.

7.2.2.2 Radiation Dose Changes or Trends

Figure 1 shows the maximum individual effective dose and CRL collective dose for the past five years (2021-2025). Although the maximum individual dose increased from 4.22 mSv in 2024 to 5.94 mSv in 2025, it remains below the annual effective dose action level of 10 mSv.

In contrast, the collective effective dose has continued to decrease since 2023.

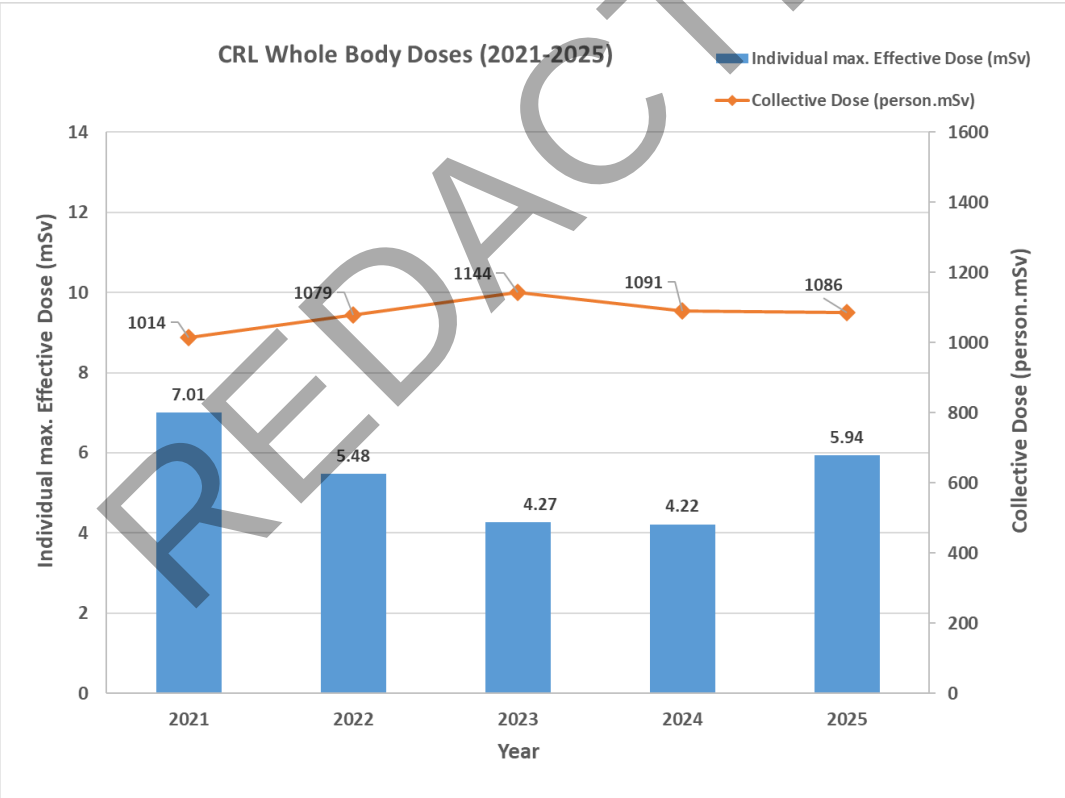


Figure 1: Maximum Individual Effective Dose and CRL Collective Dose from 2021 to 2025

7.2.3 Program Exceedances

There was no regulatory or action level exceedances at CRL in 2025.

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8 Conventional Health and Safety

8.1 Conventional Health and Safety Program

CRL adheres to CNL's Occupational Safety and Health (OSH), Electrical Safety, and Health Centre FSAs. Refer to Section 8 of the *ACMR for CNL for 2025* for details [1].

The OSH Program is applied at the CRL site through:

- Participation in the development and approval of work plans through IWC.
- Provision of technical and regulatory site-wide support to improve and strengthen the functional processes.
- Conduct of field observations and workplace inspections to identify and correct unsafe working/building conditions.

The effectiveness of the Conventional Health and Safety Program at CRL has been enhanced through key improvements in 2025, including:

- Developed a preliminary Occupational Safety & Health Dashboard as a user-friendly tool to visualize safety performance trends and assist in the prioritization of corrective actions.
- OSH program specialists made more than sixty field observations and provided technical support of implementation of the pipe labelling expectations of the *Safety Signage* standard.
- Industrial Hygiene staff presented on the Perchloric Acid management process developed at CRL at the annual meeting of the American Conference of Governmental Industrial Hygienists.
- OSH and Industrial Hygiene launched a trial of a newly developed tool to track hours spent completing asbestos Type 2, Type 3, and asbestos support work.
- Daily site safety shares remained a priority, disseminated during daily Plan of the Next Day meetings and pre-job operational briefings, enhancing safety awareness across the site.
- 1090 observations were conducted by CRL OSH Staff in 2025; these observations covered a variety of topics and were entered into the DevonWay system.

There are no CRL-specific licensing basis documents under the Conventional Health and Safety Program.

8.1.1 Site Safety and Health Committee

In 2025, the CRL Site Safety and Health Committee met monthly (i.e., 11 meetings during the year) and generated 41 actions, of which 32 were resolved and 9 remained open. The committee acts as an oversight body; therefore, these actions provide assurance of the effectiveness of the actions of the functional safety groups on site.

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Representatives of the committee are provided an opportunity to participate in the investigation of events relating to health and safety and participate in the investigation of every event that is reportable to Employment and Social Development Canada (e.g., Hazardous Occurrence Investigation Reports).

8.1.2 Inspections

There were 229 site health and safety inspections completed in 2025, representing a 99.6% completion rate.

In the course of these inspections, 161 hazards were identified, of which 156 have been resolved. Many of the findings were minor non-conformities with CNL governing documents. ImpActs were raised to address these issues, and remedial or corrective actions were taken as appropriate.

8.1.3 Hazardous Occurrence Investigation Reports and Lost-Time Injuries

There were 25 hazardous occurrences at CRL that were reported to Employment and Social Development Canada in 2025. CNSC staff received copies of these notifications, as per the requirements of the CNSC REGDOC-3.1.2 [4].

Table 24 presents a summary of injury rate data for the last 5 years.

Table 24: Summary of CRL Injury Rate Data

	2021	2022	2023	2024	2025
CRL Employees					
Person Hours Worked	5,709,410	5,709,410	5,638,040	5,328,156	5,673,679
Lost-Time Injuries	3	2	3	14	14
Working Days Lost	4	3	38	285	151
Frequency[a]	0.11	0.07	0.11	0.52	0.50
Severity[b]	0.15	0.07	1.35	10.69	5.44
CRL Contractors[c]					
Lost Time Injuries	2	1	0	0	1
Working Days Lost	28	7	0	0	3

a Frequency rate equals # of Lost-Time Injuries x 200 000 hrs of exposure divided by person hours worked (based on 100 Full Time workers).

b Severity rate equals # of Working Days Lost x 200 000 hrs of exposure divided by person hours worked (based on 100 Full Time workers).

c The Number of Person Hours worked are not divulged by Contractors. As such, Frequency and Severity rates cannot be calculated.

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In 2025, there were fourteen lost time injuries to CNL employees at CRL reported to the Health Centre, and no lost time injuries to contractors who are provincially regulated. The Conventional Health and Safety Program is implementing several measures to strengthen the rigour of investigations for individual events and to assess events in aggregate for identifying common causes. In parallel, the OSH Program has established an Annual Improvement Plan focused on addressing underlying conditions that can lead to injuries. Details of the lost time injuries to CNL employees are provided in Table 25, below.

Table 25: Summary of CRL Lost Time Injuries in 2025

ImpAct	Incident Date	Incident/Injury Description
ERM-25-0583	2025-02-12	Employee was exiting a truck, stepped down on a pile of snow, and started to fall to the ground. They hyperextended their arm while catching themselves, which exacerbated a previous injury.
HSSE-25-0562	2025-02-18	Employee walked for approximately 45 minutes through 2’ to 3’ deep snow to collect a required water sample. As the employee bent down to collect the sample, they felt a sharp pain to the lower back.
HSSE-25-0704	2025-03-06	Employee slipped on wet, icy pavement, fell onto backside, and struck the back of head on the ground.
ERM-25-0972	2025-03-10	Employee was moving a portable miter-saw table from floor to standing position, and experienced pain to the lower back.
HSSE-25-1121	2025-04-07	Employee was sorting through clean waste bin, bent over to obtain a number on the side of the bin and as employee stood up, hit right side of head on roll off bin.
HSSE-26-0072	2025-05-18	Employee has approved claim from WSIB for presumption that injury/illness arose out of and in the course of employment.
ERM-25-1733	2025-05-26	While drilling holes into the base of an aluminum flagpole stand, employee was holding the base with one hand and using drill with the other hand. Drill bit contacted finger, resulting in a puncture wound.
HSSE-25-3880	2025-06-10	Employee has approved claim from WSIB for presumption that injury/illness arose out of and in the course of employment.
HSSE-25-3065	2025-08-11	Employee felt a “pop” in groin area while lifting up a barrier for vehicles to pass through.
CTA-25-3106	2025-08-13	While on a tour, employee began to experience dizziness and fatigue. They removed themself from the tour to cool down. Drank water and ran cool water over face and arms. At lunch, they ate and then vomited.
S&T-25-3328	2025-09-08	Employee was on the floor lying on a foam mat while working on scientific rig. Upon standing, felt sharp shooting pain across lower back and radiated to left leg.

REDACTED

ImpAct	Incident Date	Incident/Injury Description
HSSE-25-3915	2025-09-17	Employee feels work boots are causing left knee strain. Employee was not able to identify any specific event or incident to cause knee strain.
HSSE-25-3782	2025-09-23	Employee sustained injury to left foot while performing NRF training. They were in a starting position for a stair-climbing exercise, and upon lifting left foot, felt a "pop".
ERM-25-4186	2025-11-10	Employee stepped onto the snow-covered concrete, slipped, and fell injuring left shoulder and left arm.

REDACTED

9 Environmental Protection

9.1 Environmental Protection Program

CRL adheres to CNL's Environmental Protection (EnvP) FSA. Refer to Section 9 of the *ACMR for CNL for 2025* for details [1].

CRL has implemented and maintained an EnvP Program which includes a set of action levels. CRL has reported to the CNSC, as required, when an action level has been reached.

In 2025, the EnvP Program continued to provide updates on key environmental parameters (including spills) and posted these in a summary document on the company website where it is available to the public.

Notable highlights for the EnvP Program at CRL in 2025 include the following:

- An update to the Environmental Risk Assessment (ERA) for the CRL site, compliant with CSA N288.6, *Environmental risk assessments at nuclear facilities and uranium mines and mills* [22], was submitted to the CNSC, and the final report issued in 2025 September. This substantive document incorporates the recommendations from the previous ERA, new environmental monitoring and characterization data, and refinements to the evaluation of risk. Once translated into French, the report will be made available to the public via CNL's external website.
- The *CRL Non-Radioactive Effluent and Emissions Verification Monitoring Plan* [23], *CRL Radioactive Effluent and Emissions Verification Monitoring Plan* [24], and *CRL Environmental Monitoring Plan* [25] were revised in 2025 March. These monitoring plans identify the why, where, and what is monitored at the site, documenting the design and conduct of the monitoring programs in alignment with the requirements and guidance of the CSA N288 suite of environmental standards.
- The site's effluent and environmental monitoring programs are designed and operated in accordance with the CSA N288 suite of environmental standards. In 2025, gap analyses of the site's Effluent Verification Monitoring Program and Environmental Monitoring Program were conducted against the most recent editions of CSA N288.5, *Effluent and emissions monitoring program at nuclear facilities* [26], and CSA N288.4, *Environmental monitoring programs at nuclear facilities and uranium mines and mills* [27], respectively. Implementation plans were developed to address gaps. By 2025 November, the Environmental Monitoring Program was aligned with the newer edition of CSA N288.4. Remaining actions for the Effluent Verification Monitoring Program focus on the documentation of analytical measurement uncertainties and are ongoing.
- In 2025, there was an increase in the number of field assessments conducted, with a total of 1,685 field observations recorded, an increase of 193% compared to 2024. Field presence on the part of EnvP resulted in identification of areas for improvement (comprising 14% of the observations), mainly related to spill containment, erosion and sediment control, and leaks and spills prevention.

REDACTED

- An audit of EnvP was conducted at CRL in 2025 October. The purpose of the audit was to confirm that the Environmental Management System is effectively implemented and maintained. Focus areas included:
  - Erosion Control and Stormwater Management
  - Roads and Grounds Maintenance
  - Operational Controls of Significant Environmental Aspects
  - Training and Qualifications
  - Maintenance of Project Boundaries
- An external ISO 14001 audit of the CRL Environmental Management System took place in 2025 May. The audit demonstrated that CRL has an effective, adequate and mature environmental protection program.
- Refer to Section 1.2 for a complete list of programmatic self-assessments and audits conducted during the reporting period.

EnvP licensing basis document submissions in 2025 specific to CRL were provided to CNSC staff as indicated in the table below.

Table 26: CRL Environmental Protection Licensing Basis Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
CRL Non-Radioactive Effluent and Emissions Monitoring Plan, CRL-509200-PLA-003	Routine update	ENVP-CNNO-25-0004-L
CRL Radioactive Effluent and Emissions Verification Monitoring Plan, CRL-509200-PLA-004	Routine update	ENVP-CNNO-25-0004-L
CRL Environmental Monitoring Plan, CRL-509200-PLA-007	Routine update	ENVP-CNNO-25-0004-L

REDACTED

9.2 Effluent Monitoring

The effluent monitoring results, as required under Licence Condition 3.2 Reporting Requirements, are contained in a separate report: *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5], which is submitted separately to the CNSC.

10 Emergency Management and Fire Protection

10.1 Emergency Preparedness Program

CRL adheres to CNL's Emergency Preparedness (EmP) FSA. Refer to Section 10.1 of the *ACMR for CNL for 2025* for details [1].

During the 2025 calendar year, the CRL EmP Program focused on supporting the safe operations of the CRL site and fulfilling the requirements of the emergency response organization. The following are some of the highlights of the CRL EmP Program in 2025:

- Fulfilled the drill and exercise requirements outlined in the Five-Year Drill and Exercise Plan.
- Continued support to the CRL site regarding emergency response training and maintenance of procedures, such as building emergency plans.
- In 2025 August, the CRL site exited the Province of Ontario Provincial Nuclear Emergency Response Plan Implementing Plan for CRL and was transitioned to the Province of Ontario Provincial Nuclear Emergency Response Plan Implementing Plan for Other Radiological Emergencies. As a result of this transition, the CRL EmP Program no longer requires emergency mitigation resources or processes within the communities surrounding the CRL site.
- CRL EmP staff and S&T staff participated in the international Cobalt-25 exercise which simulated a nuclear power reactor accident occurring in Michigan that had cross-border radiological impacts to Ontario. During the exercise, S&T staff developed plume models for the accident scenario and communicated that information to federal agencies, including Health Canada and the CNSC. The exercise also focused on the deployment of CRL's Radiological Assessment Team (RAT) to simulated areas impacted in Ontario. The RAT practised sampling and reporting findings on areas impacted to confirm plume modeling being completed by CRL S&T staff and other federal agencies. This exercise validated CRL's technical and operational capacity to support federal and provincial authorities during large-scale, multi-jurisdictional radiological emergencies, enhancing confidence in CRL's emergency response capabilities beyond site-specific events.
- Supported the CRL Fire Operations Department in a training demonstration of physically burning an Electric Vehicle (EV) to demonstrate to internal Fire Department Operations staff, external Fire Department Mutual Aid responders, and other responding agencies the proper approach to extinguishing these types of EV fires.
- Business Continuity Planning continued to be actioned by the CRL EmP group. Some examples include improvements in cyber security initiatives and running cyber security exercises to align with response documentation and their tiered objectives for Business Continuity and Emergency Response.

REDACTED

There were no revisions to CRL Emergency Preparedness Program licensing basis documents submitted to CNSC staff during the reporting period.

10.1.1 Drills and Exercises

The 2025 CRL drill and exercise schedule was executed according to the Five-Year Drill and Exercise Plan. All required drills planned for the 2025 calendar year were performed as outlined in the plan. Four major exercises were completed, including four functional Integrated Response Exercises, one of which included mutual aid responders that support the CRL site. Integrated Response Exercises provide the CRL emergency response organization with an opportunity to respond to a simulated scenario, ensuring that a unified command approach is occurring and that all safety requirements are being met. These types of exercises allow the CRL

emergency response organization to identify response gaps and correct them before any real events occur. During the 2025 Integrated Response Exercises, no major gaps were identified.

One functional CRL Site Stay-In exercise was also completed in 2025 along with a fully functional transportation accident exercise involving radiological material in North Bay, Ontario. The transportation accident exercise involved first responders from the Ontario Provincial Police, North Bay Police Service, North Bay Fire Department, North Bay Regional Hospital, OPP Provincial Communications Centre, North Bay Central Ambulance Communications Centre, and the North Bay Paramedics. The Stay-In exercise and functional transportation accident involving radiological material identified some documentation gaps in emergency response procedures for internal departments at CRL to be updated and corrected through CNL's problem identification and resolution process to make responses more efficient and flexible.

The following tests of emergency response equipment were conducted during the 2025 calendar year to ensure that emergency response equipment remains effective and in good working order, meeting all safety and compliance requirements:

- Weekly emergency notification testing for designated emergency response groups.
- Monthly plant emergency siren testing.
- Monthly emergency notification testing for designated emergency response groups.
- Monthly emergency employee bulletins.
- Annual off-site initial notifications to groups such as the Provincial Emergency Operations Centre.

10.1.2 Training

There were no dedicated CRL EOC training sessions for new EOC staff in 2025. However, continuous EOC CRL training and awareness occurs through:

- Monthly EOC Commander Meetings (review scenarios, align decision making and priorities).
- EMP-1034, Integrated Emergency Response training for CRL EOC staff.
- Weekly on-coming EOC team meetings (networking, refresher, updates, and OPEX).

Presently there are more than 80 staff trained to function out of the CRL EOC, and all trained staff are compliant with their initial and refresher CRL EOC training requirements.

CRL EmP continues to deliver the following training to CRL staff and contractors:

- EMP-1021, Officer in Charge and Emergency Steward training.
- EMP-2021, Officer-in-Charge and Emergency Steward computer-based refresher training.
- EMP-1018, EOC - Incident Authority training.
- EMP-1034, Integrated Emergency Response training for CRL EOC staff.

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10.1.3 Status of Emergency Resources and Facilities

CRL EmP staff continue to ensure that both the primary and alternate EOC's are evaluated and maintained for managing on and off-site emergencies such as transportation accidents involving radiological material. CNSC staff continue to assess their own equipment at the CRL EOC monthly. Any deficiencies are addressed promptly to ensure that equipment is in a state of readiness.

CRL EOC equipment was used and evaluated during several training sessions and exercises over the 2025 calendar year. The equipment was also tested weekly by CRL EmP staff. Decontamination facilities, equipment, and supplies are available across the site to ensure quick response to personnel requiring decontamination. Protocols are in place to address localized events at the CRL site and local hospitals are equipped with supplies to support contaminated patients. Inventory checks are completed annually. The CRL site is staffed 24/7 with fire, security, and RP personnel for response to emergencies and provision of first aid to those requiring it. A registered nurse and additional first aid trained personnel are available during business hours (08:15 to 16:25 Monday to Friday). RAT staff and vehicles are used for responding to radiation emergencies on site, transportation accidents involving radioactive material off-site, and requests in support of Government of Canada initiatives through the Federal Nuclear Emergency Plan, Technical Assessment Group as well and mutual aid requests. A complete inventory of all RAT equipment is taken monthly, and instruments are checked for functionality monthly and calibrated annually.

The CRL EmP Program continues to monitor facility emergency management requirements regarding required Building Emergency Procedures and required drills in occupied buildings to make sure that identified hazards are addressed with proper alarms for the hazards, accompanied by expected response procedures associated with the alarms.

10.1.4 External Collaborations

In 2025, CRL EmP staff continued to collaborate with external agencies through:

- Participation in federal, provincial, and municipal nuclear emergency planning committees.
- Maintaining off-site communications with local and regional response agencies.
- Annual participation in off-site notification drills conducted by the Federal Nuclear Emergency Plan, Technical Assessment Group.
- Membership in the Ontario Nuclear Emergency Management Coordination Committee.
- Membership in the Federal Radiological Nuclear Emergency Management Coordination Committee.
- Interfacing with Garrison Petawawa through quarterly review of emergency response protocols.

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- Engagement with the Province of Quebec, Direction régionale de la sécurité civile et de la sécurité incendie de l'Outaouais, to communicate CNL's intentions to not replace Potassium Iodide supplies in communities located in Quebec surrounding the CRL site.
- Supporting the continued *Memorandum of Understanding* with the Royal Canadian Mounted Police regarding nuclear forensics applications and response.
- Supporting training to the Ontario Provincial Hazardous Materials team from the North Bay Fire Department regarding RP training.
- Participation in the following working groups and committee:
  - Federal Radiation Assessment Team Committee.
  - Provincial Nuclear Incident Group.
  - Provincial Environmental Radiological Assurance Monitoring Group.
  - National Environmental Monitoring Strategy.

10.1.5 Unplanned Emergency Events

In the 2025 calendar year there were no unplanned emergency events that resulted in the activation of the CRL EOC.

10.2 Fire Protection Program

CRL adheres to CNL's Fire Protection FSA. Refer to Section 10.2 of the *ACMR for CNL for 2025* for details [1].

The CNL Fire Protection Program maintains its commitment to preventing or minimizing the direct and indirect effects of fire on people, property, and programs. General fire protection services capable of providing fire suppression response to mitigate loss of life, environment, and property damage continued to be provided 24 hours a day, 7 days a week at CRL. These services meet the requirements of CSA N393, *Fire Protection for Facilities that Process, Handle or Store Nuclear Substances* [28], and are provided by the CRL Fire Department. All work activities and changes which could impact protection from fire continue to be assessed through the Fire Protection Screening Process.

CNL maintained and/or confirmed the compliance of its Fire Protection Program at CRL in 2025 through the following activities:

- Fire Prevention Officers conducted monthly inspections of all facilities at CRL. All inspections were conducted with a facility representative to facilitate immediate remedial action if required.
- Conducted the bi-annual industrial Fire Brigade Evaluation as required by CSA N393 [28].
- Performed Chalk River Monthly Fire System Inspection, Testing and Maintenance requirements as per schedule with no significant deficiencies noted.
- Conducted Fire Protection Oversight Plan assessments for CRL and developed corrective action plans to address findings from the assessments.

REDACTED

Fire Protection Program licensing basis document revisions in 2025 specific to CRL were provided to CNSC staff in submissions identified in the table below.

Table 27: CRL Fire Protection Program Licensing Basis Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
Chalk River Laboratories - Buildings [redacted] Fire Hazard Assessment, 10069946	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069933	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment Confirmation, 10069926	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Buildings [redacted] Fire Hazard Assessment, 10069544	5-year review cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069932	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10068146	5-year review cycle	163-CNNO-25-0005-L
Chalk [redacted] er Laboratories - Buildings [redacted] Fire Hazard Assessment, 10069915	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069719	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069536	5-year review cycle	163-CNNO-25-0016-L
Confirmation of the Building [redacted] Fire Hazard Assessment, 10069238	5-year review cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069921	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069533	5-year review cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069920	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10073859	5-year review cycle	163-CNNO-25-0038-L
Canadian Nuclear Laboratories – Chalk River Laboratories Building [redacted] Fire Hazard Assessment, 10069338	5-year review cycle	163-CNNO-25-0032-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069542	5-year review cycle	163-CNNO-25-0016-L

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Document Title and Number	Reason for Change	Correspondence #
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069918	5-year review cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Fire Hazard Assessment, 10069929	5-year review cycle	163-CNNO-25-0031-L
Fire Hazard Assess[redacted]River Laboratories - Buildings [redacted] 10064994	5-year review cycle	163-CNNO-25-0039-L
Fire Hazard Asse[redacted]River Laboratories - Buildings [redacted] 10064966	5-year review cycle	163-CNNO-25-0039-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069934	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069924	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069930	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069915	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069934	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069927	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069922	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 11069917	5-Year Review Cycle	163-CNNO-25-0028-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069546	5-Year Review Cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069537	5-Year Review Cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069534	5-Year Review Cycle	163-CNNO-25-0016-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10069543	5-Year Review Cycle	163-CNNO-25-0016-L

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Document Title and Number	Reason for Change	Correspondence #
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10068144	5-Year Review Cycle	163-CNNO-25-0005-L
Canadian Nuclear Laboratories – Chalk River Laboratories Building [redacted] Code Compliance Review, 10069344	5-Year Review Cycle	163-CNNO-25-0032-L
Chalk River Laboratories - Building [redacted] Code Compliance Report, 10073863	5-Year Review Cycle	163-CNNO-25-0038-L

10.1.6 Fire Response Drills

Fire response drills are designed for facility staff to practice evacuating, assembling in the designated areas, and reporting to the Incident Commander on scene. In 2025, Fire Protection personnel participated in 37 fire drills at the CRL site, one integrated response drill, one mutual aid fire drill with Laurentian Hills Fire Department and one Stay-In integrated response drill. The integrated response exercises continue to improve the interoperability of various programs (Fire Protection, Security, RP, EnvP, and Industrial Hygiene), which could be required to respond to an event.

The drills and exercises served to validate the training that the newly identified staff receive and ensured that an appropriate response capability is in place for buildings with building emergency procedures. All required drills were completed as planned in 2025.

10.1.7 External Collaborations

In 2025, CRL Fire Protection Program staff continued to collaborate with external agencies through participation in the following:

- World Association of Nuclear Operators Fire Protection Industry Working Group Decommissioning Sub-Committee.
- Institute of Nuclear Power Operations Fire Protection Group
- Conexus Fire Protection Working Group
- CSA N393 Review Committee.
- CSA N293 Small Modular Reactor Task Force Review Committee.
- CSA N293 Review Committee.

10.1.8 Third Party Audits & Inspections

There were no third-party audits and inspections of the Fire Protection Program completed in 2025.

REDACTED

10.1.9 Fire Hazard Analysis

In 2025, 20 Fire Hazard Analysis documents encompassing 32 different buildings were updated and submitted to CNSC staff. A full list is provided in Table 27.

REDACTED

11 Waste Management

11.1 Waste Management Program

CRL adheres to CNL's Waste Management FSA. Refer to Section 11.1 of the *ACMR for CNL for 2025* for details [1].

The effectiveness of Waste Management Program at CRL has been enhanced through the following key improvements:

- Conducted dashboard-guided waste management walk-downs at CRL, including a targeted surveillance walk-down of Building [redacted] to assess implementation of the Waste Management process and support continuous improvement.
- Conducted monthly waste data surveillance to ensure that CRL waste data meets the Waste Data Standard and requirements.
- Launched the Waste Insight Dashboard, a Business Intelligence tool that consolidates waste management metrics across CRL. It provides a data-driven and interactive platform for monitoring, analyzing, and reporting Key Performance Indicators related to waste planning, generation, and operational activities. By presenting real-time insights and trends, the dashboard enables the program to assess the overall health of waste management operations and make informed, data-driven decisions.
- Continued waste minimization initiatives at CRL to improve waste diversion and meet corporate waste sustainability targets. These initiatives include:
  - Continued operation of the Waste Analysis Facility (WAF) to support the recycling of waste and reuse of materials from construction and decommissioning activities, as well as from routine operations;
  - Continued collaboration with asset management to enhance waste diversion rates through reusing and repurposing assets; and
  - Conducted a recycling awareness campaign at CRL.
- Piloted the new "Bulk Clearance of Buildings and Structures" process that was initiated at CRL to enhance the efficiency of the radiological clearance process.
- Published the technical specifications for approved waste bags (including bags for asbestos waste and for certain radioactive waste). This document provides the design basis for confirming waste bag suitability and streamlines waste bag procurement at CRL.
- Conducted a benchmarking visit to the Hanford Site (Washington State, USA), enabling CNL cross-functional teams to tour facilities, exchange lessons learned with Hanford personnel, and gain insights into waste retrieval, characterization, packaging, transportation, disposal facility operations, groundwater management, lifecycle planning, infrastructure design, communications, and safety excellence. The visit strengthened technical capability of CNL teams and informed CNL future planning.

There are no CRL-specific licensing basis documents under the Waste Management Program.

REDACTED

11.1.1 Waste Management Operations

- Table 28 summarizes the volumes of solid radioactive waste added to CRL storage facilities from routine operations and decommissioning activities in the last three years. Total volumes of Low-Level Waste (LLW) and Intermediate Level Waste (ILW) are also listed.
- Table 29 summarizes the chemical and radiological characteristics of solid radioactive waste generated by and received at CRL in 2025. Total weight in this table represents the weight of the constituent, not the weight of the waste.
- Table 30 provides volumes of solid radioactive waste generated by buildings and facilities at CRL in 2025. Additional information on the WMAs is provided in Appendix J.
- Table 31 provides the amount of solid radioactive waste shipped off-site for processing, received from off-site processing facilities, and received from external organizations through radioactive waste service. Waste Management Operations at CRL continued to utilize external vendors for selected waste requiring treatment.
- Table 32 summarizes the amounts of hazardous and mixed waste collected and transferred off-site for processing.
- Table 33 summarizes the amounts of inactive waste sent to CRL's and off-site landfills and waste receivers for reuse, recycling, and disposal. Asbestos Containing Material (ACM) friable is included in this table.

Table 28: CRL Radioactive Waste added to CRL Storage Facilities

Storage Facility	Volume from Routine Operations[a] (m^3)			Volume from Decommissioning[a] (m^3)		
	2023	2024	2025	2023	2024	2025
Used Fuel	0.0	0.0	0.0	0.3	1.3	12.4[b]
Solid Radioactive Waste to Bunkers	0.6	4.6	5.4	15.5	11.3	4.5
Solid Radioactive Waste to Tile Holes	1.3	1.5	1.6	0.0	0.9	0.5
Solid Radioactive Waste to SMAGS[c,d]	85.1	96.1	113.2	218.8	244.2	232.4
Solid Radioactive Waste to MAGS[e]	0.0	0.0	1.9	0.0	0.0	5.2
Solid Radioactive Waste to Surface Storage (WMA[redacted] WMA [redacted] and WMA[redacted] excluding SMAGS and MAGS) [f]	20.2	22.9	68.5	646.1	834.5	617.7
Dewatered Sludge to Bulk Material Landfill	0.0	0.0	0.0	0.0	0.0	0.0

REDACTED

Storage Facility	Volume from Routine Operations[a] (m^3)			Volume from Decommissioning[a] (m^3)		
	2023	**2024**	**2025**	**2023**	**2024**	**2025**
Total LLW	96.5	111.5	176.7	855.9	1086.0	855.0
Total ILW	10.7	13.7	13.9	24.6	4.9	5.5
Total[g]	107.2	125.1	190.6	880.7	1092.2	872.7

a The volumes reported in the above table are the volumes prior to processing (e.g., compaction, repackaging, etc.) and are not the emplacement volumes reported in the Waste Management Area section.
b Volume is calculated based on 0.004 m^3 per fuel bundle.
c SMAGS: Shielded Modular Above Ground Storage
d Volume indicates waste going to SMAGS, Waste Reception Centre, Waste Treatment Centre baler, and the compactor (prior to compaction).
e MAGS (Modular Above Ground Storage) was returned to operation in 2025.
f Includes 0.6 m^3 Intermediate Level Waste added to the WMA[redacted]
g Total numbers have been rounded and include HLW.

REDACTED

Table 29: Chemical and Radiological Characteristics of Waste Generated by CRL in 2025

Storage Facility	Routine Operations					Decommissioning				
	2025					2025				
	Volume[a] (m^3)	Primary Nuclides	Total Activity (Bq)	Primary Constituents	Total Weight[e,f] (g)	Volume[a] (m^3)	Primary Nuclides	Total Activity (Bq)	Primary Constituents	Total Weight[e] (g)
Used Fuel	0.0	N/A	0.0E+00	N/A	0.0	0.0	N/A	0.0E+00	N/A	0.0
Solid Radioactive Waste to Bunkers	5.4	Co-60 Pu-239 Cs-137	2.4E+12	Aquaset	1,200.0	1.4	H-3 Sr-90 Cs-137	2.6E+13	Aquaset	20,000.0
Solid Radioactive Waste to Tile Holes	1.6	Ru-106 Cs-137 Cs-134	2.3E+14	Chromium Nickel Aluminum	603.8	0.5	Cs-137 Ba-137M Y-90	7.7E+13	N/A	0.0
Solid Radioactive Waste to SMAGS[b] (before processing)[c]	113.2	Co-60 Ru-106 Xe-133	7.3E+11	Aluminum Lead Chromium	7,029.8	214.6	H-3 Xe-133 Co-60	8.2E+12	Aluminum Lead Chromium	123.6
Solid Radioactive Waste to MAGS[d]	1.9	Cs-137 Pu-241 Sr-90	2.8E+06	N/A	0.0	5.2	Cs-137 Sr-90 Pu-239	3.0E+07	N/A	0.0
Solid Radioactive Waste to Surface Storage (WMA [redacted] excluding	68.5	H-3 Co-60 Fe-55	5.7E+10	Aluminum	140.0	463.3	H-3 Sr-90 C-14	8.7E+11	Aquaset Aluminum	21,000.0

REDACTED

Storage Facility	Routine Operations					Decommissioning				
	2025					2025				
	Volume[a] (m^3)	Primary Nuclides	Total Activity (Bq)	Primary Constituents	Total Weight[e,f] (g)	Volume[a] (m^3)	Primary Nuclides	Total Activity (Bq)	Primary Constituents	Total Weight[e] (g)
SMAGS and MAGS)										
Dewatered Sludge to Bulk Material Landfill	0.0	N/A	N/A	0	N/A	0.0	N/A	0.0E+00	N/A	0.0
Total	**190.6**	**N/A**	**2.3E+14[f]**	**N/A**	**8,973.6[f]**	**685.0**	**N/A**	**1.1E+14**	**N/A**	**41,123.6**

a The volumes reported in the above table are the volumes prior to processing (e.g., compaction, repackaging, etc.) and are not the emplacement volumes reported in the Waste Management Area section.
b SMAGS: Shielded Modular Above Ground Storage
c Volume indicates waste going to SMAGS, Waste Reception Centre, Waste Treatment Centre baler, and the compactor (prior to compaction).
d MAGS (Modular Above Ground Storage) was returned to operation in 2025.
e Total weight of constituent, not the weight of waste.
f Total numbers may not sum exactly due to rounding.

REDACTED

Table 30: Solid Radioactive Waste Generated by Building at CRL in 2025

Building (Facility)	WMA [redacted]		WMA [redacted] WMA [redacted] and WMA [redacted]		
	Bunker (m^3)	Tile Hole (m^3)	Surface Storage (m^3)	MAGS and SMAGS[a]	
				Non-Compacted (m^3)	Volume prior to Compacting in Supercompactor (m^3)
[redacted]	0.0	0.0	7.3	3.2	16.3
[redacted]	0.0	0.0	2.7	0.0	0.0
[redacted]	0.0	0.0	0.1	0.0	0.0

Building (Facility)	WMA [redacted]		WMA [redacted] WMA [redacted] and WMA [redacted]		
	Bunker (m^3)	Tile Hole (m^3)	Surface Storage (m^3)	MAGS and SMAGS[a]	
				Non-Compacted (m^3)	Volume prior to Compacting in Supercompactor (m^3)
[redacted]	0.0	0.0	0.3	0.0	0.0
[redacted]	0.0	0.0	0.0	1.2	0.0
[redacted]	0.0	0.0	2.2	0.0	0.2
[redacted]	0.0	0.0	0.0	0.0	< 0.1
[redacted]	< 0.1	0.0	0.0	0.2	0.8
[redacted]	< 0.1	0.5	33.0	16.2	24.3
[redacted]	0.0	0.0	0.0	0.0	0.2
[redacted]	0.0	0.0	0.9	0.0	0.0
[redacted]	0.0	0.0	1.8	0.0	9.7
[redacted]	0.0	0.0	3.9	5.9	22.1
[redacted]	0.2	0.0	0.1	0.5	4.0
[redacted]	0.0	0.0	0.0	18.6	2.3
[redacted]	0.0	0.0	0.3	0.2	2.5
[redacted]	0.0	0.0	0.0	0.0	1.2
[redacted]	0.0	0.0	54.6	0.0	0.0
[redacted]	0.0	0.0	16.5	0.0	0.0
[redacted]	0.0	0.0	0.0	0.1	0.0
[redacted] NITRATE PLANT	0.0	0.0	0.0	0.0	< 0.1
[redacted]	0.4	0.6	8.3	1.8	15.4

REDACTED

Building (Facility)	WMA [redacted]		WMA [redacted] WMA [redacted] and WMA [redacted]		
	Bunker (m^3)	Tile Hole (m^3)	Surface Storage (m^3)	MAGS and SMAGS[a]	
				Non-Compacted (m^3)	Volume prior to Compacting in Supercompactor (m^3)
[redacted]	0.7	0.0	267.7	2.2	36.8
[redacted]	0.2	0.0	0.0	0.0	< 0.1
[redacted]	0.0	0.0	19.8	0.0	8.5
[redacted]	0.1	0.0	2.3	0.1	7.6
[redacted]	2.5	0.0	1.9	1.1	7.1
[redacted]	0.0	0.0	< 0.1	0.5	0.7
[redacted]	0.8	0.9	8.6	17.5	24.7
[redacted]	0.0	0.0	0.0	0.0	0.4
[redacted]	1.6	0.0	3.3	3.7	0.0
[redacted]	0.0	0.0	38.4	0.0	0.0
[redacted]	0.0	< 0.1	35.8	10.0	0.0
[redacted]	0.0	0.0	0.0	0.0	< 0.1
[redacted]	0.0	0.0	< 0.1	0.0	0.0
[redacted]	0.0	0.0	0.1	0.0	0.0
[redacted]	0.0	0.0	1.8	0.0	0.1
[redacted]	0.0	0.0	1.4	1.5	0.0
[redacted]	0.0	0.0	0.0	0.2	5.4
[redacted]	0.0	0.0	0.0	1.2	0.4
[redacted]	0.0	0.0	1.5	6.0	20.8
[redacted]	0.0	0.0	< 0.1	0.0	1.6

REDACTED

Building (Facility)	WMA [redacted]		WMA [redacted] WMA [redacted] and WMA [redacted]		
	Bunker (m^3)	Tile Hole (m^3)	Surface Storage (m^3)	MAGS and SMAGS[a]	
				Non-Compacted (m^3)	Volume prior to Compacting in Supercompactor (m^3)
[redacted]	0.0	0.0	0.0	2.0	0.0
[redacted]	< 0.1	0.0	0.0	0.0	0.0
[redacted]	0.0	0.0	0.0	0.0	< 0.1
[redacted]	0.0	0.0	0.0	1.4	0.0
[redacted]	0.0	0.0	0.0	< 0.1	0.0
[redacted]	0.0	0.0	3.2	0.0	9.5
[redacted]	0.0	0.0	0.0	0.3	0.0
[redacted]	0.0	0.0	0.0	0.0	0.2
[redacted]	0.0	0.0	0.0	< 0.1	0.2
[redacted]	0.0	0.0	5.0	0.0	2.1
[redacted]	0.0	0.0	1.1	0.0	1.9
[redacted]	0.0	0.0	4.2	< 0.1	0.0
[redacted]	0.0	0.0	0.0	0.0	1.5
CA	0.0	0.0	0.0	0.0	0.1
CHEM PIT	0.0	0.0	0.5	0.0	1.6
LDA	0.0	0.0	0.3	0.0	0.4
Parking Lot O	0.0	0.0	0.0	0.0	0.5
PERCH LAKE	0.0	0.0	0.0	0.0	< 0.1
WMA [redacted]	0.0	0.0	0.0	0.0	0.2
WMA [redacted]	0.0	0.0	< 0.1	0.0	7.6

REDACTED

Building (Facility)	WMA [redacted]		WMA [redacted] WMA [redacted] and WMA [redacted]		
	Bunker (m^3)	Tile Hole (m^3)	Surface Storage (m^3)	MAGS and SMAGS[a]	
				Non-Compacted (m^3)	Volume prior to Compacting in Supercompactor (m^3)
WMA [redacted]	0.0	0.0	0.0	0.0	< 0.1
WMA [redacted]	0.0	0.0	2.7	0.0	0.0
CRL Site Total [b]	6.5	2.0	531.6	95.6	238.9

a MAGS = Modular Above Ground Storage, SMAGS = Shielded Modular Above Ground Storage

b Total volume calculated based on values rounded to one decimal place; minor inaccuracies may occur, as values < 0.1 are excluded.

REDACTED

Table 31: Amounts of Solid Radioactive Waste Shipped Off-Site for Processing and Received from Off-Site Processor and Received from External Organizations Through Radioactive Waste Service

	2023	2024	2025
Waste Shipped Off-Site (kg)[a]	122,608	83,369	689,889
Converted Volume (m^3)	502	208	1,417

Storage Facility	Commercial Waste Volume received (m^3)			Volume of Returned Secondary Waste (from CNL Waste) (m^3)		
	2023	2024	2025	2023	2024	2025
Solid Radioactive Waste to Bunkers	0.0	0.7	3.3	0.0	0.0	0.9
Solid Radioactive Waste to Tile Holes	1.7	4.7	2.4	0.0	0.0	0.0
Solid Radioactive Waste to SMAGS[b] (Before Processing)	13.2	9.2	8.2	11.4	0.0	57.3
Solid Radioactive Waste to Surface Storage	3.2	10.2	13.9	35.6	34.3	20.3
Total	**18.1**	**24.8**	**27.8**	**47.0**	**34.3**	**78.5**

[a] The amount of solid radioactive waste shipped off-site for processing was tracked by mass because the waste processing cost is based on mass.

[b] SMAGS – Shielded Modular Above Ground Storage

Table 32: Summary of Amounts of Hazardous Waste and Mixed Waste Collected and Shipped Off-Site

Waste Type	Volume (m^3) (Mass (kg))[a]		
	2023	2024	2025
Solid Hazardous Waste Collected	4,993.9 (7,736,778)	1,538.7 (2,398,290)	156.2 (90,398)
Solid Hazardous Waste Shipped Off-Site for Disposition	5,005.9 (7,747,662)	1,536.2 (2,392,659)	157.3 (111,824)
Liquid Hazardous Waste Collected	26.7 (25,665)	20.7 (20,272)	140.2 (120,488)
Liquid Hazardous Waste Shipped Off-Site for Disposition	26.2 (24,701)	21.6 (21,158)	137.5 (117,571)
Solid Mixed Waste Collected	8.4 (12,206)	7.7 (10,169)	43.8 (47,177)

REDACTED

Waste Type	Volume (m^3) (Mass (kg))[a]		
	2023	2024	2025
Solid Mixed Waste Shipped Off-Site for Disposition	6.1 (11,309)	0.0 (0)	0.0 (0)
Liquid Mixed Waste Collected	1.9 (2,454)	0.5 (460)	0.6 (721)
Liquid Mixed Waste Shipped Off-Site for Processing	6.7 (1,273)	0.0 (0)	0.0 (0)
Liquid Radioactive PCB Waste Shipped Off-Site for Processing and Disposition	0.0 (0)	0.0 (0)	0.0 (0)
Total Collected	**5,030.9 (7,777,103)**	**1,567.6 (2,429,191)**	**340.8 (258,784)**
Total Shipped Off-Site	**5,044.9 (7,784,945)**	**1,557.8 (2,413,817)**	**294.8 (229,395)**

a Mass of waste provided by contractors, volumes have been converted.

Table 33: Clean Waste Diverted from and Directed to Disposal for CRL

Solid Non-Radioactive Waste	Volume (m^3) (Mass (kg))		
	2023	2024	2025
Dispositioned in CRL Inactive Landfill[a]	258 (135,863)	215 (48,440)	146 (22,838)
Dispositioned in Off-Site Landfills[b]	6,342 (2,173,800)	2,291 (263,875)	2,198 (164,080)
Batteries [c]	17 (9,505)	7 (4,363)	13 (11,414)
Concrete (Reuse On-Site) [d]	3,150 (7,560,000)[f]	365 (876,480)[f]	4,306 (6,769,631)[f]
Containers [c]	288 (6,810)	312 (8,940)	348 (9,880)
Corrugated Cardboard [c]	156 (31,810)	204 (40,660)	180 (33,360)
Fluorescent Lights [c]	7 (826)	10 (913)	8 (729)
Metal Recycle [c]	3,039 (647,525)	2,268 (441,255)	1,552 (363,530)
Organics [c]	644 (29,640)	440 (34,180)	330 (29,700)
Paper Recycled [c]	216 (22,140)	273 (27,930)	286 (27,520)
Soft Strip Material [c]	500	872	2,257

REDACTED

Solid Non-Radioactive Waste	Volume (m^3) (Mass (kg))		
	2023	**2024**	**2025**
	(267,670)	(138,980)	(442,780)
Waste Electrical and Electronic Equipment [c]	66 (13,377)	88 (24,587)	22 (8,059)
ACM Friable [b]	161 (14,762)	240 (23,269)	256 (23,474)
Sludge to WMA [redacted] Bulk Material Landfill [a,e]	N/A	36 (28,420)	58 (36,130)
Total	**14,844 (10,913,728)**	**7,621 (1,962,292)**	**11,959 (7,943,108)**

a Dispositioned at CRL site.
b Dispositioned to off-site landfills or off-site waste receivers.
c Recycled off site.
d Recycled and/or reused on-site at CRL site.
e Dewatered sludge to bulk material dispositioned in WMA [redacted] was non-radioactive waste and included here since 2024.
f Weight of concrete (reuse on site) is estimated by assuming concrete density of ~2400 kg/m^3.

REDACTED

11.2 Decommissioning Plan

CRL adheres to CNL's Cleanup Functional Support Area. Refer to Section 11.2 of the *Annual Compliance Monitoring Report for CNL* [1] for details. For a complete list of current Cleanup FSA documents see [29].

Decommissioning Plan document revisions in 2025, specific to CRL, were provided to CNSC staff in submissions identified in the table below.

Table 34: CRL Decommissioning Plan Program Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #	Document Status
[redacted] 01600-PDP-001, Preliminary Decommissioning Plan for WMA [redacted] Entrance Building, [redacted]	5-year Update	Submission of Revised Preliminary Decommissioning Plan for WMA [redacted] Entrance Building, [redacted] Revision 1, WMA-CNNO-25-0001-L	Submitted to Regulator.
RFFL-01600-PDP-001, Preliminary Decommissioning Plan for Building [redacted]	5-year Update	Submission of Revised Preliminary Decommissioning Plan for the Recycle Fuel Fabrication Laboratories, Building [redacted] Revision 1.0, RFFL-CNNO-25-0001-L	Submitted to Regulator.
3611-01610-PDP-005, Preliminary Decommissioning Plan for the ZED-2 Research Reactor Facility within Building [redacted]	5-year Update	Submission of Revised Preliminary Decommissioning Plan for the ZED-2 Research Reactor Facility within Building [redacted] Revision 1, ZED2-CNNO-25-0001-L	Submitted to Regulator.
SMAGS-01600-PDP-001, Preliminary Decommissioning Plan (PDP) for the SMAGS Facilities	5-year Update	Submission of Revised Preliminary Decommissioning Plan for the SMAGS Facilities, Revision 3.0, WMA-CNNO-25-0003-L	Submitted to Regulator.
THRR-106131-PDP-001, Preliminary Decommissioning Plan for the Fuel Packing and Storage Facility	5-year Update	Submission of Revised Preliminary Decommissioning Plan for the Fuel Packaging and Storage Facility, Revision 2.0, WMA-CNNO-25-0006-L	Submitted to Regulator.
[redacted] 508310-PDP-004146, Preliminary Decommissioning Plan for Building [redacted]	5-year Update	CNL-CRL: Canadian Nuclear Laboratories Revised	Accepted by Regulator.

REDACTED

Document Title and Number	Reason for Change	Correspondence #	Document Status
		Preliminary Decommissioning Plan for Building [redacted] (Universal Cells), Revision 1.0 –CNSC Staff Acceptance, [redacted] NOCN-0002-L	
CECEUD-508310-SWS-001888, CECE Upgrading and Detritiation Test Facility Storage with Surveillance Plan	5-year Update	CNL-CRL: Building [redacted] Combined Electrolysis Catalytic Exchange Upgrading and Detritiation (CECEUD) Test Facility Storage with Surveillance Plan, Revision 0.1 – CNSC Staff Acceptance, CECEUD-NOCN-25-0007-L	Accepted by Regulator.
[redacted] 508310-DDP-001, Detailed Decommissioning Plan for Building [redacted]	5-year Update	CNL-CRL: Revised Detailed Decommissioning Plan for Building [redacted] Revision 4 – CNSC Staff Acceptance, [redacted]-NOCN-25-0002-L	Accepted by Regulator.
[redacted] 508310-DDP-001, Detailed Decommissioning Plan for Building [redacted]	5-year Update	CNL-CRL: Revised Detailed Decommissioning Plan for Building [redacted] Revision 5 - CNSC Staff Acceptance, [redacted]-NOCN-25-0002-L	Accepted by Regulator.
NRXMF-508310-DDP-001, Detailed Decommissioning Plan for the NRX Ancillary Facilities	5-year Update	CNL-CRL: CNSC Staff Review of Canadian Nuclear Laboratories, CNL's Revised Detailed Decommissioning Plan for the National Research Experimental (NRX) Ancillary Buildings (NRXMF), Revision 4, NRXMF-NOCN-24-0001-L	Accepted by Regulator.
[redacted] 508310-DDP-001, Detailed Decommissioning Plan for Building [redacted]	5-year Update	CNL-CRL: Revised Detailed Decommissioning Plan for Building [redacted] Revision 5.0 – CNSC Staff Acceptance, [redacted] NOCN-25-0002-L	Accepted by Regulator.
[redacted] 508310-DDP-001, Detailed Decommissioning Plan for Building [redacted]	5-year Update	CNL-CRL: Canadian Nuclear Laboratories Revised Detailed Decommissioning	Accepted by Regulator.

REDACTED

Document Title and Number	Reason for Change	Correspondence #	Document Status
		Plan for Building [redacted] Revision 4 – CNSC Staff Acceptance, [redacted] NOCN-25-0004-L	
CECEUD-508310-DDP-006388, Detailed Decommissioning Plan for Building [redacted] CECEUD	5-year Update	CNL-CRL: CNL Response to the CNSC Staff Review of Detailed Decommissioning Plan for the Combined Electrolysis Catalytic Exchange Upgrading and Detritiation Test Facility, Revision 0 – CNSC Staff Response, CECEUD-NOCN-25-0005-L	Accepted by Regulator.
[redacted] 508310-DDP-001, Detailed Decommissioning Plan for Interior Demolition (Stage 1) of Building [redacted] at Chalk River Laboratories.	5-year Update	CNL-CRL: Canadian Nuclear Laboratories, CNL's Detailed Decommissioning Plan for Interior Demolition (Stage 1) of Building [redacted] at Chalk River Laboratories, Revision 4, [redacted]-NOCN-25-0003-L	Accepted by Regulator.
6400-508310-DDP-005549, Detailed Decommissioning Plan for Dedicated Isotope Facility	New document	Submission of the Detailed Decommissioning Plan for Dedicated Isotope Facility, Revision 0, 6400-CNNO-25-0003-L	Submitted to Regulator.

REDACTED

11.2.1 Land Use Program

In 2025, CRL staff performed a gap analysis of the *Chalk River Laboratories Overview Decommissioning and Cleanup Plan* (ODCP) [30] and engaged with internal stakeholders, the public, Indigenous Nations, communities and organizations, and other interested parties to determine the scope of updates for the ODCP. Based on this work, CRL drafted the next revision of the ODCP for review and submission in 2026.

11.2.2 Decommissioning and Demolition Program

A total of six PDP, one Storage with Surveillance plan (SWS) and eight Detailed Decommissioning Plans (DDP) were submitted to CNSC staff for acceptance in 2025; see Table 34 for details. In addition, one Building Removal Plan (BRP) and three buildings that were classified as grade 3 were submitted to the CNSC for information in 2025.

The documents and work completed outlined in this section are only applicable to the 2025 year.

11.2.2.1 Decommissioning Planning

Table 35 lists the BRPs submitted to the CNSC submitted for information in 2025.

Table 35: Summary of CRL Building Removal Plans in 2025

Building Number	BRP Status	Document Name and Number	Effective Date	Additional Information
[redacted]	Current Published	[redacted] 508310-BRP-008258, Building Removal Plan for Building [redacted]	2025 Dec 03	Canadian Nuclear Laboratories' Revised Building Removal Plan for Building [redacted] – CNSC Staff Acceptance, [redacted] NOCN-25-0002-L

Table 36 lists the buildings that were submitted to the CNSC for information as Grade 3.

Table 36: Summary of CRL Grade 3 Buildings

Building Number	Document Reference	Approval Date	Additional Information
[redacted]	[redacted] 508310-021-001, Decommissioning Risk Grade Approval Form Building [redacted]	2025 Aug 14	Decommissioning Risk Grade Approvals for Risk Grade 3, 140-CNNO-25-0002-L
[redacted]	[redacted]-508310-021-001, [redacted] Storm Sewer Sampling Station Decommissioning Risk Grade Approval	2025 Aug 14	Decommissioning Risk Grade Approvals for Risk Grade 3, 140-CNNO-25-0002-L
[redacted]	[redacted] 508310-021-001, Building [redacted] Decommissioning Risk Grade Approval	2025 Aug 14	Decommissioning Risk Grade Approvals for Risk Grade 3, 140-CNNO-25-0002-L

Table 37 lists the buildings that were demolished at CRL in 2025.

Table 37: CRL Buildings Demolished in 2025

Building	Demolition Date
[redacted]	2025 Nov 18

REDACTED

Building	Demolition Date
[redacted]	2025 Feb 9

11.2.2.2 Detailed End State Reporting

Table 38 lists the End-state reports that were submitted to the CNSC for acceptance in 2025.

Table 38: Summary of CRL Decommissioning and Demolition Interim/End-State Reports in 2025

Building	Document Type	Document Status	Document Name and Number	DDP/Work Plan Closed out by End-State Report	Submission Date (if applicable)
NRX	Interim End-state Report	Current Published.	NRXMF-508350-IES-004457, NRX Ancillary Buildings Interim End-State Report	Not Applicable	2025 Jul 14
[redacted]	Interim End-state Report	Current Published.	[redacted]-508310-IES-005309, Building [redacted] Interim End-State Report	Not Applicable	2025 Jun 04

REDACTED

11.2.3 Environmental Remediation Program

There were no Remedial Action Plans submitted to CNSC for acceptance in 2025.

Table 39 summarizes the environmental remediation activities conducted at CRL in 2025.

Table 39: Summary of CRL Environmental Remediation Execution Activities in 2025

Area/Site	Summary
NRX Pipeline Route	Phase II Environmental Site Assessment (ESA) Plan issued and sampling campaign executed.
WMA [redacted]	Verification and Restoration Plan issued.
Electrical Yard Landfill	Supplemental Characterization Plan issued.
Foundation Road Landfill North (FRL North)	Groundwater sampling campaign completed. Environmental Site Assessment Phase II field work completed.
Chemical Pit	The Phase II ESA sampling campaign was executed.
Waste Management Area [redacted]	Groundwater sampling campaign completed. Geotechnical and environmental sampling campaign completed outside the fence line.

Area/Site	Summary
Reactor Pit [redacted]	Phase I ESA Report issued
Reactor Pit [redacted]	Phase II ESA Report issued

REDACTED

12 Security

12.1 Security Program

CRL adheres to CNL's Security FSA. Refer to Section 12 of the *ACMR for CNL for 2025* for details [1].

Updates related to Physical Security at CRL in 2025 include:

- The Inter-Utility Security Working Group and Nuclear Security Advisory Group met on 2025 May 13-14 at CRL to discuss various topics of relevance to high security nuclear licensees. The meeting consisted of physical and cyber security leads from high security sites in Canada, Regulatory Affairs members from Bruce Power and Ontario Power Generation and CNSC staff from the Nuclear Security Division accompanied by the Director General for Security & Safeguards. Guest speakers came from Transport Canada's drone task force, and the Communication Security Establishment.
- Improvements to electronic access control measures in several facilities which ensure best access management practices while maintaining safe entry and egress processes for emergency preparedness.
- Implemented CNSC approved updates to the CRL security response plan to reflect changes to site infrastructure.

Nuclear Security Officers assigned regular duties continue to meet the physical and psychological fitness requirements for Security Officers stated in REGDOC-2.2.4, *Fitness for Duty, Volume III Nuclear Security Officer Medical, Physical and Psychological Fitness 125*[31].

Security Program licensing basis document revisions in 2025 specific to CRL were provided to CNSC staff in submissions identified in the table below.

Table 40: CRL Security Program Document Submissions in 2025

Document Title	Reason for Change	Correspondence #
CRL Tactical Response Plan	Update	119-CNNO-25-0011-L
CRL Threat and Risk Assessment Report	Annual Review	119-CNNO-25-0038-L

REDACTED

12.1.1 Security Events

In 2025, there were three security events that affected the CRL Site which were reported to CNSC staff. Refer to Section 3.2, Reporting Requirements, for details.

12.1.2 Cyber Security

The Cyber Security aspect of the Security SCA is implemented by CNL's Nuclear Cyber Security FSA. Refer to Section 12 of the *ACMR for CNL for 2025* [1] for details.

In 2025, the Nuclear Cyber Security FSA completed a CRL-specific initiative to relocate the dedicated nuclear material safeguards computing area, improving security and providing better

access to high-sensitivity devices while ensuring they receive appropriate physical and technical safeguards aligned with their information protection requirements.

REDACTED

13 Safeguards and Non-Proliferation

13.1 Safeguards Program

Chalk River Laboratories adheres to CNL's Nuclear Materials and Safeguards Management FSA. Refer to Section 13 of the *ACMR for CNL for 2025* for details [1].

There are no CRL-specific licensing basis documents under the Safeguards Program.

13.2 International Atomic Energy Agency Activities

The IAEA conducted various types of activities as part of the safeguards approach for CNL, including, but not limited to, IAEA safeguards seals changes, human surveillance, implementation and/or maintenance of IAEA safeguards monitoring equipment, and technical visits. A list of IAEA inspections conducted at all CRL can be found in Section 1.2.2.

REDACTED

14 Packaging and Transport

14.1 Packaging and Transport Program

CRL adheres to CNL's Transportation of Dangerous Goods FSA, which includes the requirements of the Packaging and Transport SCA. Refer to Section 14 of the *ACMR for CNL for 2025* for details [1].

The TDG Program highlights at CRL during 2025 include the following:

- Worked with various groups and external organizations to provide packaging options for Decommissioning and Waste Management Operations and new business opportunities in support of Science and Technology activities, providing greater flexibility to these groups for shipping and receiving activities compliantly.
- Commissioned testing to enable CNL to self-certify a new combination Type A packaging for road transport of small quantities of liquids and solids.
- Continued supporting activities at the CRL site by integrating TDG FSA requirements into project scopes for new facilities and waste storage areas including proposed low-level waste storage areas, and the Advanced Nuclear Materials Research Centre.
- Worked with third-party consignors to strengthen safety and compliance of shipments picked up from the CRL site, by providing enhanced clarification and education on the expectations to third party consignors collecting non-radioactive dangerous goods.

There are no CRL-specific licensing basis documents under the Packaging and Transport Program.

14.1.1 Shipments

The CRL site is capable of shipping and receiving all nine classes of dangerous goods, though majority (88%) of dangerous goods shipped by CRL were Class 7.

14.1.2 Annual Report of Radiation Detections in Packaging and Transport

There were no shipments at CRL Site in 2025 that met the annual reporting criteria outlined in REGDOC-3.1.2, Section 4.4 [4] (Paragraph 3 of the Packaging and Transport of Nuclear Substances Regulations, 2015).

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15 Other Matters of Regulatory Interest

15.1 Public Information and Disclosure Program

CRL adheres to CNL's Corporate Affairs FSA, which includes the requirements of the Public Information and Disclosure Program. Refer to Section 15 of the *ACMR for CNL for 2025* [1] for further information.

CRL continued to enhance engagement through numerous activities in 2025, including continued activity in the school and education program, proactive outreach to non-nuclear audiences, regular print, online and radio content, and community events and sponsorships.

Highlights from 2025 include:

- Hosted the third leadership meeting between CNL, AECL and the Algonquins of Pikwàkanagàn First Nation (AOPFN), to discuss the work plans for the coming year, identify topics of key interest, and conduct the first implementation review of the relationship agreement.
- Hosted over 20 on-site tours and in-class presentations through our Education Outreach Program, and an additional 30 for special interest groups.
- Continued growth in CNL's relationship with North American Young Generation in Nuclear and Women in Nuclear.
- Hosted three weeks of summer camp for students aged 9-12.
- Supported local community events (e.g., Petawawa Ramble, Santa Claus Parade, Public Skates, Water & Dirt Festival, Showcase Petawawa).
- Hosted the Organization of Canadian Nuclear Industries
- Hosted Industry Day, bringing over 75 businesses to the CRL site. This event includes briefings on key projects, portfolios and an opportunity to tour the Chalk River campus.
- Delivered over 10 webinars to the local community and interested parties on activities related to the CRL campus and key projects reflective of all major missions.
- Coordinated weekly on site environmental fieldwork opportunities for AOPFN's Neyagadà Wàbandàngakì Guardians.
- Hosted the ESC and the CAP at the CRL campus, providing an opportunity to see firsthand the work underway across all three mission areas.

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15.1.1 Outreach and Stakeholder Engagement

Public Engagement

CNL actively engages its local stakeholders on matters related to CRL activities and prioritizes making information about CRL accessible to all interested parties. All publications include an invitation to contact CNL. The website includes contact information in multiple places, and a toll-free phone line is maintained and monitored. Inquiries received through these avenues are recorded and assessed for any trends.

CRL shares information with the public through activities including public webinars, media releases, the corporate website, corporate social media accounts, and involvement in community events.

CNL participated in many events local to CRL and in conferences, with the largest being the annual SHOWCASE in Petawawa. This event drew over 5,000 visitors to the CNL booth, providing an opportunity for meaningful dialogue on the full suite of activities at the CRL campus. CNL can also leverage the CAP and ESC to discuss and inform future projects.

In the 2025 calendar year, CNL participated in dozens of public events inclusive of both local community engagements, as well as industry and trade specific events, and tours for community interest groups. CNL also appears at local municipal council meetings and conducts frequent discussions with local elected representatives. A selection is shown in the table below.

CNL also participates in a number of industry-specific events and gatherings, including the Canadian Nuclear Association conference, the Canadian Nuclear Society (multiple events), and Women in Nuclear annual conference, as well as technical conferences.

Table 41: Public Engagements for CRL

Date	Location	Activity
2025 Aug 18	Ottawa	Association of Municipalities of Ontario
2025 Oct 20 – 24	Various	Nuclear Science Week Activities
2025 Nov 26	Toronto	Science Teachers Association of Ontario

Website

Refer to Section 15 of the *ACMR for CNL for 2025* [1] for further information on CNL's corporate website, which is used to share information about CRL operations.

Social Media

Refer to Section 15 of the *ACMR for CNL for 2025* [1] for further information on CNL's corporate social media channels, which are used to share information about CRL operations.

Public Disclosures

In 2025, CRL published 9 Community Information Bulletins on www.cnl.ca, five of which are updates to initial disclosures. Criteria used to determine the requirement for a public disclosure is described in CNL's Public Information and Disclosure Program These bulletins are also shared directly with select audiences based on their interests, relevancy, and feedback.

In addition, CNL continued to provide the public, through the external website, with a consolidated quarterly list of the reportable events at all CNL locations.

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Table 42: Community Information Bulletins

Date	Bulletin
2025 March 21	CNL appeals Federal Court's Decision concerning NSDF
2025 July 3	Update: Labour relations activity at Chalk River Laboratories
2025 October 2	Update: Recovery and remediation of off-site contamination now complete

15.1.1.1 Newsletters

In 2025, CNL distributed two issues of Kids CONTACT and two issues of CONTACT to ~55,000 households in Renfrew and Pontiac Counties.

Refer to Section 15 of the ACMR for CNL for 2025 [1] for further information on the newsletters used to share information about CRL operations.

15.1.1.2 Media Releases

CNL proactively issued 14 media releases or web site updates regarding CRL's ongoing operations to local, national, and international news outlets and interested parties.

Media releases generate frequent local, industry/trade, and national media coverage regarding activities at CRL. A selection is listed in the table below. Refer to Section 15 of the *ACMR for CNL for 2025* CNL for 2025 [1] for further information on media engagements for CRL.

Table 43: Media Coverage for 2025

Date	Article	Title of Publication
2025 Oct 30	Bloc Québécois Letter Demands Halt to Nuclear Waste Transports to Chalk River	The Energy Mix
2025 Nov 3	Small town, big impact: How Canada's largest federal laboratory, tucked away in rural Ontario has impacted millions around the globe	Science.gc.ca
2025 Sept 2	A unique, hands-on experience for a new generation of nuclear experts	McMaster News
2025 Oct 8	Algonquin First Nations urge appeal court to expand duty to consult in Chalk River case	CBC
2025 Aug 6	CNL Chalk River partners with Energy Solutions Canada Corporation	myFM Pembroke
2025 July 15	Chalk River Laboratories Becomes First GLP-Certified Laboratory in Canada to Offer Pre-Clinical Radiopharmaceutical Studies	Financial Post

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15.1.2 Environmental Stewardship Council

The ESC is comprised of community, stakeholder, and Indigenous community representatives, as well as elected officials and community interest groups. Its mandate is to provide an opportunity for open dialogue between council members and senior management on various environmental projects.

Now in its 19th consecutive year of operation, the ESC held three in-person meetings in 2025. The agendas included a business update from the senior executive team, an environmental monitoring update, and a decommissioning, waste management, and environmental remediation update, which were supplemented by project or feature discussions on select activities. An independent third-party facilitates the meetings, and the terms of reference are available to the public on www.cnl.ca.

Below are some topic areas from ESC presentations in 2025:

- Meeting 57: 2025 March – Pembroke, ON
  - Federal Nuclear Science & Technology Work Plan Overview
  - Geology-driven Environmental Transfer Factors for Radionuclides in the Great Lakes & Ottawa River Basins
  - Facilities Decommissioning Update
- Meeting 58: 2025 June – Pembroke, ON
  - GoCo Procurement Update
  - Aquatic Toxicity Testing at Chalk River Laboratories
  - Polonium-210 in Canadian Freshwater Ecosystem
  - Emergency Preparedness at CRL
- Meeting 59: 2025 October – Chalk River Laboratories
  - GoCo Contract and Expenditure Review
  - Update on Fuel Consolidation Tour Stop: Waste Management Area G/H
  - Sort & Segregation Facility Tour: Waste Management Area H
  - WAF Tour
  - Pan Canadian Micro Modular Reactor Framework
  - Site Walkdown

Community Advisory Panel

Launched in 2021, the CRL's CAP brings new voices from the community into the dialogue between CNL and residents in the Renfrew and Pontiac regions. The CAP consists of a diverse group of community members with varying backgrounds, most of whom are residents of Renfrew County.

Through the CAP, CNL is able to increase understanding, grow appreciation of our communities' diverse perspectives, and enable members of the community to access first-hand knowledge about CNL activities. Discussions between CNL and the CAP focus on the activities that are

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subject to licensing and environmental regulation, as well as activities that may affect the social and economic life of the community. CAP meetings are facilitated by independent third-party facilitators.

Meeting notes are taken at each meeting, recording all questions and actions. These meeting summaries are posted on www.cnl.ca for public access and later reference.

Below are some topic areas from the four CAP meetings held in 2025:

- March: ODCP – Scope of the next update and comparison to other CNL sites, Workshop: Messaging to support the Shielded Facilities Program.
- June: Sustainability Presentation & Discussion, ODCP Revision Update.
- September: Tour: WAF & Crusher, ODCP Update, Integrated Waste Strategy and Near Surface Disposal Facility (NSDF) Update.
- December: Customer Transformation Station & Electrical Distribution, ODCP Update & New ODCP and Sustainability Factsheet, Highlights from National & International Presentations from 2025.

15.1.3 Education/Science & Technology Communities

CNL's Chalk River team connected with 48 classrooms or youth groups in 2025, through a combination of webinars, in-class sessions, and tours. The CRL site also hosted its fourth 'CNL Science Camp' which drew 60 kids aged 9-12 for five days of science programming at the laboratories, an annual Take Our Kids to Work Day for over 100 students, a virtual Take Our Kids to Work Day session which streamed to classrooms across Canada, and a number of other events such as an engineering bridge busting event, and a 3D printing module in a local library.

In 2025, CRL continued to deliver programming for Canada's first merit badge in Nuclear Science for Girl Guides of Canada and Scouts Canada.

In addition, CRL has benefited from CNL's very strong relationship with the local North American Young Generation in Nuclear chapter and staff who dedicate time to nuclear education. Working collaboratively, CNL delivers several annual initiatives, including Nuclear Science Week (tours, speaking opportunities, class presentations, publicity materials, coffee-shop drop ins), and webinars to interested audiences.

CNL is also an active supporter and participant in the Renfrew County Regional Science Fair, Ottawa Regional Science Fair, and in 2025 an award sponsor at the Canada Wide Science Fair.

A list of examples of school or educational engagements is provided in Table 44.

Table 44: School Tours/Presentations (Select Examples)

Date	Location	School
2025 Jan 20	CRL	Dr. Wilbert Keon School
2025 Mar 5	CRL	Jeanne Lajoie Catholic (FR)

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Date	Location	School
2025 Sept 29	CRL	Fellowes High School
2025 Nov 25	CRL	Algonquin College

15.1.4 Ongoing Projects

CNL has been engaging the public and Indigenous Nations, communities, and organizations since the NSDF Project was launched in 2016. In January 2024, the CNSC announced the Commission's decision to amend the licence for Chalk River Laboratories, authorizing to construct a NSDF on the site.

CNL's Indigenous relations and public engagement on the NSDF Project were ongoing throughout 2025. This was a challenging year for CNL in terms of media engagement, as there were active legal proceedings underway. To protect the integrity of these processes, CNL's public communication on the project was largely reactive, responding to incoming inquiries.

Examples of NSDF-specific engagements include:

- Active program of work delivered through the Neyagada Wàbandàngakì Guardian Program.
- Updates provided to local elected officials.
- Project webinars, streamed and posted to YouTube.
- Numerous site tours throughout the year.
- ESC and CAP updates.
- Advertising, article submissions, and media engagements.
- Frequent internal staff updates.
- Media and web content updates

15.2 Indigenous Engagement

CNL recognizes the importance of meaningful engagement to build strong relationships with Indigenous Nations. CNL is seeking to understand and incorporate the perspectives and traditional knowledge of Indigenous Peoples in project planning, documentation and reports. CNL's engagement efforts follow the guidance in CNSC REGDOC-3.2.2, *Indigenous Engagement* [32].

CNL seeks to provide Indigenous Nations, communities and organizations with effective access to timely information about ongoing activities at the CRL site and the possible effects of these activities to community members and the environment. CNL also seeks feedback from the communities regarding traditional and current uses in the vicinity of the CRL site; planned and ongoing project-related activities, programs, timelines, environmental protection and mitigation measures; long-term benefits; and economic opportunities.

Through engagement on the activities at the CRL site, CNL continues to build on years of engagement with Indigenous Nations, communities and organizations, including the

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communities listed in Table 45.

Major project updates are shared with the Indigenous Nations, communities, and organizations, with opportunities for further engagement available to those communities at their discretion.

Table 45: Indigenous Nations, Communities, and Organizations

Indigenous Nations and Communities that have established or asserted treaty and/or Aboriginal rights	Indigenous Nations, communities and organizations that have interests
The CRL site is situated on lands that are the treaty lands and/or traditional territories of: • Algonquins of Pikwàkanagàn First Nation • Barriere Lake First Nation • Timiskaming First Nation • Wolf Lake First Nation • Métis Nation of Ontario • Kitigan Zibi Anishinabeg • Kebaowek First Nation • Williams Treaties First Nations – Alderville First Nation – Beausoleil First Nation – Chippewas of Georgina Island First Nation – Chippewas of Rama First Nation – Curve Lake First Nation – Hiawatha First Nation – Mississaugas of Scugog Island First Nation	The CRL site is situated on lands that are of interest to: • Algonquin Anishinabeg Nation Tribal Council • Algonquins of Ontario • Anishinabek Nation • Algonquin Nation Secretariat • Mohawks of the Bay of Quinte

Throughout 2025, CNL continued to engage on activities at the CRL site across all CNL mission areas. CNL held regularly occurring meetings with the AOPFN, Kitigan Zibi Anishinabeg, Kebaowek First Nation, and the Williams Treaties First Nations (collectively and individually as requested by Nation).

In 2025, CNL continued to execute on the long-term relationship agreement with AOPFN and increased the presence of AOPFN's Neyagada Wàbandàngakì Guardian Program on the CRL site to integrate Algonquin knowledge into CNL's environmental monitoring and cultural activities.

CNL also continued engagement on the NSDF project through 2025. Following the January 2024 decision by the Commission to amend the CRL site licence authorizing the construction of a near surface disposal facility on the site, three applications were filed for a judicial review of the decision. Decisions on these reviews were announced in early 2025, one of which required follow up action relating to engagement with Indigenous Nations. Specifically, in the first decision, the court directed CNL and the CNSC to continue consultation with Kebaowek First Nation and develop a process that is aimed at reaching agreement on or before 2026 September 30. Kebaowek First Nation, CNL, and the CNSC continue to meet regularly to progress the consultation directed by this court decision.

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Table 46 shares examples of CRL Indigenous engagement activities from 2025.

Table 46: Examples of CRL Indigenous Engagement Activities for 2025

First Nation Community	Details
Algonquins of Pikwàkanagàn First Nation (AOPFN)	Engagement with AOPFN focused on the Shielded Facilities Program, the Algonquin Foods Program, the CRL Forest Management Plan, the Neyagada Wàbandàngakì Guardian Program, the NSDF, and the Modernized Combined Electrolysis and Catalytic Exchange (MCECE) project, as well as progressing the CNL-AOPFN relationship. AOPFN and CNL increasingly engaged on "Section 82" projects under the Impact Assessment Act. CNL and AOPFN met weekly, both virtually and in-person, throughout 2025 to discuss topics of interest to both AOPFN and CNL, work through pre-existing commitments on projects and activities, identify lessons learned, and address concerns. AOPFN and CNL continued to prioritize AOPFN's Cultural Awareness Training, offered in the community by AOPFN members, but also on site when requested. The training provides CNL staff and contractors understanding of Algonquin history and legacy, an overview of the impacts of historical and ongoing colonization, discrimination and stereotyping and introduction to AOPFN's cultural, economic, and political resurgence and revitalization efforts, and individual and collective roles in reconciliation and the journey to renewed relationships. In 2025, nearly 300 CNL staff and contractors attended the training in total. CNL and AOPFN completed the first Long-Term Relationship Agreement Implementation Review since signing the agreement in 2023. On-site tours and site visits: • AOPFN and CNL completed a site tour of Waste Management Areas [redacted] the Waste Sort and Segregation Facility, and the Waste Analysis Facility – 2025 March. • AOPFN youth community members attended CNL Science Camp - 2025 July. • Leadership Meetings – 2025 April, 2025 July, 2025 December. • AOPFN and CNL completed an introductory presentation of the Shielded Facilities Program and a tour of the Waste Management Areas [redacted] as well as a NSDF footprint walkdown – 2025 September. • AOPFN Guardians: [redacted] Tank Removal Project walkdown, Environmental Monitoring Branch Lab Tour, Class IV Power Distribution Project walkdown – 2025 May Field Work and Monitoring: • Every week, CNL invited the Neyagada Wàbandàngakì Guardian Program to observe and participate in biodiversity and environmental monitoring field activities.

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First Nation Community	Details
	• In 2025, a total of five Guardians rotate engagement at CRL, averaging six visits per month, dependent on factors such as community priorities and weather-related determinations. • CNL provided AOPFN Guardians with Geographic Information System training, as well as mapping and field orienteering training. Other areas of interest include Species at Risk. • In 2025, the Guardians participated in field activities at CRL and NPD over 70 times, depicting an upward trend of involvement and participation. Other: • AOPFN and CNL participated in a panel on Indigenous Guardian Programs and Indigenous Engagement at a Canadian Nuclear Society conference on decommissioning and waste management – 2025 August. • CNL attended AOPFN's Culture Camp held in Pikwàkanagàn, Ontario – 2025 October. • CNL attended the AOPFN Career Fair held in Pikwàkanagàn, Ontario – 2025 November. Additional meetings: • Monthly AOPFN-CNL-AECL Long-Term Relationship Agreement Logistics working group meetings. • Bi-weekly AOPFN-CNL Communications working group meetings. • Quarterly AOPFN-AECL-CNL Employment and Procurement working group meetings. • Bi-monthly Radioactive Waste working group meetings. • Monthly AOPFN-CNL working group meetings on the Neyagada Wàbandàngakì Guardian Program to collaborate on the development of an annual workplan and wider initiatives. • Bi-weekly AOPFN-CNL meetings with the Neyagada Wàbandàngakì Guardian Program to review fieldwork activities, gather input, address challenges, refine logistics, and plan future opportunities. • Quarterly ESC meetings. • Quarterly CAP meetings.
Anishinabek Nation	CNL provided regular updates and notifications to the Anishinabek Nation. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the Anishinabek Nation in relation to the NSDF project – 2025 August. • CNL shared the 2025 Sustainability Report. – 2025 November.
Wolf Lake First Nation (WLFN)	CNL provided regular updates and notifications to Wolf Lake First Nation. Examples of notifications include: • CNL shared invitations to all webinars in 2025.

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First Nation Community	Details
	• CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the Algonquin Nation Secretariat in relation to the NSDF project – 2025 August. • CNL shared the 2025 Sustainability Report. – 2025 November.
Algonquins of Barriere Lake First Nation	CNL provided regular updates and notifications to the Algonquins of Barriere Lake First Nation. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the Algonquin Nation Secretariat in relation to the NSDF project – 2025 August. • CNL shared the 2025 Sustainability Report. – 2025 November.
Timiskaming First Nation	CNL provided regular updates and notifications to Timiskaming First Nation. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the Algonquin Nation Secretariat in relation to the NSDF project – 2025 August. • CNL shared the 2025 Sustainability Report. – 2025 November.
Métis Nation of Ontario (MNO)	CNL provided regular updates and notifications to the Métis Nation of Ontario Regions 5 and 7. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the in relation to the Métis Nation of Ontario NSDF project – 2025 August. • CNL shared the 2025 Sustainability Report. – 2025 November.
Algonquins of Ontario (AOO)	CNL provided regular updates and notifications to the Algonquins of Ontario Consultation Office. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the AOO in relation to the NSDF project. • CNL shared the 2025 Sustainability Report. – 2025 November. • AOO participated in 2025 ESC meetings.
Williams Treaties First Nations (WTFN):	In 2025 CNL maintained quarterly meetings with the WTFNs as a collective, in addition to nation-specific quarterly meetings with Curve Lake, Alderville, Hiawatha, and Mississaugas of Scugog Island. CNL

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First Nation Community	Details
• **Curve Lake First Nation** • **Alderville First Nation** • **Hiawatha First Nation** • **Georgina Island First Nation** • **Mississaugas of Scugog Island First Nation** • **Rama First Nation** • **Beausoleil First Nation**	provided project updates, shared information on CNL activities and other information. The WTFN communities also shared community updates. Examples of notifications and other engagements include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to the WTFN in relation to the NSDF project. • CNL shared the 2025 Sustainability Report – 2025 November. In 2025 November, CNL staff, including staff from CRL Communications and Indigenous Engagement and the Port Hope Indigenous Engagement team participated in a tour of Curve Lake First Nation for a cultural sharing day.
Kebaowek First Nation (KFN)	Engagement with KFN was focused on the NSDF project per Judicial Review decision noted earlier. Other areas of focus included the MCECE Project, and other "Section 82" projects under the Impact Assessment Act, as well as progressing the CNL-KFN relationship. CNL virtually met with KFN 20 times in 2025 and hosted two full day in-person workshops at CRL, in addition to in-person leadership meetings. CNL regularly engaged KFN on other areas of interest, via email and during meetings., including: • Monthly tripartite meetings between KFN-CNSC-CNL • Monthly tripartite meetings between KFN-AECL-CNL • Leadership meetings: 2025 July, 2025 August, 2025 October • Invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared the 2025 Sustainability Report– 2025 November.
Kitigan Zibi Anishinabeg First Nation (KZA)	In addition to three meetings held between KZA and CNL in 2025, CNL provided regular updates and notifications to Kitigan Zibi Anishinabeg First Nation. Examples of notifications include: • CNL shared invitations to all webinars in 2025. • CNL shared the Community Information Bulletin updates in 2025. • CNL shared an update on the list of commitments to KZA and the Algonquins of Anishinabeg Nation Tribal Council in relation to the NSDF project. • CNL shared the 2025 Sustainability Report– 2025 November.

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15.3 Environmental Monitoring Activities with Indigenous Communities

One First Nation community, the AOPFN, demonstrated continued interest in carrying out fieldwork at the CRL site to support the development of their Guardian Program. They received hands-on training related to biodiversity monitoring, gained experience with groundwater and

environmental monitoring programs, and collaborated on forest inventory surveys and management.

The Guardian Program just concluded its second year, making significant advancements in terms of technical knowledge acquired by the Guardians, Traditional Knowledge sharing, and relationship building. In its first two years, the Guardian Program primarily focused on job shadowing to familiarize the Guardians with the CRL site and processes, as well as training to advance opportunities for them to support the conduct of biodiversity monitoring surveys and grow experience with effluent, groundwater, and environmental monitoring programs. Below is a summary of the highlights from the past year.

Table 47: Summary of the Key Activities Undertaken with the Guardians

Training & Job Shadowing	• Guardians observed and participated in CRL field activities, such as biological surveys, forest management engagement, groundwater and environmental monitoring.
Participation	• In 2025, the Guardians visited the CRL site 58 times to engage in Environmental Protection field activities.
Collaboration	• Monthly working group meetings are held with AOPFN and CNL staff to collaborate on work planning. • Bi-weekly meetings between CNL and Guardian Program to review activities, address challenges, and plan future opportunities.
Traditional Knowledge Transfer	• In 2024 July, The Guardians invited CNL staff to participate in the harvest of a canoe grade white birch in Algonquin Park to support the construction of a traditional birch bark canoe. • In 2024 December, the Guardians collected gum from a Norway Spruce stand at CRL to support the construction of the Traditional birch bark canoe. • In 2025 October, the Guardians invited CNL at the launch of the final traditional birch bark canoe entirely built by the Guardians supported by elders.

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Below is a list of additional highlight activities conducted with the Guardians at the CRL site and the NPDWF site:

- Species at Risk monitoring and reporting,
- Characterization of potential canid den sites and natal den search,
- Programming, deploying, and retrieving field equipment for wildlife monitoring;
- Invasive species surveys,
- Bear den surveys and monitoring,
- Forest Inventory surveys and assessments,
- Forest Operations Prescriptions collaboration,
- Geographic Information System training, mapping and field orienteering,
- Surface water radiological and non-radiological sample collection,
- High-volume air sample collection,

- Groundwater monitoring well preparation,
- Analytical laboratory tours, and
- Project sites walk downs (e.g. Fuel Oil No. [redacted] Tanks removal, Centralized Transformer Station).

Guardians are generally at CRL one to two times a week to participate in scheduled field activities and actively engage in discussions and interactions while in the field with CNL staff. In 2025, the AOPFN Guardians and Environmental Protection staff spent over 1400 person-hours preparing for and working together at the CRL site.

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16 Acronyms

Ac-225	Actinium-225
ACMR	Annual Compliance Monitoring Report
ACM	Asbestos Containing Material
AECL	Atomic Energy of Canada Limited
AIA	Authorized Inspection Agency
ALARA	As Low As Reasonably Achievable
ANMRC	Advanced Nuclear Materials Research Centre
AOO	Algonquins of Ontario
AOPFN	Algonquins of Pikwàkanagàn First Nation
ASB	Archive Storage Block
BAP	Balance after Process
BAS	Building Automation System
BCA	Building Condition Assessment
BRP	Building Removal Plan
CAAS	Criticality Accident Alarm System
CAM	Continuous Air Monitor
CAP	Community Advisory Panel
CECEUD	Combined Electrolysis and Catalytic Exchange Upgrading and Detritiation
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
CRL	Chalk River Laboratories
CSA	Canadian Standards Association
CSD	Criticality Safety Document
DCP	Dose Control Point
DDP	Detailed Decommissioning Plans
DIF	Dedicated Isotope Facilities
DPWF	Douglas Point
EmP	Emergency Management Program
EnvP	Environmental Protection
EOC	Emergency Operations Centre

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ESA	Environmental Site Assessment
ESC	Environmental Stewardship Council
EV	Electric Vehicle
FCI	Facility Condition Index
FISST	Fissile Solution Storage Tank
FMC	Fuel and Materials Cells
FSA	Functional Support Area
G-1	Gentilly-1
G1WF	Gentilly-1 Waste Facility
GBF	Gamma Beam Irradiation Facility
HPNG	Health Physics Neutron Generator
IAEA	International Atomic Energy Agency
ImpAct	Improvement Actions
ISO	International Organization for Standardization
IWC	Integrated Work Control
JHA	Job Hazard Analysis
JSA	Job Safety Analysis
LCH	Licence Conditions Handbook
LLW	Low Level Waste
LPS	Linear Positioning System
LWE	Liquid Waste Evaporator
MAGS	Modular Above Ground Storage
MCECE	Modernized Combined Electrolysis and Catalytic Exchange Facility
MPF	Molybdenum-99 Production Facility
NCS	nuclear criticality Safety
NEW	Nuclear Energy Worker
NFFF	Nuclear Fuel Fabrication Facility
NLPC	Nuclear Laboratory Partners of Canada
NNC	Notice of Non-Compliance
NRF	Nuclear Response Force
NRU	National Research Universal

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NRX	National Research Experimental
NSDF	Near Surface Disposal Facility
ODCP	Overview Decommissioning and Cleanup Plan
OE	Operating Envelope
OPEX	Operating Experience
OSH	Occupational Safety and Health
PAD	Personal Alarming Dosimeter
PDP	Preliminary Decommissioning
PM	Preventative Maintenance
PPE&C	Personal Protective Equipment and Clothing
PRB	Permeable Reactive Barrier
R&C	Review & Comment
RAT	Radiation Assessment Team
RFFL	Recycle Fuel Fabrication Laboratories
RISE	Responsibility in Supervising Employees
RLP	Radioisotope Laboratories Protocol
RP	Radiation Protection
RSSA	Recoverable Surface Storage Area
RWP	Radiological Work Permit
S&T	Science and Technology
SAR	safety analysis report
SAT	Systematic Approach to Training
SCA	Safety and Control Areas
SLW	Storage Liquid Waste
SMAGS	Shielded Modular Above Ground Storage
SPMP	System Performance Monitoring Plan
TFE	Thin Film Evaporator
TLD	Thermoluminescent Dosimeter
TRM	Target Residue Material
TSSA	Technical Standards and Safety Authority
UC	Universal Cells

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VDG	Van de Graaff
WAF	Waste Analysis Facility
WL	Whiteshell
WMA	Waste Management Area
WTC	Waste Treatment Centre
ZED-2	Zero Energy Deuterium-2

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17 References

[1] Canadian Nuclear Laboratories, *Annual Compliance Monitoring Report for Canadian Nuclear Laboratories for 2025*, 145-00583-ACMR-011609, Revision 0, 2026 April.

[2] Canadian Nuclear Safety Commission, *Nuclear Research and Test Establishment Operating Licence Chalk River Laboratories*, NRTEOL-01.01/2028, Expiry Date: 2028 March 31.

[3] Canadian Nuclear Safety Commission, *Licence Conditions Handbook for Chalk River Laboratories, NRTEOL-LCH-01.01/2028*, Revision 5, CRL-508760-HBK-002, Revision 5, 2024 October 31.

[4] Canadian Nuclear Safety Commission, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*, REGDOC-3.1.2, Version 1.1, 2022 July.

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Appendix A National Research Universal Reactor

A.1 Operations

Facility post-operational clean out activities continued. This work supports the reduction of facility fire load, inventories of stored hazardous materials, operational wastes, as well as redundant parts and equipment.

Limited quantities of drummed heavy water remain in the building and are being processed through the Gibbsite Evaporator as resources permit.

Additionally, NRU supported other mission areas by hosting activities such as experiments, repairs, inspections, and maintenance of flasks and other contaminated equipment from on- and off-site.

Throughout 2025, all minimum staffing requirements of the NRU Facility Authorization were met. A new NRU Facility Authority became qualified and assumed the role in 2025.

Rod Storage Bays

The Rod Storage Bays continued operations to support the storage and handling of experimental fuel and irradiated reactor components.

A.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 48: NRU Facility Changes

Description	Category	Permanent / Temporary	Detailed Status
[redacted] - Amalgamate NRU Electrical Loads [redacted]	1	Permanent	Construction – Mostly Complete. A few trailing items and documentation updates remain
SRG - NRU Reactor Control Rod Stump Shield Plug	2	Permanent	Construction – Manufacturing completed
NRU [redacted] Cleanout for Reuse	2	Permanent	Design/Construction
Install Air Effluent Monitorin (AEM) station on [redacted]	2	Permanent	Construction

Construction activities on the NRU electrical distribution system are mostly complete. Only minor work remains outstanding, including an arc flash assessment of the new configuration, documentation updates and PM scheduling.

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Shielding plugs are required to occupy the Control Rod and Absorber Rod positions once those rods are removed. The plugs were manufactured in 2024, and the engineering change is awaiting closure.

Room [redacted] is to be converted to a Class B laboratory. An engineering change was initiated to remove existing fume hoods and other features from the room in support of this. Design work was completed for the equipment removal phase, and work has begun.

The design of the Fan[redacted] effluent monitoring station was completed in 2025 and is awaiting construction.

A.3 Equipment Performance, Planned Maintenance Testing and Inspections

Facility Stand-By Safety Systems

Class III power was provided to NRU by the Building [redacted] diesel generators as required during 2025.

The Exhaust Air Filtration System and Emergency Filtration System remained in operation to continuously ventilate the reactor structure and interconnected areas in the facility.

Facility Support and Process Systems

All systems, including safety related systems, instrumentation, and equipment performed as intended, with only minor deficiencies and partial unavailability of some building services as expected with a facility of this age.

As per the requirements of NRU Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in NRU were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

A.4 Wastes Generated

As part of NRU routine operations, the following wastes and effluents were generated:

- Solid radioactive and hazardous waste; refer to Section 11.1 Waste Management Program for CRL for summaries of the waste generated.
- Liquid radioactive and hazardous waste; this waste was handled and disposed of in accordance with CNL approved policies and procedures.
- Liquid radioactive effluents were discharged through standard approved disposition pathways that incorporate the required monitoring and sampling regimes.
- Gaseous radioactive effluents discharged from the NRU remote stack, and all locally discharged active area exhaust fans were HEPA filtered and monitored as required to maintain compliance with the Environmental Protection Program, apart from Fan[redacted] which is currently not monitored. Fan[redacted] was identified in late 2020 as requiring

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monitoring. The design of the Fan [redacted] effluent monitoring station was completed in 2025, with construction pending, as indicated in section A.2.

The releases of these effluents from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix B Nuclear Fuel Fabrication Facility

B.1 Operations

The Building [redacted]/NFFF was previously used to produce the Low Enriched Uranium driver fuel and High Enriched Uranium isotope targets for the NRU reactor. The large legacy production equipment remains shut down and de-energized, leaving only the building infrastructure, safety, security, and compliance related aspects in-service. All production-related fissionable material was removed as of 2019 November, with only small amounts of Balance after Process (BAP) and Material Unaccounted For values remaining at that time. Since then, some BAP and Material Unaccounted For values have changed slightly due to further clean-up, equipment removals and work with fissionable material as part of the High Assay Low Enriched Uranium project, which was completed in 2024 January.

Building [redacted] continues to house the Fuel Assembly S&T Laboratory (which now owns the Laser Welder and 3D Metal Printer).

The long-term strategy to re-purpose [redacted] under the [redacted] Fresh Fuel Lab Relocation to [redacted] Plan, has been placed on pause until determination of the funding stream and progress through the Gating and Sanctioning process are achieved. Post operations clean-up and asset dispositions remained ongoing until near the end of the calendar year. Some legacy fuel fabrication related equipment has been removed following the Engineering Change Control, Asset Management and Waste Management processes. Equipment removals to date, have not affected safety related structures, systems or components, and with all other aspects considered, the removals to date were not of significance to the overall facility.

Throughout 2025, NFFF continued to maintain the minimum staffing requirements outlined in the Building [redacted] Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

B.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 49: NFFF Facility Changes

Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	[redacted]-105000-CR-002: B405 Equipment Removal and Relocation – 12 phases. Some packages involve components or systems that are "Items Important to Safety".	1	Permanent	3 phases in Construction; 3 phases pending approval to construct; 6 phases in design
[redacted]	[redacted]-37300-CR-001: [redacted] Fuel Labs (relocation from [redacted]	2	Permanent	Accepted, obtaining DA/OA[a] approvals

[a] DA/OA – Design Authority / Operating Authority

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The removal of legacy fuel production equipment involves many normal industrial hazards with the movement of heavy equipment, such as the large presses, as well as work with alpha contamination. The Post Operations Clean-Out will be done prior to completion of any required building infrastructure and design modifications in support of re-purposing the facility.

After the legacy equipment are removed from Building [redacted] the required modifications can be completed, and relocation of the fresh fuel labs from Building [redacted] can be executed. Equipment Performance, Planned Maintenance Testing and Inspections.

All systems, including safety related systems, instrumentation, and equipment performed as intended with the two exceptions noted below, remaining unchanged in 2025:

- The Bulk Argon Tank and Back-up Argon Bottle station supplies for the building remain out of service and valved out under operational control measures. This was due to faulty bulk tank pressure control in 2024 and excessive cost due to wasted inventory of the argon, with no forecasted need for bulk argon after building modifications are complete. The glove boxes remain cleaned to the extent feasible and therefore the only fissionable material remaining is recorded as BAP.
- In response to the reportable event on deficiencies in the criticality alarm signals at Building [redacted] (in 2024), the extent of condition study that was completed on [redacted] in 2024 identified that the Criticality Accident Alarm System (CAAS) in the building did not meet the requirements of REGDOC-2.4.3, *Nuclear Criticality Safety* [33] with respect to the dose contouring analysis that was used to inform the immediate evacuation zone determination. As a result, there are buildings that fall within the immediate evacuation zone of NFFF, where the alarm signal is not audible. The administrative restriction imposed on operations in 2024 for the Nuclear Criticality Controlled Area, that no movement of Fissionable Material into the facility is permitted, and only movement of Fissionable Material between Zones and out of the facility is allowed, remains in effect.

As per the requirements of NFFF Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in NFFF were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

- Source checks and function tests of the CAAS were completed quarterly with no deficiencies identified.

B.3 Wastes Generated

As part of NFFF routine operations, the following wastes were generated:

- Solid and liquid radioactive and hazardous waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.

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- Liquid radioactive and hazardous waste was generated in the NFFF as part of routine operations. Liquid waste discharges from the facility's active drain tanks to the CRL active drain system. Hazardous waste primarily consists of used batteries (AA and AAA, and small uninterruptable power supply batteries).

There were no radioactive or hazardous effluents (gaseous or liquid) released into the environment from Building [redacted] as part of routine operations.

The releases of effluents from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix C Recycle Fuel Fabrication Laboratories

C.1 Operations

Following nearly a one-year pause for all work and movements involving fissionable material within the facility, the RFFL returned to full operations on 2025 February 27, as a result of completed upgrades to the CAAS. These upgrades ensured that all areas within the Immediate Evacuation Zone of the RFFL have full CAAS signal coverage in the event of a criticality incident.

In 2025, the RFFL focused on maintenance and compliance activities, in addition to resuming S&T projects, such as Nuclear Forensics, molten salt experiments, leaching studies, and commercial work involving mixed oxide fuels. The commercial mixed oxide work is a very significant project for the facility. There has been a total of six mini-batches of mixed oxide that were prepared and characterized.

Throughout 2025, the RFFL continued to maintain the minimum staffing requirements outlined in the RFFL Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

C.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 50: RFFL Facility Changes

Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	Installation of Inert Atmosphere Gloveboxes in RFFL	2	Permanent	Close Out
[redacted]	[redacted] – Remove Unreliable RFFL CAM System and Replace with iCAMs	1	Permanent	Design
[redacted]	S&T – Hydrochloric and Argon/Hydrogen delivery system for the RFFL	1	Permanent	Design

Two inert-atmosphere gloveboxes (GBX1 and GBX2) were originally installed in the RFFL to prepare high purity actinide salts; they are multi-purpose gloveboxes that can be used for work requiring an oxygen-reduced atmosphere. This change control is in the process of being closed out.

The RFFL has a Continuous Air Monitor (CAM) system that continuously monitors for airborne contamination in the work areas. This system will be removed from the field and replaced with alternative units, as it is becoming difficult to maintain and is prone to false alarms. In 2025, walkdowns and discussions were held to determine the best approach on how to complete this change.

The Hydrochloric Acid and Argon/Hydrogen gas supply systems are required to provide a gas mixture to enable chloride fuel salt synthesis in an inert glovebox. This experiment was planned

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for installation in [redacted] and the focus in 2025 was to close out the installation of the gloveboxes. However, due to changes in the S&T mission, this engineering change may be cancelled.

C.3 Equipment Performance, Planned Maintenance Testing and Inspections

All systems, including safety-related systems, instrumentation, and equipment performed as intended, with the following exceptions:

- The Glovebox transfer door between zones [redacted] is not functional, since the chain that drives the transfer door has broken. A temporary solution has been implemented in consultation with the NCS Program since this door is listed as a Criticality Safety Control, pending the repair of the door.
- Due to a steam leak on supply fans [redacted] temporary barrel heaters have been installed in the facility, pending repair in the spring of 2026 during the site-wide steam shutdown.
- Balances within the facility had to undergo numerous calibrations after they were found not within specification during the daily pre-use verification check. The facility is working with the calibration group to determine a path forward.
- Inert Atmosphere Glovebox [redacted] remains in an altered state, pending repairs.

As per the requirements of the RFFL Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found, with the following exception:

- Fume hood [redacted] in Room [redacted] remained out of service, pending the replacement of the HEPA filter sampling line on the HEPA's test station. The HEPA is currently unable to pass testing since the sampling line is damaged. An engineering change request is currently in progress to repair the line.

All carbon dioxide and dry chemical fire extinguishers in the RFFL were verified by the CRL Fire Prevention Team and no safety significant issues were identified. The fire alarm bells in the attic are not audible in all areas due to elevated background noise; therefore, compensatory measures are in place during work activities. Permits to recharge Halon fire extinguishers from Environment and Climate Change Canada are still valid.

Source checks and function tests of the criticality monitor were completed quarterly with no deficiencies identified.

C.4 Wastes Generated

As part of RFFL routine operations, the following wastes and effluents were generated:

- Solid radioactive waste; refer to Section 11.1 Waste Management Program for summaries of the waste generated in the RFFL in 2025. In 2025, the amount of solid

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radioactive waste increased in comparison to the previous year as the facility was unable to move nuclear materials during the criticality alarm klaxons upgrades.

- Potentially contaminated air effluents were discharged from the RFFL via roof vents. RFFL exhaust ventilation undergoes dual HEPA filtration, and environmental monitoring sampling.

There were no liquid radioactive or hazardous effluents released into the environment.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix D Zero Energy Deuterium-2 Reactor

D.1 Operations

During 2025, the Zero Energy Deuterium-2 (ZED-2) reactor was made critical 38 times out of 39 total operation periods. There were 52 hours of critical operations and 53 hours of total (critical and sub-critical) operations. The reactor generally operated at an indicated power in the 1-to-100-watt range for periods up to three hours.

Table 51 provides a five-year summary of reactor operations.

Table 51: Record of Operations

Operations		2021	2022	2023	2024	2025
Reactor Operating Time (hours)		44	46	77	61	52
Number of Operating Periods		30	33	69	27	39
Indicated Energy Production (kW·minutes)		93	96	98	204[b]	121
Number of Trips		12	21	20	5	15
Number of Shutdowns	**Planned**	28	31	67	24	38
	Unplanned[a]	2	2	2	3	1
	Total	30	33	69	27	39

a An unplanned shutdown consists of transferring ZED-2 from the operating condition to the standby or tripped condition before completion of planned operation, as determined by the Officer-in-Charge.

b Increase in Indicated Energy Production is attributed to an increase in power level of the reactor to 80 Watts during the second half of 2024, compared to typical operations run at 5 Watts in previous years. The power level increase is permitted by the ZED-2 Facility Authorization.

In 2025 there was one unplanned shutdown of the ZED-2 reactor from the Operating Condition:

- The reactor tripped and shut down on 2025 August 27 while at power. An operator had pressed the low-rate drain button momentarily and when the button was released, the Log Power amplifier in Channel 1 spiked, causing Log Rate 1 amplifier to see an upset condition. The fault was traced to a bad solder connection on the back of the relay for the low-rate drain. The connection was re-terminated, and the reactor was returned to service.

Throughout 2025, ZED-2 continued to maintain the minimum staffing requirements outlined in the ZED-2 Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

D.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

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Table 52: ZED-2 Facility Changes

Building	Description	Category	Permanent / Temporary	Detailed Status
ZED-2	ZED-2 High Hazard Monitor Power Supply Upgrade	2	Permanent	Complete
ZED-2	Rewire the NRU Log Power Amplifier for use in ZED-2	2	Permanent	Close Out
ZED-2	[redacted] Replacement of ZED-2 Log Power Amplifiers and Log Rate Amplifiers	2	Permanent	Construction
ZED-2	[redacted]- ZED-2 Ion Chamber Equivalent	2	Permanent	Construction
ZED-2	[redacted]ZED-2 Reactor Hall Make-up Air Unit & Active Exhaust Fan Replacement	2	Permanent	Construction
ZED-2	Add Dump Valve Circuitry to Data Acquisition System	2	Permanent	Testing / Commissioning

The changes to the facility that are identified in the table above are related to the replacement of obsolete equipment to ensure continued performance and operation of the facility. The radiation monitors and battery backup were successfully commissioned and job closed out. The NRU spare log power amplifier was also rewired and tested in the field successfully. Significant progress was made toward the replacement of the Log Power and Log Rate amplifiers.

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D.3 Equipment Performance, Planned Maintenance Testing and Inspections

The ZED-2 facility was fully operational during 2025. All systems, including safety-related systems, instrumentation, and equipment performed as intended. The ZED-2 reactor was maintained in a guaranteed shutdown state during the investigations related to the unplanned shutdown.

As per the requirements of the ZED-2 Facility Authorization, all routine and preventative maintenance, equipment tests, surveillance activities and inspections of safety-related systems and equipment were completed as planned.

All fire extinguishers and fire protection equipment in the ZED-2 facility were verified by the CRL fire prevention team, with no significant deficiencies found.

Safety System

Table 53 provides a five-year summary of the total reactor safety system trips. In total there were 15 reactor trips in 2025. There were zero failures of the safety system to activate on demand in 2025.

Table 53: Record of Safety-System Trips

Reactor Trip Parameter		Operating		Shutdown			Total
		Critical	Sub-Critical	Standby	Unsupervised Standby	Overnight	
Neutronics		1	0	0	0	14[a]	15
Dump Valve Opening		0	0	0	0	0	0
Class IV Power		0	0	0	0	0	0
Low Air Pressure		0	0	0	0	0	0
Manual		0	0	0	0	-	0
Other		0	0	0	0	0	0
Total Trips	**2021**	2	0	0	0	10	12
	2022	1	1	0	0	19	21
	2023	1	1	0	0	18	20
	2024	0	0	0	0	5	5
	2025	1	0	0	0	14	15

[a] The majority of recorded trips occurred during overnight conditions due to the very low signal current to the amplifiers during shutdown. At these low currents, small variations are sufficient to initiate a trip.

D.4 Wastes Generated

As part of ZED-2 facility routine operations, the following wastes were generated:

- Solid radioactive waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.

There were no radioactive and/or hazardous effluents (gaseous or liquid) released into the environment from the ZED-2 facility as part of routine operations.

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Appendix E Universal Cells

E.1 Operations

During 2025, the UC facility was used for Post-Irradiation Examination of reactor fuels and reactor components along with the development of the Actinium-225 (Ac-225) extraction and purification process.

Table 54 shows the record of facility operations for the last five years.

Table 54: Record of Operations

Operations	2021	2022	2023	2024	2025
Cell Usage Time (cell·hour)[a]	4,460	3,261	4,217	3,285	5,180.5
Cell Shut down for Maintenance (cell·hour)	141	175	439.5[c]	116	26
Universal Cell Availability (%)[b]	97	98	98	99.7	97.1

[a] Cell Usage Time represents time billed to facility customers

[b] Cell Availability is given by:

$$\frac{\text{(Annual Total Cell Time – Down Time)} \times 100\%}{\text{Annual Total Cell Time}}$$

[c] Cell maintenance shutdown hours were higher in 2023 due to a planned maintenance outage for process air, Room 5 asbestos abatement, UC2 crane bridge repair, and manipulator repairs.

Throughout 2025, UC continued to maintain the minimum staffing requirements outlined in the UC Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

E.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 55: UC Facility Changes

Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	Ac-225 Measurement Carrier Replacement	2	Permanent	Close Out
[redacted]	Modifications and Process Design to Support Actinium Initial Sales Project	2	Permanent	Close Out
[redacted]	External contractor to provide process design and Safety and Licensing related work to support approvals of Phase 2 – 6 to operate the systems entering the hot cell(s) in [redacted]	2	Permanent	Close Out

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Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	Brachytherapy Needle, Cutting, Digestion, and Radium Purification unit design, fabrication, inactive testing in mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226	2	Permanent	Close Out
[redacted]	Target Preparation Design, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226	2	Permanent	Design
[redacted]	Target Dissolution Design, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ac-225/Ra-226	2	Permanent	Testing/ Commissioning
[redacted]	Thoron Abatement Design, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and active testing and production qualification with Ra-226	2	Permanent	Testing/ Commissioning
[redacted]	Purification and Separation Design of Ac-225 and Ra-226, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and active testing and production qualification with Ac-225/Ra-226	2	Permanent	Testing/ Commissioning
[redacted]	Modifications to utility/power/I&C for equipment, fabrication/installation in the hot cells/[redacted]	2	Permanent	Design

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Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	Following the initial production of Ac-225 from Ra-226 at low quantities within the limits of the FA and SAR, the ISP will transform to routine production of Ac-225 inside Universal Cells. This will include targets up to 45mg	1	Permanent	Design
[redacted]	Fin Cutting for Target Preparation Design, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226	2	Permanent	Design
[redacted]	Equipment Storage Box Design, fabrication, inactive testing in Mock-up environment, UC testing	2	Permanent	Design
[redacted]	Liquid Waste Conditioner Design, fabrication, inactive testing in Mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226	2	Permanent	Design
[redacted]	Adhesion Tester	2	Permanent	Close Out
[redacted]	Phase I is for the detection of Rn-222 using the monitoring equipment known as the AlphaGuard which can continuously monitor for Rn-222 levels from the UC1 exhaust	2	Permanent	Close Out
[redacted]	Phase II is for the detection of Rn-220 on the UC1 exhaust lines for the receipt of larger post-bombardment targets into the cell	2	Permanent	Design
[redacted]	Archive Storage Block (ASB) modification for the storage of	2	Permanent	Design

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Building	Description	Category	Permanent / Temporary	Detailed Status
	non-fissionable materials (compatible with the F-019 and F-022 flasks)			

The Ac-225 isotope production process required the installation of modernized equipment conforming to the specific vials, targets and gamma spectrometers, replacing the equipment used for Co-60 production.

Process design and Safety and Licensing work was completed and accepted by CNL Safety and Licensing programs, enabling the installation of equipment required for Ac-225 production.

Brachytherapy needle, cutting, digestion, and Ra purification unit design, fabrication, inactive testing in mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with radium (Ra)-226 was performed successfully, providing proof of concept for this step of Ac-225 production.

Target preparation design, fabrication, inactive testing in mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226 are currently in the design phase, to provide proof of concept for this step of Ac-225 production.

Target dissolution design, fabrication, inactive testing in mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ac-225/Ra-226 is currently in testing/commissioning. This expanded the capabilities of Ac-225 production in Building [redacted]

Thoron abatement design, fabrication, inactive testing in mock-up environment, in-cell testing with surrogate material, and active testing and production qualification with Ra-226 will allow the reduction of hazards relative to thoron.

Purification and separation design for Ac-225 and Ra-226, fabrication, inactive testing in a mock-up environment, in-cell testing using surrogate material, and active testing and production qualification with Ac-225 and Ra-226. These activities will further define and establish the Ac-225 production process.

Modifications to utility, power, and Instrumentation and Control for equipment, along with fabrication and installation in the hot cells or in other areas of Building 234 are required to support the continued Ac-225 production process.

Following the initial low-quantity production of Ac-225 from Ra-226, conducted within the limits of the Facility Authorization and SAR, the Initial Sales Project will transition to routine Ac-225 production within Universal Cells. This shift marks the transition from proof-of-concept and initial testing to routine production.

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Fin cutting for target preparation design, fabrication, inactive testing in a mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification using Ra-226 will enhance and refine the overall target preparation process.

The design and fabrication of the equipment storage box, inactive testing in a mock-up environment, and subsequent testing within Universal Cells, will expand and enhance storage capabilities.

Liquid waste conditioner design, fabrication, inactive testing in a mock-up environment, in-cell testing with surrogate material, and in-cell active testing and production qualification with Ra-226 will enhance waste processing capabilities for routine production.

Adhesion tester is used to confirm the integrity of the target foil seal.

Phase I is for the detection of Radon (Rn)-222 using the monitoring equipment known as the AlphaGuard which can continuously monitor for Rn-222 levels from the UC1 exhaust, reducing contamination hazards.

Phase II is for the detection of Rn-220 on the UC1 exhaust lines for the receipt of larger post-bombardment targets into the cell, further building on phase I to enhance safety.

Repurposing the ASB will provide CRL with a method for retrievable material storage that supports S&T activities across the site. The ASB will be modified to accommodate the storage of non-fissionable materials using F-019 and F-022 compatible flasks.

E.3 Equipment Performance, Planned Maintenance Testing and Inspections

As per the requirements of the Fitness for Service PDD, routine inspection & test documents, and the UC Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities and inspections of safety-related systems were completed as planned.

All fire extinguishers and fire protection equipment in the UC were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

E.4 Wastes Generated

As part of UC routine operations, the following wastes and effluents were generated:

- Solid radioactive and hazardous waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.
- Liquid radioactive and hazardous waste; this waste was handled and disposed of in accordance with CNL approved policies and procedures.
- Filtered gaseous radioactive and hazardous effluents discharged from the UC include stack exhausts located on top of the UC facility. These releases are monitored for gross alpha, gross beta and Iodine (I)-131; for UC1, exhaust also passes through the MPF Building [redacted] stack where it is monitored for radon and thoron.

Additionally, other waste includes the operational waste from Ac-225 production:

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- Liquid waste (approximately 70% being acidic) generated from dissolution processes is neutralized and then held on-site.
- Solid waste directly related to operations such as empty vials, cassettes, tubes and fittings, spent needle segments, and spent targets.
- Related solid waste including but not limited to wet wipes, dandex, and other equipment or materials used for decontamination. These wastes are segregated into three categories: glass, metal, and poly.

Releases are filtered through HEPA filters and carbon adsorbers prior to release to the environment.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix F Molybdenum-99 Production Facility

F.1 Operations

Operation of the MPF focused on heating, sampling, and monitoring the contents of the Fissile Solution Storage Tank (FISST).

The Target Residue Material (TRM) Heel Management project has progressed to the inactive commissioning phase. The TRM Heel Transfer System will allow for the transfer of FISST solution from the Building [redacted] tank to the Building [redacted] hot cell for cementation.

A licensing basis assessment for the storage of McMaster Nuclear Reactor spent fuel at the Cask Loading and Transfer Station [34] was completed and confirmed that the activity is within the licensing basis for the CRL site. The assessment was submitted to CNSC staff, and CNL has requested their concurrence.

Revisions of the Criticality Safety Document (CSD) for Building [redacted] and Buildings [redacted] are in progress to support the operation of the TRM Heel Transfer System. MPF document revisions in 2025 were provided to CNSC staff in submissions identified in the table below.

Table 56: MPF Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence No.
***Facility Authorization for the Operation of the Molybdenum-99 Production Facility at the Chalk River Laboratories*, MPF-00583-FA-001**	Capture completion of past operations and implementation of new standards and programs.	MPF-CNNO-25-0003-L

Throughout 2025, MPF continued to maintain the minimum staffing requirements outlined in the MPF Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

F.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 57: MPF Facility Changes

Building	Description	Category	Permanent / Temporary	Detailed Status
[redacted]	TRM Heel Transfer System	2	Permanent	Testing / Commissioning
[redacted]	S&T Refurbishment of Mo-99 Hot Cell in MPF [redacted]	1	Permanent	Obtaining DA/OA[a] Approvals
[redacted]	Install Pu Gloveboxes and Supporting Systems in	1	Permanent	Design

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Building	Description	Category	Permanent / Temporary	Detailed Status
	[redacted]			

a DA/OA – Design Authority / Operating Authority

The TRM Heel Management project has completed the construction and inactive commissioning phases and is currently in the process of the active commissioning phase. The Mo-99 Hot Cell Refurbishment project will restore the active process cell for future use. The Plutonium (Pu) project will repurpose Building [redacted] for future use work, supported by a Plutonium Conditioning and Packaging Licensing Basis Assessment submitted to the CNSC [35], which concluded that the activities are within the existing CRL licensing basis and do not require significant changes to the SCAs.

F.3 Equipment Performance, Planned Maintenance Testing and Inspections

As per the requirements of the MPF Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed or deferred following required process with no significant discrepancies being found.

All fire extinguishers and fire protection equipment in the MPF were verified by the CRL Fire Prevention Team, and housekeeping routines, with no significant deficiencies were found.

Chemistry Control

The chemistry control of FISST is reported to CNSC staff in the quarterly FISST report. During 2025, all licenced parameters were maintained within the limiting conditions of operation.

F.4 Wastes Generated

As part of MPF routine operations, the following wastes and effluents were generated:

- Solid radioactive *and* hazardous waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.
- Liquid radioactive and hazardous waste; the annual values for mercury mass balance for the Mo-99 process are provided in quarterly FISST reports.
- Gaseous radioactive and hazardous effluents discharged from the MPF include Building [redacted] stack exhausts airborne releases from both the MPF and Cell 1 in Building [redacted] Releases are filtered through HEPA filters and charcoal adsorbers prior to release to the environment. The combined release from these two sources is monitored. In 2019 December, the Environmental Protection Program deemed that further monitoring for fission noble gas products including Iodine-131 was unnecessary.

There were no liquid radioactive effluents discharged from the MPF to the environment in 2025.

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Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix G Tritium Facility

G.1 Operations

In 2025, the Tritium Facility supported various commercial opportunities, S&T projects, and provided tritium-related expertise to CNL programs. Tritium Facility commercial operations involved dispensing tritium for external customers, tritium consulting services, and preparation of tritium gas standards. The Tritium Facility also supported various tritium-related S&T projects, which included: tritium battery development, tritium permeation testing of materials, thermal cycling absorption process, on-line liquid tritium measurements (Wilma), tritium interaction with long term storage materials, and tritium exposure studies. The Tritium Facility performed various activities to support CNL's Cleanup FSA in their decommissioning efforts to investigate knowledge gaps for tritium in concrete.

The facility is taking steps towards preparing for the installation of UNITY-2, which will be a full Deuterium-Tritium (D-T) fuel cycle from fuel discharge to purification and supply, demonstrating efficient tritium processing technology in relevant conditions and at relevant rates to enable a risk-reduced path to a fusion pilot plant. All unsecured and portable items in the CECEUD portion of the building have been removed. A full characterisation of equipment was completed, which was needed to determine the waste path for all historical CECEUD items being removed, and dismantling will commence in 2026.

The Tritium 2025 conference was held in Ottawa in September, which is an international conference held every three years. As part of the conference, close to 110 people came to the CRL site to tour the various facilities, including the Tritium Facility and CECEUD, the future home of Unity-2.

Throughout 2025, the Tritium Facility continued to maintain the minimum staffing requirements outlined in the Tritium Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

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G.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 58: Tritium Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	Active ventilation tie-i[redacted] for Portable box in Lab	2	Permanent	Commissioning
[redacted]	[redacted] Stay-in Button for Ventilation Change	2	Permanent	Phase 1: Close Out Phase 2: Construction
[redacted]	Tritiated Water Synthesis Rig	2	Permanent	Construction

Building	Description	Category	Permanent / Temporary	Status
[redacted]	Thermal Cycling Absorption System for Tritium Separation and Enrichment	2	Permanent	Construction
[redacted]	Install Air Purged Enclosure 4	2	Permanent	Construction
[redacted]	S&T – [redacted] Tritium Fuel Cycle Demonstration (Unity-2)	1	Permanent	Design
[redacted]	Argon Supply System Pressure Control Repair	2	Temporary	Close Out
[redacted]	CAPITAL [redacted] PSV [redacted] Replacement	2	Permanent	Construction

A portable glovebox was relocated from Building [redacted] to the Building [redacted] Tritium Facility. This glovebox will be used for experiments that involve air sensitive materials, which require an inert atmosphere in addition to secondary containment for contamination control. No work was completed in 2025; commissioning remains to be completed.

There is a button located in the Building [redacted] lobby that is used in the event of a site-wide stay-in to alter the building ventilation. This switch was originally set-up to run through the Building Automation System (BAS) to shut down the air inlet of the lab space to 20% flow and complete shut-down to the office area. There was insufficient information on the reliability/redundancy of the BAS components to know if the BAS meets safety-related system design requirements. Instead of relying on the BAS to configure the ventilation system in the event of a stay-in, a hardwired connection was installed as part of Phase 1 of this change control. This new stay-in button is operational. Additional scope was added to this change control, and is captured under Phase 2, which consists of adding alarm panels to alert personnel entering [redacted] and at the entrances to room [redacted] about a loss of ventilation condition in the Tritium Facility. Currently, facility staff rely on automated BAS emails, and the blinking of an electronic clock in the office to determine when there has been a loss of ventilation. A simple sail type flow switch was installed on the main exhaust duct, which will cause the alarm panels to alarm during a loss of flow. Construction is complete and the commissioning testing is still required to be completed.

The tritiated water synthesis rig will be used for the controlled synthesis of tritiated light and heavy water to a specified concentration and volume. This tritiated water will then be available for experiments in the facility. In Phase 1, the system will be built and undergo inactive commissioning outside the Tritium Facility, in a non-active lab in Building [redacted] Once completed, it will be relocated to the Tritium Facility for active commissioning during phase 2. As of 2025, the rig has yet to be relocated to the Building [redacted] Tritium Facility.

The high-pressure Thermal Cycling Absorption system, which will operate at a maximum pressure of 1400 kPa – gauge, will be used to study the separation of tritium and deuterium gases. Phase 1 covers the design of the system, and off-site construction. There have been major delays in shipping the completed rig to CRL in 2025 and it has yet to arrive. Phase 2

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covers the site preparation in the non-active lab in Building [redacted] Once non-active commissioning is completed, the rig will be relocated to the Tritium Facility in Phase 3.

An Air Purged Enclosure was relocated from Building [redacted] to Building [redacted] This enclosure will be used for a variety of operations in the facility that need added protection when working with tritium. The design is complete, and the change control is now in construction.

UNITY-2 will pioneer the full Deuterium-Tritium (D-T) fuel cycle from fuel discharge to purification and supply, demonstrating efficient tritium processing technology in relevant conditions and at relevant rates to enable a risk-reduced path to a fusion pilot plant. A licensing basis assessment was submitted to and accepted by the CNSC [36] in 2024. Unity-2 is still in the design stage and being completed through the Fusion Fuel Cycle Inc. joint venture.

Due to the failure of a switchover/regulator assembly associated with the argon supply to the Tritium Facility, a temporary change was applied to restore this gas supply to the building while the permanent replacement was being procured. This temporary change control is now closed, and the permanent replacement has been installed. The argon gas supply system is back to normal operations.

As part of the engineering pressure safety relief valves recovery project, it was identified that the relief valves installed in the field did not match the flowsheet design tables which indicated that the safety device needed to be “CRN Approved Category G Registration Valves”. The devices in the field are either Generant HPRV or Swagelok R-series proportional relief valves, which are not ASME certified and are not CRN Category G valves. All pressure safety relief valves have been changed to the CRN Category G valves. Field construction is complete; the change control is waiting on final sign off for the construction.

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G.3 Equipment Performance, Planned Maintenance Testing and Inspections

The Tritium Facility was fully operational during 2025.

All systems, including safety-related systems, instrumentation, and equipment performed as intended.

As per the requirements of the Tritium Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned with no significant deficiencies found.

During the weekend of 2025 May 31 to June 01, Building [redacted] was successfully transitioned from the local building compressor to site-wide air system without issue. Building [redacted] will now operate on site-wide air and have the building compressor maintained as back-up.

All fire extinguishers and fire protection equipment in the Tritium Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

G.4 Wastes Generated

As part of Tritium Facility operation, the following wastes were generated:

- Solid radioactive waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.
- Liquid radioactive and hazardous waste; liquid wastes containing tritium were stored in holding tanks and transferred to the Waste Treatment Centre.
- Potentially contaminated gaseous radioactive effluents discharged from the Tritium Facility include emission from Fans [redacted] which are monitored for elemental tritium and tritium oxide.

There were no liquid radioactive and/or hazardous effluents discharged from the Tritium Facility to the environment in 2025.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix H Waste Treatment Centre and Associated Facilities

H.1 Operations

The Waste Treatment Centre (WTC) and Associated Facilities process and store active liquid wastes generated from the operation of nuclear facilities at CRL.

Throughout 2025, the WTC continued to maintain the minimum staffing requirements outlined in the WTC Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

Routine Operations

Solid Waste

There was no solid waste received or processed in the WTC in 2025.

Liquid Waste

Liquid waste treatment operations in 2025 and the previous four years are summarized in Table 59.

Table 59: Liquid Waste Treatment Operations

Operations	2021	2022	2023	2024	2025
Liquid Waste Available to Process					
Decontamination Centre Waste (m^3)	375.9	52	265.7	238.5	229.3
Chemical Active Drain System Waste (m^3)	19.5	0	10.4	70.4	36.6
Reactor Active Drain System Waste (m^3)	40.9	272.7	50.8	20.5	28.9
Other Liquid Waste (m^3)	52	8.6	44.2	15.3	106
Total Liquid Waste Processed (m^3)	488.3	333.3	371.1	344.7	400.8
Liquid Waste Immobilization (Bitumen)					
Number of Drums of Bituminized Waste Product	0	10	6[a]	12[a]	5

a The corresponding values were reported incorrectly in the 2024 ACMR. The values presented here reflect the correct data.

In 2025, processing of liquid waste in the Liquid Waste Immobilization System thin film evaporators resulted in the transfer of five drums of bitumen waste product to storage in the WMAs. As of the start of 2026, there are no product drums being stored in the Thin Film Evaporator (TFE) cell or tunnel.

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Liquid Waste Storage Facilities

The legacy liquid wastes stored in Buildings [redacted] continue to be maintained in a safe-storage state. Liquid waste has been removed from Building [redacted] tanks, though has not been formally transferred to Facilities Decommissioning. Physical modifications to the WTC to support receipt of the SLW, currently stored in Buildings [redacted] continued in 2025. Improvements to existing facility systems necessary to process SLW and maintain critical system in the facility to continue operation to the end of the SLW mission were ongoing in 2025. The removal of Cobalt Processing Waste from Building [redacted] began using an overland transfer process to fill custom-made stainless-steel totes to facilitate off-site shipping to the United States. A total of 39,600 L was shipped for processing.

In parallel, infrastructure upgrades of the weather enclosure (modifications to ventilation) continue to support safe retrieval activities from SLW tanks.

Active Drain System

Draining and sampling of the water found in the secondary containment of the deep buried active drain line connecting Buildings [redacted] was conducted when leak detectors indicated that there was water present. Composite sample results confirmed primary containment integrity.

H.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 60: Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	WTC Heated and Ventilated Enclosure for new Receipt System (Overland Transfers). This enclosure is required to enable safe transfer and acceptance of SLW into WTC.	2	Permanent	Accepted. Obtaining DA/OA[a] Approvals
[redacted]	WTC – TFE Cleaning System; this will support operation of TFE-1 and ensure equipment availability is maintained.	2	Permanent	Design
[redacted]	Shielding the TFE feed lines; this will reduce the radiation hazard (dose rates) associated with internal transfers of high activity wastes.	2	Permanent	Accepted. Obtaining DA/OA[a] Approvals
[redacted]	Repurpose NRU Heavy Water Drumming Station as WTC Drum Unloading Station; this will allow WTC to safely complete overland transfers of high hazard waste (such as actinium production waste) directly to the TFE feed tanks.	2	Permanent	Accepted. Obtaining DA/OA[a] Approvals

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Building	Description	Category	Permanent / Temporary	Status
[redacted]	Upgrading WTC Sampling Station – TFE; this will ensure that the operators are able to sample the various storage tanks in [redacted] safely.	2	Permanent	Design
[redacted]	EPC WTC Conveyor System Upgrade; this will provide updated controls and instructions for operators to safely transfer product drums in the TFE cell.	2	Permanent	Design
[redacted]	WTC [redacted] Obsolete Equipment Removal – Baler, Drum Crusher/Compactor; this will remove old, obsolete equipment that is no longer used in WTC.	1	Permanent	Pending Approval to Construct
[redacted]	[redacted] SLW Processing Project - Header and Piping Run for Receipt of Overland Transfers; this will support the installation of essential infrastructure to facilitate the transfer and acceptance of high hazard waste.	2	Permanent	Construction
[redacted]	Piping components compatibility with waste stream; this will support processing of SLW.	2	Permanent	Construction
[redacted]	[redacted] - Install Acid Addition line from Drum Unloading Station to [redacted] pump recirculation line; this will support titration of HD waste prior to processing.	2	Permanent	Testing / Commissioning
[redacted]	Mercury Removal Skid for [redacted] Tanks [redacted] this will facilitate the removal of mercury from liquid waste prior to processing in [redacted]	2	Permanent	Construction
[redacted]	SLWP - Residual Waste Retrieval Methodology; this will enable retrieval of liquid wastes that contain solids exceeding the capabilities of the retrieval system in [redacted]	1	Permanent	Accepted. Obtaining DA/OA[a] Approvals
[redacted]	SLWP - Hazard Reduction Project/ Cesium Removal; this will address risks associated with the wastes currently stored in the tanks in [redacted]	1	Temporary	Close Out
[redacted]	SLWP - Tank Access and Retrieval Project; this will address risks associated with the wastes currently stored in the tanks in [redacted]	2	Permanent	Close Out

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Building	Description	Category	Permanent / Temporary	Status
[redacted]	SWL - [redacted] Tank Access - MED Coring; this will address risks associated with the wastes currently stored in the tanks in [redacted]	2	Permanent	Construction
[redacted]	WTC- [redacted] replacement; this is required to address to replace a valve leaking process liquid from [redacted]	2	Permanent	Accepted. Obtaining DA/OA[a] Approvals

a DA/OA – Design Authority / Operating Authority

H.3 Equipment Performance, Planned Maintenance Testing and Inspections

The Liquid Waste Evaporator (LWE) continues to operate in a non-standard configuration. Distillate Monitoring Tank 1-4 contains water with a mercury concentration above the *LCH for CRL* [3] reference limit for release to the process outfall and remains out of service for regular use. A mercury removal prototype was tested on the Distillate Monitoring Tanks in 2024. An ongoing Engineering Change Control is planned to install the mercury removal skid in 2026.

In 2025, as per the requirements of the WTC Facility Maintenance Plan, all routine and preventive maintenance and inspections of safety-related systems and equipment were completed on schedule. Vault integrity testing in Building [redacted] was deferred due to operational constraints on tank levels. No other safety significant issues were identified during execution of preventative maintenance and inspection activities. Component information was collected and entered into the Enterprise Asset Management System.

All fire extinguishers and fire protection equipment in the WTC facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

Decontamination Factors

The LWE System operation continued to meet the design requirement for a system decontamination factor for beta/gamma (feed-to-distillate ratio) of 125 (149.8 GBq/125.2 MBq). The alpha feed-to-distillate ratio was 114.6 (618.8 MBq/5.4 MBq).

Contamination Removals

The quantity of contaminants removed from the liquid waste treated in 2025 and the previous four years is given in Table 61.

Table 61: Contaminant Removal from Liquid Waste Treatment Operations

Operations	2021	2022	2023	2024	2025
Contaminant Removal[a]					
Gross Alpha (Bq)	4.04×10^{7}	1.98×10^{7}	4.24×10^{6}	9.16×10^{7}	6.13×10^{8}
Gross Beta/Gamma (Bq)	6.66×10^{9}	8.29×10^{9}	5.35×10^{8}	2.01×10^{10}	1.50×10^{11}

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Operations	2021	2022	2023	2024	2025
Contaminant Removal[a]					
Phosphate (kg)	0.22	0.03	0.01	1.23	0.51
Nitrate (kg)	8.87	7.65	0.79	55.44	470.50

a Estimated activity removal is based on the activity measured in the liquid waste feed into the WTC (alpha = 618.8 MBq, beta/gamma = 149.8 GBq) minus the activity measured in the Process Outfall discharges (alpha = 5.35 MBq, beta/gamma = 125.5 MBq).

Predicted Dose to the Most Exposed Member of the Public

Based on the analysis results of all liquid discharges, the predicted dose to the most exposed member of the public in 2025 attributable to WTC distillate discharges was 0.10 µSv/a, which remains below the approved limit of 2.80 µSv/a. Table 62 gives the predicted dose to the most exposed member of the public for the last five years.

Table 62: Predicted Dose to the Public

	2021	2022	2023	2024	2025
Public Dose (µSv/a)	0.10	0.10	0.10	0.10	0.10

Liquid Leak Detection and Management

The leak-detection alarms and tank-level alarms are connected to the LWE control room supervisory alarm system and are tested as part of a scheduled maintenance and testing plan. The Operator Rounds Database is used to collect and monitor tank level information from the WTC Associated Area Liquid Waste Facilities. There are no alarms associated with the Operator Rounds Database. Tank Level alarms are connected to the Building [redacted] Human Machine Interface. Tank level alarm set points are checked weekly and adjusted as required.

Liquid Waste Evaporator

The LWE continued to operate within its performance requirements in 2025. The LWE is operated on an as needed basis to treat low level active waste that is generated from the operation of CRL facilities. Mercury removal factors continued to be closely monitored and actively managed throughout 2025. Preventive and corrective maintenance was performed to maintain the operation of the LWE system.

Liquid Waste Immobilization System

The Liquid Waste Immobilization System was operational in 2025. The system also includes various support systems and a bituminized waste product drum handling system. TFE-2 continued to operate within its performance requirements in 2025 and continued to process LWE concentrates as needed.

Waste Tank Farm

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No liquid waste was sent to Building [redacted] Waste Tank Farm in 2025. The tanks continue to be monitored weekly by WTC personnel. All monitoring equipment was maintained and monitoring performed as per design requirements.

The annual testing of tank and vault probes was not completed due to constraints caused by structures within Building [redacted] However, tank integrity was ensured by regular surveillance conducted on the tank levels which detected no change in tank volume.

Active Area Liquid Waste Facilities

In 2025, the active area liquid waste facilities continued to be monitored by a remote monitoring system. System and surveillance activities were performed daily by operations personnel. Tank level trends in the 14 storage tanks in the facilities were plotted and reviewed regularly to provide assurance of tank integrity.

Emergency Storage Basin

The emergency storage basin continued to be out of service in 2025; activities are underway to transfer this area to Facilities Decommissioning. The rainwater that was collected in the basin during 2025 was pumped out to maintain the water level below the 1 m limit.

H.4 Wastes Generated

As part of WTC routine operations, the following wastes were generated:

- Solid radioactive waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.
- Liquid radioactive and hazardous mixed waste.
- Liquid radioactive and hazardous effluents were discharged through standard approved disposition pathways that incorporate the required monitoring and sampling regimes. All Reactor Drain, Chemical Active Drain, and Decontamination Centre liquid waste was treated at the WTC and discharged to the Process Outfall. Active area liquid waste facilities discharges were made from Building [redacted] Tanks [redacted] directly to the Process Outfall. The primary source of accumulations in these tanks is steam condensate from the Building [redacted] Active Drain System. Effluents are monitored on a batch basis for gross alpha, gross beta, tritium, and a suite of hazardous substances.
- Potentially contaminated radioactive air effluents were discharged from the Liquid Waste Volume Reduction System and Liquid Waste Immobilization System, the baler and drum crusher, the Liquid Waste Evaporator System, and the Holding Tank Facility. The releases from these areas are filtered through HEPA filters prior to release to the environment and are monitored for gross beta, gross alpha, tritium, and iodine.

Effluent releases from the WTC are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix I Fuels and Materials Cells

I.1 Operations

The FMC continued normal facility operations in 2025, which consisted of receipt, preparation, and examination of irradiated fuels and reactor core materials primarily to support the CANDU power reactor program. Two of the Mechanical Test Cells continued to be used for mechanical property testing of irradiated zirconium samples. One Mechanical Test Cell has been used to prepared Radium Targets for the Actinium Initial Sales Project.

Table 63: FMC Record of Operations

Operations	2021	2022	2023	2024	2025
Cell Usage Time (cell·hour)[a]	4767	5091	4098	2727	4667
Cell Shut down for Maintenance (cell·hour)	223	283.5	178	626[c]	175
FMC Availability (%)[b]	98	98	98	100	98

a Cell Usage Time represents time billed to facility customers

b Cell Availability is given by:

$$\frac{\text{(Annual Total Cell Time – Down Time) x 100\%}}{\text{Annual Total Cell Time}}$$

c 2024 cell shutdown time includes approximately 450 hours of maintenance associated with the Cell 3 crane replacement.

The FMC SAR and Facility Authorization are in the process of being updated.

Throughout 2025, the FMC continued to maintain the minimum staffing requirements outlined in the FMC Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

I.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 64: FMC Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	FMC modifications and process design to support target preparation for the Actinium Initial Sales project.	2	Permanent	Installation of environmental radon monitoring in construction
[redacted]	Build New Focused Ion Beam Facility in Room [redacted]	2	Permanent	Building modification phase: Close Out

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Building	Description	Category	Permanent / Temporary	Status
				Glovebox installation: commissioning
[redacted]	FMC [redacted] Rear Door Drive Assist System and Rear Door Repair	2	Permanent	Design
[redacted]	FMC [redacted] Shielding Door Emergency Closer	2	Permanent	Close Out
[redacted]	FMC Cell [redacted] Polisher Replacement	2	Permanent	Construction

Modifications needed to continue with target preparation for the Actinium Initial Sales Project are ongoing with the installation of environmental radon monitoring.

Commissioning of the Scanning Electron Microscope and Focused Ion Beam equipment in Room [redacted] is in progress. This equipment will expand the facility's examination capability of irradiated components.

The FMC Cell [redacted] Rear door has experienced issues opening and closing. Repair of the door and installation of a Door Back-up Drive system are being pursued.

An emergency door closer has been installed on the FMC Cell [redacted] shielding door to provide a means for remote door closure if needed.

Pre-installation work needed to install a new in-cell polisher for preparation of metallographic samples was completed, with polisher installation expected in 2026.

I.3 Equipment Performance, Planned Maintenance Testing and Inspections

Equipment in the facility performed as expected, with the following exceptions:

- The Active Liquid Waste System remained out of service. As in previous years, the Active Liquid Waste System filter tank experienced ground water ingress from a legacy crack in the underground piping in 2025. The liquid was pumped into a barrel twice over the course of the year and is being transferred out of the facility for processing and storage as it is characterized and accepted by the receiving facility.
- The shielded doors for FMC Cells [redacted] have experienced occasional issues with opening and closing. For Cell [redacted] a shielding door emergency closer has been installed and for Cell [redacted] a door assist system is currently being designed (see section I.2).

As per the requirements of the FMC Maintenance Plan and the FMC Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities and inspections of safety-related systems were completed as planned.

All fire extinguishers and fire protection equipment in the FMC were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

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I.4 Wastes Generated

As part of FMC routine operations, the following wastes were generated:

- Solid radioactive and hazardous waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.
- Filtered gaseous radioactive effluents discharged include stack exhausts on the roof of Building [redacted] The releases from this area are monitored for Gross Alpha, Gross Beta and I- 131. Releases are filtered through HEPA filters prior to release to the environment. Charcoal adsorbers are not in place in the facility, which is consistent with the update being prepared to the SAR.

There were no liquid radioactive or hazardous effluents released into the environment from the FMC as part of routine operations.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix J Waste Management Areas

J.1 Operations

Throughout 2025, the WMAs continued to maintain the minimum staffing requirements outlined in the WMA Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

Licensing basis document submissions in 2025 specific to CRL were provided to CNSC staff in the submissions identified in the table below.

Table 65: WMA Document Submissions in 2025

Document Title	Reason for Change	Correspondence #
CSD-09 TLA-Intrusive Characterization in the Chemical Pit, WMA-123450-TLA-006852	Document to support non-routine activity.	WMA-CNNO-25-0010-L

Radioactive waste continued to be emplaced in the operating WMAs in 2025. Table 66 summarizes the volume of waste added to WMA [redacted] from waste generators, categorized as CNL, Nordion and other off-site (i.e., commercial) generators. The 2025 liquid waste inventories in WMA [redacted] can be found in Section 11. The operational status of WMA [redacted] waste storage structures is given in Table 67. In 2025, the Liquid Dispersal Areas, Thorium Nitrate Dispersal Plant, Ammonium Nitrate Destruction Plant, WMAs [redacted] below grade structures continued to be managed as non-operational facilities.

In 2025, the final shipments of the Gentilly-1 (G-1) spent fuel was received at CRL and emplaced in WMA [redacted] storage structures. WL spent fuel transfers commenced in 2025, with the first shipment successfully emplaced into WMA [redacted] The Sort and Segregation Facility, located in WMA [redacted] successfully completed Infrequently Performed Operations trials involving the processing of a sea container. A legacy sea container from WMA [redacted] was successfully processed and repackaged in the Sort and Segregation Facility using the knowledge gained through the Infrequently Performed Operations trial. Shipments of legacy waste stored in soil luggers to Energy Solutions was completed, reducing the liability for CRL. Table 66 and Table 67 have been updated to reflect the addition of waste into the WMAs throughout 2025. As part of CNL's production of Radium-226 (Ra-226) targets for Actinium-225 (Ac-225) radiotherapy project, non-in-cell Personal Protective Equipment and Clothing (PPE&C) waste is being generated. This PPE&C waste is bagged, placed into B-25 containers, and emplaced into designated "Actinium" ISO Containers in the WMA [redacted] Recoverable Surface Storage Area (RSSA). In-cell Ac-225 waste generated from this project is also overpacked into B-25 containers or drums which are approved for storage in the Shielded Modular Above Ground Storage Buildings (SMAGS) located in WMA [redacted] or the WMA [redacted] bunkers. Storage of this in-cell waste in WMA [redacted] bunkers commenced in 2025. Additional details on the accomplishments made in the WMA throughout 2025 are detailed in the following sections.

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Table 66: Annual Volume of Waste Emplaced in Waste Management Areas [redacted]

Location	Facility	Waste Source	Waste Volume Additions (m^3)[b]				
			2021	2022	2023	2024	2025
WMA [redacted]	Bunker	CNL[a]	9.99	17.10	16.11	15.89	10.24
		Commercial	0.01	0.00	0.00	0.70	3.27
		Nordion	0.00	0.00	0.00	0.00	0.00
		Total	**10.00**	**17.10**	**16.11**	**16.59**	**13.51**
WMA [redacted]	Tile Holes	CNL	3.82	5.16	1.65	2.78	2.08
		Commercial	0.44	0.37	0.26	0.48	0.22
		Nordion	2.52	2.33	1.48	4.26	2.18
		Total	**6.78**	**7.86**	**3.39**	**7.52**	**4.48**
WMA [redacted]	Fuel Packaging & Storage	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
WMA [redacted]	MAGS[c] / SMAGS[c]	CNL[a,d]	310.86	346.43	317.14	340.36	410.08
		Commercial	12.89	22.11	11.74	9.22	8.22
		Nordion	3.93	0.00	1.44	0.00	0.00
		Total	**327.68**	**368.54**	**330.32**	**349.58**	**418.30**
WMA [redacted]	Surface Storage	CNL[d]	3492.24	1089.70	837.57	899.24	705.98
		Commercial	2.64	14.09	0.29	0.36	9.55
		Nordion	2.88	6.72	2.88	9.84	4.32
		Total	**3497.76**	**1110.51**	**840.74**	**909.44**	**719.85**
WMA [redacted]	Canister	CNL[e]	0.00	0.00	0.00	1.67	23.05
		Total	**0.00**	**0.00**	**0.00**	**1.67**	**23.05**
WMA [redacted]	Bulk Material Landfill	CNL	0.00	0.00	0.00	0.00	58.00
		Total	**0.00**	**0.00**	**0.00**	**0.00**	**58.00**
Total Waste Emplaced (All Facilities)			**3842.22**	**1504.01**	**1190.56**	**1284.80**	**1179.19**

a CNL Includes waste generated from CRL, Whiteshell (WL), Douglas Point Waste Facility (DPWF), Gentilly-1 Waste Facility (G1WF), and Energy Solutions, emplaced at WMA [redacted] and WMA [redacted]
b Waste pre-processing volumes used here (before compaction or consolidation into parent packages).
c MAGS = Modular Above Ground Storage; SMAGS = Shielded Modular Above Ground Storage.
d Contains both compacted (post-processed) and non-compacted (pre-processed) waste.
e Post-process (after compaction or consolidation into a parent package) data used here.
f Clean waste emplaced into WMA [redacted] has not previously been included. All waste emplaced into WMA [redacted] will now be reported going forward and will include both clean and radioactive waste.

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Table 67: Status of Waste Storage Structures at CRL

Location	Structures			Number of Structures					Packaged Volume (m^3)				
	Facility	Type	Unit Waste Volume (m^3)	Total	Closed	Empty	In Use	% Empty	Emplaced in 2025[a]	Retrieved in 2025[a]	Net Emplaced in 2025 (emplaced-retrieved)	Remaining Storage	Total Emplaced
WMA [redacted]	CD Series Bunkers	Rectangular Single Cell CD	0.00	3	3	0	0	0.00	0.00	0.00	0.00	0.00	349.00
		Rectangular Double Cell CD	0.00	11	11	0	0	0.00	0.00	0.00	0.00	0.00	5036.00
		Cylindrical CD	52.50	174	138	24	12	13.79	13.51	0.00	13.51	1277.73	4234.57
WMA [redacted]	Tile Hole[b]	IRP	0.33	4270	3855	407	8	9.53	4.00	0.00	4.00	134.55	557.41
		CF	1.38	141	129	12	0	8.51	0.00	0.00	0.00	16.56	20.25
		CW	0.60	343	339	3	1	0.87	0.00	0.00	0.00	1.80	82.86
		IFE	0.15	751	701	49	1	6.52	0.00	0.00	0.00	7.35	65.65
		ROD	0.96	96	79	16	1	16.67	0.48	0.00	0.48	16.20	29.50
		IMD	0.05	381	273	107	1	28.08	0.00	0.00	0.00	5.38	1.76
WMA [redacted]	Fuel Packaging & Storage	FPS	0.15	112[c]	96	12	0	11.11	0.00	0.00	0.00	1.80	14.08
WMA [redacted]	Below Ground Storage[d]	Sand Trenches	100000.00	1	1	0	0	0.00	0.00	0.00	0.00	0.00	1894.24
		Extension	9000.00	1	1	0	0	0.00	0.00	0.00	0.00	0.00	4743.94
		Soil Mound	0.00	1	1	0	0	0.00	0.00	0.00	0.00	0.00	14972.05
	Above Ground Storage	Surface Storage	34.52[e]	770	58	712	0	92.47	553.35	0.00	553.35	24578.24	1091.83

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Location	Structures			Number of Structures					Packaged Volume (m³)				
	Facility	Type	Unit Waste Volume (m³)	Total	Closed	Empty	In Use	% Empty	Emplaced in 2025[a]	Retrieved in 2025[a]	Net Emplaced in 2025 (emplaced-retrieved)	Remaining Storage	Total Emplaced
WMA [redacted]	Above Ground Storage	Building 563	440.00	1	1	0	0	0.00	0.00	0.00	0.00	0.00	470.00
		Surface Storage	34.52[e]	570	566	4	0	0.70	0.00	147.90	-147.90	147.90	19530.20
WMA [redacted]	Above Ground Storage	MAGS[f] 599B	2200.00	1	0	0	1	85.64	346.00	203.24	142.76	1883.99	173.25
		SMAGS[f] 599C	4372.50	1	0	0	1	35.70	107.10	1143.37	-1036.27	1560.87	3847.90
		SMAGS[f] 599D	4372.50	1	0	0	1	22.39	471.75	130.05	341.70	979.21	3051.59
		SMAGS[f] 599E	4372.50	1	0	0	1	45.96	153.88	131.90	21.98	2009.59	2340.93
		Surface Storage	34.52[e]	651	461	165	25	25.35	2682.23	2739.63	-57.40	10916.41	16063.88
WMA [redacted]	Above Ground Storage	Canister	2.50	36	19	14	3	42.23	23.05	0.00	23.05	38.94	51.13
WMA [redacted]	Bulk Material Landfill	Landfill	28500.00	1	0	0	1	78.42	58.00	0.00	58.00	22350	3150.00

a Database used to obtain emplaced and retrieved volumes accounts for every emplacement/retrieval that occurred in the calendar year. Some packages may be emplaced/retrieved from the same location multiple times due to internal adjustments within the facility. This data includes movement of new waste that was generated in the calendar year as well as movement of waste from other storage areas.

b Some tile holes were converted to other types using spacers, which affects how volumes were calculated.

c One of the FPS structures, in the southeast corner of the array, is reserved for IAEA monitoring equipment. The three surrounding structures are not to be used, as per the facilities Operating Limits and Conditions. Therefore, the sum of closed, empty, and in use structures is 108.

d WMA [redacted] Below Ground Storage has been buried under clean soil to create the new WMA [redacted] Recoverable Surface Storage Area (RSSA). Waste will no longer be emplaced into this facility.

e The unit waste volume for a sealand container in the WMA [redacted] RSSAs is an estimate based on the total number of containers in the WMA [redacted] RSSA, and the total volume of waste emplaced. The true volume of waste inside each individual sealand container is unknown due to the variable packing efficiency.

f "Unit Waste Volume" for WMA [redacted] MAGS and SMAGS is a field estimate of the actual storage space available. This was reduced from 2760 m³ and 5,830 m³ respectively.

Total – All structures (tile holes, Sea containers, PacTec bags and bunkers) in area of interest.

Closed – All structures considered full in area of interest.

Empty – empty structures

In-use – in-use structures

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Liquid Dispersal Areas

This area is non-operational; no waste transfer operations took place in 2025.

Chemical Pit Groundwater Treatment Plant

This automated treatment facility removes Strontium (Sr)-90 from the groundwater plume that arises from the Chemical Pit situated northeast of WMA [redacted]. In 2025, the plant operated successfully. No plant upgrades were planned or undertaken during this reporting period.

The total volume of groundwater treated in 2025 was 4,479,017 L. A lab analyzes the water for gross beta which has a direct correlation to the amount of Sr-90 in the sample. The average influent gross beta concentration was 1003 Bq/L, and the average effluent gross beta concentration was 11.64 Bq/L.

South Swamp Permeable Reactive Barrier

The South Swamp Permeable Reactive Barrier (PRB) is a passive treatment system that removes Sr-90 from the groundwater plume that results from WMA [redacted]. In 2025, groundwater samples were collected in the spring and fall from fully screened wells upgradient and downgradient of the collection gates. Sampling results confirm that the groundwater from WMA [redacted] is treated and that the PRB reduces the amount of contamination reaching the South Swamp wetland from gross beta concentrations up to 1028 Bq/L in up-gradient wells, down to 1.4 Bq/L in the wells down-gradient of the cells. No upgrades were planned or undertaken during this reporting period.

Waste Management Area [redacted]

The Waste Management Area NRX Calandria Project is currently in the engineering design phase for the segmentation enclosure, environmental enclosure, and their associated ventilation and power systems. This work includes the design, planning, and licensing required for the future dismantling, size reduction, re-packaging, and removal of the NRX calandria from WMA [redacted]

Waste Management Area [redacted]

During the 2025 field season, 1066 tile holes and 36 bunkers at WMA [redacted] were inspected in detail for radiation levels, exterior contamination, damage and water ingress. In addition, 2523 tile holes and 174 cylindrical bunkers containing verification tubes were checked for water ingress. The following is a summary of all findings:

- Exterior contamination was not found in the vicinity of any of the tile holes inspected.
- Forty-one of the tile holes showed at least 15 cm of water at the bottom of the verification tubes, and approximately 30 litres of water was subsequently removed from the 41 tile holes. Tile arrays without verification tubes were also checked and no water was found in any of the tile holes.

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- In the 2020 field season, 12 tile holes in IRP-19 and IRP-20 had new cracks in the tile hole liner. These tile holes are now inspected every year; no water or new cracks have been found.
- During the 2024 field season, Waste Management initiated a detailed inspection of all cylindrical bunkers, to be carried out on a five-year rotating schedule. The 2025 field season detailed inspections were completed on 36 of the bunkers and no water was found. Two lids [redacted] require repairs along the outside edge.
- Eight cylindrical bunkers showed at least 15 cm of water at the bottom of the verification tubes. Approximately 10 litres of water was subsequently removed.
- As per the recommendation of a condition assessment completed on the concrete bunkers in 2011, work was continued to repair the side walls and apply foundation coating to a depth of 30 cm below grade. Twenty-six bunkers were completed in 2025.

Fuel Packaging and Storage Facility

In 2025, ongoing activities at the Fuel Packaging and Storage facility consisted of routine maintenance of equipment and general surveillance. The Fuel Packaging and Storage facility continues to be in long-term monitoring and surveillance.

Spring B Groundwater Treatment Plant

This automated water treatment plant removes Sr-90 from the groundwater plume that arises from the northwest corner of WMA [redacted] In 2025, the water treatment plant operated successfully.

The total volume of groundwater treated in 2025 was 716,997 L. A lab analyzes the water for gross beta, which has a direct correlation to the amount of Sr-90 in the sample. The average influent gross beta concentration was 4105 Bq/L, and the average effluent gross beta concentration was 3.50 Bq/L.

Waste Handling Building

The waste handling building, Building [redacted] is used to handle and compact waste destined for above-ground storage in WMA [redacted] Volumes of solid compactable material received into the waste handling building, compacted, and transferred to WMA [redacted] can be found in Table 66 and Table 67.

Tile Hole Remediation Program

The 2025 tile hole field campaign included radiological surveys, tile hole inspections and water removal. Inspection of the [redacted] tile hole was completed and verified that no further water ingress occurred and that the tile hole remained dry.

Waste Management Area [redacted]

Biannual monitoring of groundwater discharges, downgradient of WMA [redacted] continued in 2025. Sea Container waste emplacements continued in the Summer of 2025. There are currently 58

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sea containers being stored in the WMA [redacted] Recoverable Surface Storage Area (RSSA) footprint. During the winter months this area was not used and will return to operation in the spring.

Waste Management Area [redacted]

Mixed Waste Drum Storage Units Building [redacted] was storage areas, continued to operate as designed throughout 2025. Work was completed to install the proper HEPA filters in the Building [redacted] fume hood stack, and rectify the issues identified during the maintenance inspection in 2023. The [redacted] fume hood was tested and approved for use in January 2025.

WMA [redacted] RSSA remained in a stand down due to accounting issues, this status will stand until the issue is resolved. Table 66 and Table 67 show the number of ISO containers stored in the WMA [redacted] RSSA. In 2025, Building [redacted] continued to be used as a characterization and equipment/consumable storage area, with the addition of certified flammable cabinets. Intrusive radiological surveys and documentation of waste inside two legacy sea containers continued in WMA [redacted] in 2025. This work provided insight and data to the processing of the 20-foot sea container contents in 2025 in the Sort and Segregation Facility.

Low-Level Radioactive Waste Management Office Buildings

No waste was added to the stored waste in the Low-Level Radioactive Waste Management Office, Building [redacted] in 2025. Waste volumes contained in Building [redacted] are reported in Table 67.

Waste Management Area [redacted]

This area is non-operational; no waste transfer operations took place in 2025.

Waste Management Area [redacted]

This area is non-operational; no waste transfer operations took place in 2025.

Waste Management Area [redacted]

The G-1 fuel consolidation project was completed in 2025 June. The entire inventory of spent nuclear fuel (87 baskets) stored in the concrete canisters at the G-1 Waste Facility (G1WF) was transported to CRL WMA [redacted] for storage until a long-term disposal solution is available. These newly filled canisters have been added to the WMA [redacted] canister monitoring program. Commissioning activities and mock trials were performed to prepare for the WL fuel shipment campaign. Following that, the first shipment with two fuel baskets was successfully transferred from WL to CRL and emplaced in the storage canisters. A second shipment was sent from WL to CRL containing one fuel basket and one dummy basket, but it was not emplaced in 2025 due to the weather conditions.

MDS Nordion Calcine Waste Canisters

The two concrete storage canisters that were constructed in WMA [redacted] for the storage of calcined waste processed from radioisotopes separated in the New Processing Facility were maintained empty in 2025.

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Waste Management Area [redacted]

In 2025, the Sort and Segregation Facility, Building [redacted] continued to operate as intended. A design contract for Sort and Segregation Facility upgrades was established in 2025. The SMAGS Buildings [redacted] (SMAGS 1), [redacted] (SMAGS 2) and [redacted] (SMAGS 3), remained in operation during 2025, while the planning phase for Building [redacted] climate control upgrades progressed. Details of waste volumes emplaced in, or retrieved from, these structures and remaining storage space are reported in Table 67.

Multiple waste diversion shipments were completed to reduce the legacy waste being stored in the SMAGS facilities, as well as the LLW RSSA, such as legacy luggers and sea containers in 2025. This effort frees up valuable space for LLW and intermediate-level waste package emplacement into these facilities.

Ammonium Nitrate Decomposition Plant

This area is non-operational. An animal fencing skirt was installed on the existing fence around the perimeter to prohibit animals from burrowing under and entering the area. This work was partially complete in 2025 as a few gates still require the additional skirting.

Wall and Curtain Remediation Program

In 2025, the Environmental and Waste Technologies Branch continued to manage and operate the Wall and Curtain PRB. The system retains Sr-90 that would otherwise discharge into Duke Swamp from the groundwater plume emanating from the Ammonium Nitrate Decomposition Plant.

The total volume of groundwater treated in 2025 was 1.52×10^7 L. The average influent gross beta concentration, which is sampled on a semi-annual basis, was 499 Bq/L. The average effluent total beta concentration, which is sampled monthly, was 0.23 Bq/L. The calculated amount of gross beta retained in the PRB in 2025 was 7.59×10^9 Bq and the total estimated retention (1998 to 2025) was 4.06×10^{11} Bq. These calculated values are not precise because hydrogeological systems are heterogeneous, and the influent concentrations can only be estimated within a factor of two to three.

Waste Management Area [redacted] Bulk Material Landfill

In 2025, three roll-off bins of non-radiological dewatered sewage were emplaced into the landfill. Approximately 90,000 litres of leachate were pumped out of the landfill and sent to the sewage treatment plant for processing.

A new project was initiated in 2025 to reduce the water ingress due to precipitation and snow melting. The scope of the project includes extending the roof/sides of the enclosure to the ground and installing a sub-grade liner around the perimeter.

An investigation with a borescope camera and dye test was completed in 2025 to confirm the integrity of the collection pipes and leachate liner.

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J.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 68: WMA Facility Changes

Building	Description	Category	Permanent/ Temporary	Status
[redacted]	Installation of Gamma Spectrometry System in [redacted] to enable verification of waste packages received from waste generators. The scope of this change includes the relocation of existing equipment in [redacted] to make room for the new system.	2	Permanent	Construction
[redacted]	Type A Container Assessment and Licensing for ILW Storage. This assessment expands the waste storage capability in Waste Management Area [redacted]	1	Permanent	Obtaining DA/OA[a] Approvals
[redacted]	[redacted] Operational Upgrades. These upgrades will increase the waste processing capabilities of the Sort and Segregation Facility and allow Waste management Operations to process more hazardous waste in [redacted]	1	Permanent	Design
WMA[redacted]	Removal of Concrete/Bitumen Plug from IRP Tile Holes to allow inspection of the tile hole interior and contents. This change will also aid in preparing for future retrieval and decommissioning activities.	2	Permanent	Design
WMA[redacted]	Acceptance of TRISO Fuel and TRISO Fuel Assembly. The scope of this change is to determine the packaging, transportation, and storage requirements for all waste streams that are generated from TRISO fuel experiments.	2	Permanent	Obtaining DA/OA[a] Approvals
WMA[redacted]	Spill Catchment System for ISO Containers to prevent a release of liquid to the environment. The source of the liquid is condensation forming on the interior of the storage container due to temperature fluctuations.	2	Permanent	Obtaining DA/OA[a] Approvals
WMA[redacted]	Operation of EMED Tooling for Retrieval of 1 Gallon Can from IRP Tile Hole. This tooling will increase the IRP tile hole retrieval	2	Permanent	Design

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Building	Description	Category	Permanent/ Temporary	Status
	capabilities of Waste Management Operations.			

[a] DA/OA - Design Authority/Operations Authority

Equipment Performance, Planned Maintenance Testing and Inspections

All systems, including safety-related systems, instrumentation, and equipment performed as intended.

As per the requirements of the WMA Facility Authorization all routine and preventive maintenance, equipment tests, surveillance activities, and inspection of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the WMA facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

Waste Management Area [redacted] Canister Liner Monitoring

In 2025, the liners of the canisters containing waste were sampled and monitored four times. The samples were monitored for the presence of fission products and moisture in the liner, and no deficiencies of the canister liners or fuel baskets were found.

Waste Management Area [redacted] Building [redacted] Monitoring

Regular checks in 2025 confirmed that there was no visible exterior leakage from drums or accumulation of fluid within the building sumps.

J.3 Wastes Generated

Solid Radioactive and/or Hazardous Wastes

Solid radioactive and hazardous waste was generated in the facility as part of routine operations.

Depending on the waste characteristics, waste was transferred to various storage/compaction facilities. Slightly contaminated waste and waste suspected of being contaminated were stored in WMA [redacted] Low-level waste consisting primarily of contaminated paper, disposable protective clothing and cleaning materials was packaged in plastic bags and compacted into steel boxes in the WMA super-compactor before being transferred to storage. The WTC baler for compaction of wet waste (i.e., mop heads) was permanently removed from service in 2020. Therefore, wet waste is no longer processed at WMAs. Waste bags that are not suitable for compacting in WMA super-compactor are transferred directly to storage.

See Section 11.1 Waste Management Program, for summaries of waste generated in 2025.

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Liquid Radioactive and/or Hazardous Wastes

Liquid radioactive and/or hazardous waste was generated in the facility tile holes, sumps and bunkers, as a part of routine operations.

See Section 11.1 Waste Management Program, for summaries of waste generated in 2025.

J.4 Effluent Released

Liquid Radioactive and/or Hazardous Effluents

Liquid radioactive and hazardous effluents were generated in WMA as a part of routine facility maintenance. Water from tile holes, sumps and bunkers was transferred overland in drums and totes to the Decontamination Pit, where they were subsequently emptied into local receiving tanks, before being transferred to the Waste Treatment Centre for processing.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

Gaseous Radioactive and/or Hazardous Effluents

Potentially contaminated air effluents from the WMAs include Building [redacted] stack, Building [redacted] roof vent, and wall vents of buildings [redacted] The releases from these areas are monitored for gross alpha and beta, Tritium Oxide, Iodine-125, Iodine-131, and passive tritium. Releases are filtered through HEPA filters and activity is monitored at effluent sampling stations, prior to release to the environment.

Radioactive airborne effluents released from the WMA facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

J.5 Additional Tables

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Table 69: General Site Radiation Monitoring

Location		Frequency	Gamma Radiation Dose Rate in Air - Ranges (µrem/h)				
			2021	2022	2023	2024	2025
WMA[redacted]	Perimeter Fence	Annually	4.0 - 12.0	10.0 - 20.0	20.0 - 25.0	10.0 - 15.0	10.0 - 40.0
	Above Buried Wastes	Annually	15.0	10.0	20.0[a]	10.0 - 30.0	10.0
WMA[redacted]	Engineered Facilities	Annually	10.0 - 20000.0	N/Ab	N/A[b]	30.0 - 40.0	100.0
	Perimeter Fence	Annually	6.0 - 32.0	10.0 - 50.0	10.0	20.0 - 50.0	10.0 - 60.0
	Above Buried Wastes	Annually	10.0 - 1260.0	N/Ab	10.0 - 300.0	25.0 - 5800.0	35.0 - 8200.0
WMA[redacted]	Perimeter Fence	Annually	10.0 - 21.0	10.0 - 30.0	10.0 - 20.0	6.0 - 13.0	15.0 - 20.0
	Above Buried Wastes[c]	Annually	15.0 - 21.0	N/A[b]	N/A[b]	N/A[b]	N/A[b]
	Surface Storage[d]	Annually	N/Ad	N/A[d]	N/A[d]	10.0 - 15.0	15.0 - 100.0
WMA[redacted]	Perimeter Fence	Annually	1.0 - 3.0	20.0 - 80.0	20.0 - 40.0	20.0 - 60.0	100.0 - 400.0
	Surface Storage	Annually	1.0 - 4.0	7.0 - 100.0	N/A[b]	30.0 - 350.0	100.0 - 500.0
	Storage Buildings	Annually	10.0	N/Ab	20.0 - 190.0	100.0 - 700.0	100.0 - 2300.0
WMA[redacted]	TLD Stations	Quarterly	6.0 - 14.0	10.0 - 40.0	5.0 - 90.0	5.0 - 100.0	20.0 - 60.0
	Between Canisters	Quarterly	25.0 - 250.0	30.0 - 200.0	100.0 - 300.0	10.0 - 250.0	100.0 - 400.0
	At Service Building	Quarterly	30.0	N/A[b]	10.0 - 30.0	10.0 - 100.0	10.0 - 30.0
WMA[redacted]	Perimeter Fence	Annually	1.0	5.0 - 20.0	10.0 - 20.0	15.0 - 80.0	30.0 - 60.0
	Storage Buildings	Annually	11.0 - 2000.0	10.0 - 3000.0	5.0 - 3000.0	4.0 - 20400.0	100.0 - 46200.0
	Plant Road	Quarterly	8 - 12.0	3 - 20.0	5 - 25.0	20.0 - 40.0	5.0 - 40.0
	Surface Storage	Annually	100.0 - 2200.0	20.0 - 400.0	40.0 - 400.0	100.0 - 2400.0	100.0 - 2100.0

a Top of mound not measured due to scaffold issue.

b Monitoring station removed due to over 10 feet of granular material added to the surface of WMA[redacted]

REDACTED

c WMA [redacted] Above Buried Waste monitoring points no longer accessible. Clean fill added to create new Surface Storage area.

d WMA [redacted] Surface Storage operational as of 2024.

Table 70: Waste Management Area [redacted] Ambient Gamma Radiation Fields

TLD Station No.	Ambient Gamma Radiation Dose Rate in Air (µrem/h)				
	Annual TLDs				
	2021	2022	2023	2024	2025
[redacted]	9.0	25.0	43.0	20.0	37.5
[redacted]	6.0	22.0	35.0	20.0	28.8
[redacted]	9.0	23.0	43.0	13.8	33.8
[redacted]	13.0	30.0	33.0	22.5	38.8

Table 71: Waste Management Area [redacted] Quarterly Canister Contact Gamma Radiation Fields

Canister	Canister Contact Gamma Radiation in Air (µrem/h)															
	North Side				East Side				South Side				West Side			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
[redacted]	280.0	190.0	190.0	330.0	330.0	250.0	185.0	320.0	380.0	200.0	185.0	300.0	250.0	200.0	190.0	310.0
[redacted]	300.0	200.0	170.0	400.0	260.0	200.0	195.0	390.0	270.0	250.0	250.0	350.0	360.0	250.0	195.0	370.0
[redacted]	250.0	100.0	100.0	230.0	150.0	90.0	100.0	230.0	180.0	130.0	145.0	200.0	270.0	120.0	135.0	240.0
[redacted]	220.0	90.0	100.0	200.0	170.0	90.0	110.0	210.0	180.0	100.0	115.0	180.0	190.0	110.0	125.0	200.0
[redacted]	110.0	130.0	140.0	260.0	240.0	130.0	140.0	220.0	230.0	100.0	110.0	270.0	160.0	100.0	95.0	260.0
[redacted]	230.0	140.0	145.0	250.0	210.0	150.0	150.0	240.0	220.0	120.0	130.0	270.0	220.0	110.0	115.0	270.0
[redacted]	260.0	140.0	150.0	200.0	230.0	140.0	140.0	210.0	210.0	120.0	130.0	210.0	220.0	120.0	135.0	220.0
[redacted]	250.0	130.0	135.0	150.0	290.0	120.0	120.0	140.0	200.0	120.0	125.0	140.0	150.0	140.0	140.0	210.0

REDACTED

Canister	Canister Contact Gamma Radiation in Air (µrem/h)															
	North Side				East Side				South Side				West Side			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
[redacted]	80.0	50.0	60.0	110.0	120.0	50.0	60.0	100.0	80.0	30.0	45.0	110.0	60.0	30.0	35.0	120.0
[redacted]	110.0	60.0	60.0	130.0	100.0	60.0	60.0	140.0	140.0	50.0	50.0	120.0	130.0	50.0	50.0	120.0
[redacted]	180.0	130.0	140.0	150.0	230.0	130.0	130.0	140.0	200.0	110.0	110.0	180.0	170.0	100.0	105.0	200.0
[redacted]	190.0	110.0	110.0	100.0	150.0	90.0	95.0	80.0	140.0	90.0	90.0	110.0	170.0	120.0	110.0	120.0
[redacted]	110.0	100.0	80.0	90.0	120.0	90.0	95.0	120.0	100.0	80.0	85.0	110.0	130.0	70.0	70.0	130.0
[redacted]	100.0	60.0	55.0	90.0	140.0	40.0	45.0	100.0	100.0	40.0	45.0	110.0	50.0	50.0	50.0	120.0

a Calcine waste canisters not operational.
b Empty canister.

REDACTED

Table 72: Waste Management Area [redacted] Ambient Gamma Radiation Fields

TLD Station No.	Ambient Gamma Radiation Dose Rate in Air (µrem/h)	
	2025 Semi-Annual TLDs	
	R1	R2
[redacted]	39.3	45.1
[redacted]	6.8	5.8
[redacted]	9.5	N/A[a]
[redacted]	30.9	24.2

a TLD inaccessible due to snow clearing operations piling snow around TLD [redacted]

REDACTED

Appendix K Health Physics Neutron Generator

K.1 Operations

The HPNG Facility houses two neutron generators, the Deuterium-Deuterium 109 (DD-109) Neutron Generator and the Deuterium-Tritium 108 (DT-108) Neutron Generator, both manufactured by Adelphi Technology, Inc. A third neutron generator, the Texas Nuclear Neutron Generator 150-1H, manufactured by Texas NG, is present in the facility, but is disconnected and is currently in the process of removal from the facility. The HPNG also houses the Californium (Cf)-252 Source Transport System.

In 2025, the HPNG was used to support S&T projects for development and testing of neutron imaging systems and neutron spectrometry measurements.

Table 73: Record of Operations

Equipment ID / Name	Description / Function	Hours Operational (2025)
DT-108	Deuterium-Tritium 108 Neutron Generator capable of producing neutrons up to 14.1 MeV.	84
CR-157 Cf-252 Check Source	5.6×10^6 Bq sealed source for low dose neutron exposures.	25
Cf-252 Source Transport System	7.8×10^8 Bq sealed source exposed via the pneumatic transport system.	73

Throughout 2025, the HPNG continued to maintain the minimum staffing requirements outlined in the HPNG Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

K.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 74: HPNG Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	S&T Design Improvements for the Cf-252 Source Transport System	TBD	Permanent	Design

Design improvements to the Cf-252 Source Transport System will allow operators to test the pressure in the system to confirm that there are no leaks or cracks in the airlines.

REDACTED

K.3 Equipment Performance, Planned Maintenance Testing and Inspections

The DD-109 Neutron Generator remained out of service in 2025 due to ongoing functional issues with the device. It is likely that the DD-109 will remain out of service indefinitely. Options for replacement with a new DD neutron generator are under consideration.

The DT-108 Neutron Generator was out of service briefly at the beginning of 2025 while the safety testing procedure was being updated. The DT-108 was brought back into service in 2025 March and remained operational throughout the remainder of 2025.

The new Cf-252 source was transferred into the storage shield, and the Cf-252 Source Transport System was successfully brought back into service in 2025 May. The Cf-252 remained operational until 2025 September when an incident occurred involving the Cf-252 source becoming stuck in the D_2O Moderated Source Holder due to a crack in the return airline, causing the source to fail to return to its shielded position. This event was reported to CNSC staff [37]. Recovery of the source was successful, and the cause of the crack was determined to be due to degradation of the airline. Replacement of the airline, as well as modifications to improve function of the system, are in process through the *Engineering Change Control* process [16]. The Cf-252 Source Transport System remains out of service.

There were no changes to safety-related systems, instruments or equipment.

As per the requirements of the HPNG Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the HPNG Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

There were no faults of safety-related equipment reported in the HPNG Facility in 2025.

K.4 Wastes Generated

There were no radioactive and/or hazardous wastes generated in the HPNG facility, as part of routine operations.

There were no radioactive and/or hazardous effluents (gaseous or liquid) released into the environment from the HPNG facility.

REDACTED

Appendix L Gamma Beam Irradiation Facility

L.1 Operations

The Gamma Beam Irradiation Facility (GBF), located in Building [redacted] (i.e., the Biological Research Facility), contains two irradiators: the Gamma Beam 150C, manufactured by Nordion International, Inc., and the GC60-1000, manufactured by Hopewell Designs, Inc.

The Gamma Beam 150C irradiator contains one Cobalt (Co)-60 source with activity of 74 GBq (2 Ci) as of December 31, 2025.

The GC60-1000 irradiator currently contains two Co-60 sources and two Cesium (Cs)-137 sources, as listed below with their activities as of 2025 December 31:

- Co-60: 4.7 TBq (127 Ci)
- Co-60: 25.9 GBq (0.70 Ci)
- Cs-137: 60.0 TBq (1622 Ci)
- Cs-137: 5.9 TBq (159 Ci)

Table 75: Record of Operations

	2021	2022	2023	2024	2025
Hours Operational	961	1792	86	0	1

The GBF was not operational in 2025 as the new area radiation monitor (Bot RMS2) was in the process of design and installation. The one hour of operational time in 2025 is due to commissioning activities, which started in late 2025.

Throughout 2025, the GBF continued to maintain the minimum staffing requirements outlined in the GBF Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

L.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 76: GBF Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	[redacted] Replace [redacted] Area Radiation Monitor in Gamma Beam Irradiation Facility	2	Permanent	Construction

Installation of the new interlocked area radiation monitor (Bot RMS2) was completed in 2025, with commissioning activities beginning in 2025 October. Multiple issues were encountered during commissioning that required further engineering input. Completion of commissioning activities and return to service is anticipated for 2026.

REDACTED

L.3 Equipment Performance, Planned Maintenance Testing and Inspections

The GBF was out of service in 2025 while design, installation, and commissioning of the new area radiation monitor was performed.

As per the requirements of the GBF Facility Authorization, operation of the Gamma Beam 150C and GC60-1000 irradiation devices was not permitted in the absence of a functional area radiation monitor as part of the safety interlock system of the facility. Therefore, routine and preventative maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment that required operation of the irradiation devices could not be performed for most of 2025. Routine and preventative maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment that did not require operation of the irradiation devices could be performed and were completed as planned, with no significant deficiencies found.

After the new area radiation monitor was installed and tested in 2025 October, operation of the devices was permitted to support the commissioning process, which included equipment tests and surveillance activities of safety-related systems and equipment. Multiple issues were encountered during commissioning that required additional design modifications, which paused commissioning activities in 2025 December.

All fire extinguishers and fire protection equipment in the GBF Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

L.4 Wastes Generated

There were no radioactive and/or hazardous wastes generated in the GBF facility, as part of routine operations.

There were no radioactive and/or hazardous effluents (gaseous or liquid) released into the environment from the GBF facility.

REDACTED

Appendix M Gamma Beam Irradiator model GC60

M.1 Operations

The GC60 Gamma Irradiation Facility contains two irradiation devices, the GC60-10 irradiator and the X-80 X-Ray irradiator, both manufactured by Hopewell Designs, Inc. In 2025, activities conducted in the facility continued to support Operations and S&T initiatives, including the calibration of CNL radiation monitoring instrumentation, testing of radiological detection instrumentation, and regulation-related dosimeter inter-comparisons with utilities. The X-80 X-Ray Irradiator shares the Linear Positioning System (LPS) track with the GC60-10 and is also used for the calibration of instruments and S&T applications.

The GC60-10 irradiator houses four Cesium-137 (Cs)-137 sources with activities ranging from 1.25 GBq (34 mCi) to 0.91 TBq (25 Ci), and one Cobalt (Co)-60 source with activity of 0.13 TBq (3.5 Ci), as of 2025 December 31.

Table 77: Record of Operations

Equipment ID / Name	Description / Function	Hours Operational (2025)
GC60-10	Gamma irradiator with Cs-137 and Co-60 sources used for calibration and research.	138
X-80 X-Ray Irradiator	X-Ray Irradiator used in inter-comparison studies.	6

Throughout 2025, the GC60 continued to maintain the minimum staffing requirements outlined in the GC60 Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

M.2 Facility Changes

Table 78: GC60 Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	Upgrades to the Linear Positioning System and facility camera systems.	N/A	Permanent	Completed

The LPS motor, LPS carriage table, and irradiation room camera system, shared by both the X-80 and GC60-10 irradiators, were replaced by the manufacturer Hopewell Designs, Inc. The carousel motor for the GC60-10 irradiator was also replaced. These upgrades addressed the breakdown of the carousel and LPS motors which occurred in 2024 and also contributed to improvements in facility operation and efficiency. These facility changes were performed by service technicians from Hopewell Designs, Inc.

REDACTED

M.3 Equipment Performance, Planned Maintenance Testing and Inspections

As described in section M.2, upgrades to the LPS motor, LPS carriage table, irradiation room camera system, and GC60-10 carousel motor were performed in 2025.

As per the requirements of the GC60 Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the GC60 Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

There were no faults of safety-related equipment reported in the GC60 Facility in 2025.

M.4 Wastes Generated

There were no radioactive and/or hazardous wastes generated in the GC60 facility, as part of routine operations.

There were no radioactive and/or hazardous effluents (gaseous or liquid) released into the environment from the GC60 facility.

REDACTED

Appendix N Van de Graaff Accelerator Facility

N.1 Operations

The Van de Graaff accelerator facility (VDG facility) maintains and operates a 2.5 MeV electron accelerator. The accelerator provides short, intense pulses of electron radiation for the study of fast reactions in solution, or in continuous pulsing mode for high dose rate applications.

The accelerator was operational for most of 2025, performing experiments in support of Science and Technology. In the third quarter of 2025, the facility implemented operational changes that reduced per-release SF_6 emissions by approximately 50%, with no observed impact on accelerator performance.

Table 79: Record of Operations

	2021	2022	2023	2024	2025
Hours Operational	265	270	104	0	484

Throughout 2025, the VDG Facility continued to maintain the minimum staffing requirements outlined in the VDG Facility Authorization. Staffing was maintained at levels to provide the needed operational and safety support.

Van de Graaff facility document revisions in 2025 were provided to CNSC staff in submissions identified in the table below.

Table 80: VDG Facility Document Submissions in 2025

Document Title and Number	Reason for Change	Correspondence #
Facility Authorization for the Operation of the Van de Graaff Accelerator at the Chalk River Laboratories, [redacted] 00583-FA-001	Updated compliance program language and template.	VDG-CNNO-25-0001-L

N.2 Facility Changes

There were no significant changes to the VDG Facility in 2025.

N.3 Equipment Performance, Planned Maintenance Testing and Inspections

During the first two quarters of 2025, the accelerator experienced a problem with sparking. Continued operation was maintained by reducing the pulse amplitude. The issue was resolved in the third quarter during planned maintenance. While correcting this issue, the connections between the selsyn dials and the Lucite rods were tightened, fixing a slight hysteresis in the focus control. In addition, the anode high voltage cable was replaced, along with a thyratron. After making these fixes, the accelerator operated well, delivering higher than normal dose per pulse.

REDACTED

There were no changes to safety-related systems, instruments or equipment.

As per the requirements of the VDG Facility Authorization, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the VDG Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

There were no faults of safety-related equipment reported in the VDG Facility in 2025.

N.4 Wastes Generated

As part of Van de Graaff Accelerator facility routine operation, the following wastes and effluents were generated:

- Liquid hazardous waste: this waste was handled and disposed of in accordance with CNL approved policies and procedures.
- Solid hazardous waste was generated as part of maintenance operations and as aged equipment failed and was replaced or repaired. Refer to Section 11.1 Waste Management Program for summaries of the volume of radioactive solid waste generated in 2025.
- There were no radioactive or hazardous liquid effluents released as part of routine operations in 2025.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

REDACTED

Appendix O Near Surface Disposal Facility

O.1 Pre-Construction Activities

The NSDF is proposed to be constructed on the CRL site. The purpose of the NSDF is to provide the permanent disposal of current and future low-level radioactive waste at the CRL site in a manner that is protective of both human health and the environment. Furthermore, the NSDF will enable the remediation of historically contaminated lands and legacy waste management areas and support the decommissioning of outdated infrastructure to facilitate the CRL site revitalization.

Following the 2024 January decision by the Commission to amend the CRL site licence to authorize construction of a near surface disposal facility, three applications were filed for a judicial review. Decisions on these reviews were announced in early 2025, two of which required follow-up action. In the first decision, the court directed CNL and the CNSC to continue consultation with Kebaowek First Nation aimed at reaching agreement on or before 2026 September 30. The second judicial review decision found that Environment and Climate Change Canada (ECCC)'s decision as to the site selection requirements under section 73 of the Species at Risk Act was unreasonable. Appeals were filed with respect to these two decisions and hearings for these appeals were held on 2025 October 8 and 2025 November 12. The results of both appeals remain pending.

Kebaowek First Nation, CNL, and the CNSC continue to meet regularly to progress the work directed by the court.

No construction work was undertaken in 2025.

Design activities in 2025 focussed on analysis of options for a weather cover in relation to licensing regulatory action #10 [38] as well as progressing the development of the required temporary engineered retaining structure. Both activities continue into 2026.

O.2 Progress Report on Construction Licensing Requirements and Environmental Assessment Commitments

The *Near Surface Disposal Facility Annual Progress Report on Construction Licensing Requirements and Environmental Assessment Commitments* [39] is prepared annually to comply with the Chalk River Site Licence NRTEOL-01.01/2028 [2]. This report addresses Licence Condition G.7 (Construction Licensing Requirements) and Licence Condition G.8 (Environmental Assessment Commitments) in accordance with the compliance verification criteria outlined in the LCH for CRL.

Refer to [39] for the list of NSDF Regulatory Actions and Environmental Assessment Commitments applicable to the reporting period.

REDACTED

Appendix P Advanced Nuclear Materials Research Center

P.1 Facility Description

The ANMRC will be a large, modern research facility consisting of 12 hot cells and 2,700 m^2 of laboratory space for conducting nuclear fuels research and small-scale production activities. The facility will equip CNL to effectively deliver its S&T mission, Canada's federal nuclear research priorities, market-driven commercial opportunities, and critical research on Advanced Reactor and Small Modular Reactor fuels.

P.2 Construction Activities

In 2025, CNL continued constructing the ANMRC in the south-central portion of the CRL campus, as shown in Figure 2. CNL and its contracted partners completed erection of the south building structure, which will house the future Class B laboratories and amenities. The south side is fully enclosed with a weather tight envelope. On the north, hot cell block work on the foundation continued including the first concrete pour compliant to CSA N287 [40], installation of anchor bolts, and rock anchor sleeves. The ANMRC Project team plans to continue with construction of the north building foundation and fit-out activities in the south building.



Figure 2: ANMRC Construction update as of 2025 November 2

REJECTED

P.3 Regulatory Submissions

The ANMRC project submitted a request for acceptance of ANSI AISC N690 and DG 32 as an alternative design approach for steel-concrete composite structure in the ANMRC hot cell design on 2025 October 16.

REDACTED

Appendix Q Modern Combined Electrolysis and Catalytic Exchange Facility

Q.1 Facility Description

The proposed MCECE facility is planned to be a key component of CNL's current strategy to accelerate the reduction and elimination of nuclear liabilities in Canada through the disposition of AECL's inventory of tritiated heavy water. The MCECE facility is designed as a production-scale detritiation facility to be constructed on re-purposed land at Chalk River Laboratories.

As a Class 1B Nuclear Facility, the MCECE is designed to separate the inventory into clean heavy water and elemental tritium. Clean heavy water can be used for non-nuclear applications and elemental tritium would be immobilized and stored to support the fusion program.

Q.2 Current Status

AECL's tritiated heavy water was declared a liability in 2020 due to there being no commercial interest in the inventory in its current form. This resulted in detritiation of the inventory being selected as the disposition strategy, using a new MCECE facility. However, in 2025, enquiries were received from Canadian power utilities seeking information on the potential availability and use of some, or all, of the inventory. Progress on the MCECE facility is currently paused as CNL assesses this emergent option.

Q.3 Regulatory Submissions

An updated *MCECE Fire Hazard Assessment* (CECEUD-CNNO-25-0005-L) was submitted to the CNSC in 2025. The submission addressed CNSC comments related to the Code Compliance and Fire Hazard Analysis for the MCECE Facility.

REDACTED

Appendix R Radioisotope Laboratories and Other Facilities that Handle Nuclear Material

R.1 Facilities

Radioisotope Laboratories

Radioisotope Laboratories are identified in Table 81. Principal contact persons for these facilities are specified in *Designated Representatives of the Licensee, Site Licenses, Certificates, Permits* [15].

All uses of unsealed radioactive materials greater than one exemption quantity that occur outside of the nuclear facilities listed in the site licence are conducted in radioisotope laboratories. These laboratories are classified on the IAEA hazard graded scale of A, B, and C that takes into account the nature of the operations performed, and the relative toxicity of the radionuclides handled. The individual RLP or Operating Envelope (OE) documents for each laboratory document the design elements of the physical characteristics of the laboratories against regulatory guidelines. In addition, the individual RLPs and OEs specify the laboratory operating limits, define routine work, and identify the basis for maintaining safe operations within each laboratory.

There is one Class A Radioisotope Laboratory, which is also listed as a Class I nuclear facility. For the purpose of this report, the Tritium Laboratory is reported as a Class I nuclear facility in Appendix G. The HPNG is listed as both a Class C laboratory and Class II facility. For the purpose of this report, the HPNG is reported as a Class II nuclear facility in Appendix K.

Table 81 identifies the 20 Class B laboratories and 17 Class C laboratories, each with an RLP or OE that defines how work is controlled.

REDACTED

Table 81: Radioisotope Laboratories

Laboratory	Class	Branch	Radioisotope Laboratory Protocol (RLP) or Operating Envelope (OE)		
			Number	Rev	Release Date[a]
Tritium (Laboratory) Facility	A	Hydrogen Technologies	TF-508740-RLP-002	0	2018 Dec 3
Operating Envelope for Waste Characterization Services (WCS) in Building [redacted]	B	Waste Characterization Services	213-508200-OE-006122	0	2024 Dec 05
Active Wet Chemistry Laboratory – Environmental/Organic Analysis	B	Analytical Chemistry	[redacted]-508200-OE-004070	0	2024 Dec 20
Chalk River Advanced CANDU Fuel Development Laboratories	B	Advance Fuel & Reactor Physics	[redacted]-124200-RLP-002	5	2022 Apr 19
Chalk River Advanced Fuel Technology (CRAFT) - Ceramics Laboratories	B	Advance Fuel & Reactor Physics	[redacted]-124200-RLP-001	2	2017 Sep 27
Chromatography Laboratory	B	Analytical Chemistry	[redacted]108360-RLP-002	2	2021 Apr 30
Containment Chemistry & Gammacell Laboratories	B	Reactor Chemistry & Corrosion	[redacted]108344-RLP-001	3	2023 Mar 15
Coulometric Titration Laboratory	B	Advance Fuel & Reactor Physics	[redacted]-108360-RLP-001	1	2021 Oct 10
Focused Ion Beam Facility	B	Material Sciences	[redacted]-108720-RLP-001	1	2022 Dec 12
Hydrogen and Deuterium (H&D) Analysis Laboratories	B	Analytical Chemistry	[redacted]-108360-RLP-006	3	2023 Jan 6
ICP-MS Laboratories	B	Analytical Chemistry	[redacted]-508200-OE-008117	0	2025 Mar 14
Imaging-XPS Laboratory	B	Reactor Chemistry & Corrosion	153-508200-OE-006292	0	2025 Nov 10
Material Sciences Radioactive Specimen Preparation Laboratories	B	Material Sciences	[redacted]-128740-RLP-001	1	2022 Jan 7
Neutron Activation Analysis and Radiochemistry Laboratory	B	Analytical Chemistry	[redacted]-108360-RLP-004	2	2022 Sep 23

REDACTED

Laboratory	Class	Branch	Radioisotope Laboratory Protocol (RLP) or Operating Envelope (OE)		
			Number	Rev	Release Date[a]
ACB Satellite Labs in NRU [redacted]	B	Analytical Chemistry Satellite Labs in [redacted]	NRU-157901-RLP-001	3	2022 Nov 28
Radiochemical Analysis Laboratory	B	Analytical Chemistry	[redacted]-108360-RLP-002	3	2022 Sep 23
Radiochemical Analysis Laboratory	B	Analytical Chemistry	[redacted]-108360-RLP-001	4	2022 Dec 16
Radiochemical Applications Laboratory	B	Radiobiology & Health	[redacted]-121100-RLP-001	3	2020 Sep 21
Research Reactor Fuel Development Laboratories	B	Advance Fuel & Reactor Physics	[redacted]-124200-RLP-003	2	2017 Oct 2
SIMS, SEM and Radioactive Specimen Preparation Laboratories	B	Reactor Chemistry & Corrosion	[redacted]108730-RLP-002	2	2017 Oct 6
TIMS Sample Preparation Laboratory	B	Analytical Chemistry	[redacted]-108360-RLP-003	2	2022 Sep 21
Bioassay Laboratories	C	Dosimetry Services	[redacted]-508790-RLP-001	5	2022 Apr 28
Biological Research Facility Laboratory	C	Radiobiology & Health	[redacted]-121111-RLP-001	5	2017 Feb 28
Decontamination Test Loops and Support Laboratories	C	Reactor Chemistry & Corrosion	[redacted]-108330-RLP-001	2	2023 Jul 26
Environmental Radiochemistry Laboratory	C	Environmental & Waste Tech	[redacted]-508200-OE-006342	0	2025 Jan 20
Fission Gas Laboratory	C	Analytical Chemistry	[redacted]-108360-RLP-007	1	2021 Feb 9
Fission Product Release Group Laboratory	C	Nuclear Safety Experiments	[redacted]-03512-RLP-001	1	2017 Sep 29
Fuel Assembly Science and Technologies Laboratory	C	Material Sciences	153-508200-OE-009084	0	2025 Dec 8
Metallographic Services Laboratory	C	Reactor Chemistry & Corrosion	[redacted]-03210-RLP-001	1	2019 Mar 21
Radiochemistry Applications Laboratory	C	Radiobiology & Health	[redacted]-508200-OE-004295	0	2025 Oct 22
Radiochemistry Research Laboratory	C	Analytical Chemistry	[redacted]-121120-RLP-001	1	2017 Sep 27
Nuclear Forensics Laboratory	C	Nuclear Response & Analysis	[redacted]-508200-OE-007782	0	2025 Mar 5

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Laboratory	Class	Branch	Radioisotope Laboratory Protocol (RLP) or Operating Envelope (OE)		
			Number	Rev	Release Date[a]
Small Scale Mechanical Testing Laboratory	C	Materials & Fuel Performance	153-128720-RLP-001	0	2018 Jun 5
Medium Activity Material Testing Laboratory	C	Materials & Fuel Performance	153-127660-RLP-001	1	2021 Sep 1
Surface Science Laboratory	C	Reactor Chemistry & Corrosion	[redacted]-108730-RLP-001	2	2018 Jan 31
Tritium Instrument Calibration Laboratory	C	Radiation Protection	[redacted]-508740-RLP-001	0	2022 Nov 15
Environmental Analysis Laboratory	C	Analytical Chemistry	[redacted]-108360-RLP-008	1	2023 Mar 10

[a] RLP's are revised every five years. Labs are continuing to transition to the use of Operating Envelope documents, or an extension is agreed upon to continue operating under an RLP. If an RLP exceeds its five-year review period, work may continue under an approved extension where the hazard and scope remain unchanged.

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Other Facilities that Handle Nuclear Materials

Table 82 lists the other facilities that handle nuclear materials. These facilities are largely support facilities and are not operated under RLPs or OEs. They vary from nuclear materials storage and transportation buildings to machine shops.

Table 82: Other Facilities that Handle Nuclear Materials

Facility	
Decontamination Centre Building	Waste Analysis Facility
Nuclear Materials Storage Facility	Effluent Monitoring/Filter Testing Building
Site Maintenance Building	Chemistry and Materials Building
Shipping/Receiving Facility (Supervised Area)	Metallurgy Building
Flasks/Radioactive Contamination Equipment Shed	Fuel Engineering
Spring B Facility	Waste Characterization Facility
Chemical Pit Facility	

Inactive and/or Decommissioned Locations

The following laboratories and buildings were turned over to Facilities Decommissioning in 2025:

- Building [redacted] has been turned over to Facilities Decommissioning. The transfer of equipment and operations now resides in Building [redacted]

Staffing

Throughout 2025, the radioisotope laboratories continued to maintain the minimum staffing requirements outlined in their associated RLP or OE documents.

R.2 Laboratory Changes

All laboratory changes were performed as per the *Engineering Change Control* procedure [16].

Table 83: Laboratory Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	This project aims to install a membrane type nitrogen generator in [redacted] such that we have the capability of switching between membrane type and pressure swing generators as required based on demand.	2	Permanent	Construction
[redacted]	This project aims to install a laboratory-scale lead lithium electric tritium extraction test loop	2	Permanent	Design

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Building	Description	Category	Permanent / Temporary	Status
	for tritium extraction from molten alloys, only protium and deuterium will be used to conduct experiments in [redacted]			
[redacted]	This project aims to install the micromegas detectors, these are used to measure cosmic ray muons, a naturally occurring particle.	2	Permanent	Accepted, Obtaining Approvals
[redacted]	This project aims to install an environmental chamber to support upcoming work of the Applied Physics branch. The chamber will be used to test materials and systems from –70C to +180C.	2	Permanent	Construction
[redacted]	This project aims to install the TOC Analyzer to expand the Analytical Chemistry branch capabilities as a key quality control and contamination monitoring tool within the radiochemical labs.	2	Permanent	Accepted, Obtaining Approvals
[redacted]	This project aims to install a Mass Spectrometer to increase the bandwidth of capabilities for S&T but also specifically to enable the Actinium projects to continue to move forward.	2	Permanent	Construction
[redacted]	This project aims to install a Microwave Digester in support of the Analytical capabilities to increase the efficiency of preparing samples for chemical analysis.	2	Permanent	Construction
[redacted]	This project aims to install a Glove Box in [redacted] to accommodate R&D specific equipment for physical vapour disposition of aluminum for radium 226 encapsulation inside of this glovebox. Facility modifications and supporting systems, previously considered for the isolator, will also be required for the new glovebox.	2	Permanent	Construction
[redacted]	This project aims to install a RO System. This installation of the new Clean-In-Place rig requires the installation of a new transformer in the basement of [redacted] next to the RO skid.	2	Permanent	Construction
[redacted]	This project aims to upgrade the electrical to support the Scanning Electron Microscope which will be used for forensic examination of materials. The installation of new instrument requires electrical upgrades to room [redacted]	2	Permanent	Design

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Building	Description	Category	Permanent / Temporary	Status
[redacted]	This project aims to install an XPS Instrument in [redacted] where it will be used to examine the chemical composition of various materials.	2	Permanent	Accepted, Obtaining Approval
[redacted]	The project aims to install welded valves & tees to the [redacted] loop. The piping configuration under [redacted] 108326-IEER-001 is to support future expansion of the test loop.	2	Permanent	Design
[redacted]	The project aims to install a replacement for the sight glass which will provide more accurate readings for the freon inventory.	2	Permanent	Construction
[redacted]	The project aims to install an active sink & emergency shower.	2	Permanent	Construction
[redacted]	The project aims to install a bench top XRD to analyze small samples.	2	Permanent	Accepted, Obtaining Approval
[redacted]	The project aims to complete a renovation of [redacted] for establishing a tissue bank that Federally supported Tissue bank repository facility. Biological samples (temperature sensitive) derived from Radiological Animal studies are globally unique and extremely valuable for future study and collaboration worldwide.	2	Permanent	Design
[redacted]	The project aims to install 2 portable BSC's, 6 CO2 incubators in [redacted] to support a new line of research.	2	Permanent	Construction

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R.3 Equipment Performance, Planned Maintenance Testing and Inspections

There were no changes to safety-related systems, instruments or equipment.

As per the requirements of the various RLP or OE documents, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the radioisotope laboratories and other facilities that handle nuclear materials were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

R.4 Wastes Generated

As part of routine operations, both solid and liquid radioactive and hazardous wastes were generated in the radioisotope laboratories and other facilities that handle nuclear materials. Refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.

There were no radioactive or hazardous liquid effluents released into the environment from the radioisotope laboratories and other facilities that handle nuclear material.

Gaseous radioactive effluents discharged from Buildings [redacted] are filtered and monitored as required to maintain compliance with the EnvP Program. Releases from the laboratories and building are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Appendix S Nuclear Facilities in Extended Shutdown State

S.1 Facilities Activities

The operational focus for the Dedicated Isotope Facilities (DIF) in 2025 was to monitor and maintain the facilities in Extended Shutdown State, where only systems that are required to preserve assets are operational. DIF is the only nuclear facility on site in Extended Shutdown State.

No DIF-specific policies, programs, or procedures were updated in 2025.

A new DIF Facility Authority became qualified and assumed the role in 2025.

Some characterization sampling of reactor systems also began in 2025, to support decommissioning planning.

The DIF Decommissioning Plan was reviewed by the CNL Safety Review Committee and subsequently submitted to the CNSC.

Throughout 2025, there were no direct operating staff within the DIF. Staff from other facilities and organizations support the surveillance and maintenance activities outlined in the Operational Limits and Conditions documents. At the same time, staff from other facilities and organizations utilized some parts of the DIF to support the organization. The Building [redacted] changeroom and showers were used by workers in the Controlled Area, and the Building [redacted] laboratory room was occasionally used by Facilities Decommissioning Industrial Hygiene personnel for equipment storage and calibration. Several office spaces in Buildings [redacted] were also used by transient staff during 2025.

S.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 84: DIF Facility Changes

Description	Category	Permanent / Temporary	Detailed Status
Bypass failed circuit breaker in 3-55000-BP-1	2	Permanent	Phase 1: Complete – In service Phase 2: Design – Permanently remove bypass switch, UPS, and disused downstream panels.

The DIF Class II UPS is no longer required and has been on bypass since the facility was placed in Extended Shutdown State. In 2023, a breaker in the bypass switch failed, causing a loss of power to all downstream equipment. A change was initiated to address this problem in two phases. Phase one was to temporarily bypass the failed breaker to restore power, which has been completed. Phase 2 is to permanently remove the unnecessary equipment.

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S.3 Equipment Performance, Planned Maintenance Testing and Inspections

Throughout 2025, DIF remained non-operational in the extended shutdown state, with no nuclear material in the MAPLE reactor cores or facility, aside from small amounts in the fission chambers previously used in the reactor control and safety systems.

There were no changes to safety-related systems, instruments, or equipment.

In accordance with the requirements of the DIF Operating Limits and Conditions, all routine and preventive maintenance, equipment tests, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the DIF Facility were verified by the CRL Fire Prevention Team, with no significant deficiencies found.

There were no faults of safety-related equipment reported in the DIF Facility in 2025.

Class III power to the facility remained in the alternate configuration of power supplied from Building [redacted] Diesel Generators, due to a mechanical failure of the normal SG-1 generator in 2020.

Responsibility for surveillance of the Class III related components for DIF and the adjacent electrical room remained with NRU Operations to ensure that the Exhaust Air Filtration System interface requirements are maintained.

S.4 Wastes Generated

There were no radioactive or hazardous wastes (solid or liquid) generated in the DIF as part of routine operations.

There were no radioactive or hazardous effluents (gaseous or liquid) released into the environment from the DIF as part of routine operations.

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Appendix T Nuclear Facilities in Storage-With-Surveillance State

T.1 Facility Activities

At the present time, there are no CRL Facilities in only a Storage-with-Surveillance State. The status of facilities undergoing Decommissioning activities is reported in Appendix U.

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Appendix U Nuclear Facilities Undergoing Decommissioning Activities

Nuclear Facilities Undergoing Decommissioning Activities include:

- NRX Reactor Building [redacted]
- NRX Ancillary Buildings [redacted]
- Former Reactor Bay Deionization System [redacted]
- NRX Fuel Storage Bays [redacted]
- CECEUD Facility [redacted]
- Plutonium Recovery Laboratory [redacted]
- Plutonium Tower [redacted]
- Wastewater Evaporator [redacted]
- Active Waste Disposal System [redacted]
- Building [redacted] including former Tritium Facility and Radioisotope labs [redacted]
- Nuclear Fuel Fabrication Facility [redacted]

U.1 Facility Activities

Throughout 2025, Facilities Decommissioning continued to maintain the availability of knowledgeable staff, required to support normal Decommissioning activities, routine surveillance, maintenance, and response to accident and emergency conditions.

The following subsections provide information on the facilities currently undergoing decommissioning activities and the notable activities conducted within these facilities in 2025.

NRX Reactor Building [redacted]

Routine monitoring, maintenance and surveillance activities continued for the NRX Reactor Building [redacted] in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- Removal of out of service control and monitoring panels from the [redacted] Main Hall was completed. The panels were size reduced and sent as waste. Panels removed included Dose Rate Alarm Panels, REDACE Panels, X-4 Loop Panels, Beetle Panel, He-3 Room Panel. This advanced decommissioning and opens floor space to allow for more efficient staging for equipment and materials for upcoming decommissioning activities.
- Phases 1-3 of the Rod Trench Pulley Room decommissioning activities were completed. This has resulted in the removal of the entire room structure and contents within, which includes active ventilation and the tensioner box. These items were physically removed from the facility and sent for waste processing. Furthermore, the fuel rod trench was sealed and fixatives were applied to aid in future removals. This has resulted in a reduction of conventional safety hazards as well as a reduction in the radiological inventory of the facility and advanced facility decommissioning.

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- Removal of Student Spectrometer was completed. This has advanced decommissioning activities and will allow better access to the reactor structure for future characterization.
- The reactor hall main floor air tank and associated piping removal was undertaken and completed. This has removed a large volume of waste material from the facility, adding to the reduction of conventional safety hazards within the facility.

NRX Ancillary Buildings

The NRX ancillary buildings consist of:

- D_2O Salvage Building [redacted]
- NRX Fan House [redacted]
- Effluent Air Building [redacted]
- Exhaust Stack base [redacted]
- Valve House and Delay Tank No. [redacted]
- Valve House and Delay Tank No. [redacted]
- Effluent Monitoring [redacted]

Note: *****Building superstructure is either partially or entirely removed, only concrete and/or subsurface infrastructure remains.

Routine monitoring, maintenance and surveillance activities continued for the NRX Ancillary Buildings in accordance with the approved DDP. No other major decommissioning activities were performed in 2025.

Combined Electrolysis and Catalytic Exchange Upgrading and Detritiation [redacted]

Routine monitoring, maintenance and surveillance continued as per the Storage with Surveillance plan. During 2025, the supply and exhaust fans were removed from service.

During 2025, the following pre-decommissioning activities were also performed:

- The Detailed Decommissioning Plan for the *Combined Electrolysis Catalytic Exchange Upgrading and Detritiation Test Facility* was submitted to CNSC staff and was accepted (see Table 34).
- The *CECE Upgrading and Detritiation Test Facility Storage with Surveillance Plan* was submitted to CNSC (see Table 34), which confirmed that the revised document addresses the Notices of Non-Compliance CNL-CRL-2024-15-NNC02 and CNL-CRL-2024-15-NNC03; both are now closed.
- As part of the dismantling of Combined Electrolysis and CECEUD Systems and Components, characterization sampling was completed to determine the radiological and non-radiological hazards and provide a path forward for waste disposal. Once the dismantling is complete, the space previously occupied by the CECEUD will be repurposed for the Tritium Facility, and installation of Unity-2. As part of facility turnover to the contractor, electrical isolations and system process draining were

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completed as per the Order to Operate *CECEUD Isolations for AECON turnover*. This includes the shut-down of the exhaust fan and supply fan. The *Critical Lift Plan Unity-2* was prepared which provides details on the removal of the large tanks in the CECEUD. Temporary roof and wall openings will be required to remove large tanks.

Plutonium Tower [redacted]

Routine monitoring, maintenance and surveillance activities continued for the Plutonium Tower [redacted] in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- Video footage was obtained within the facility, via the use of a remotely piloted drone, to support the engineering deliverable for a 10-year structural assessment of the Plutonium Tower. This interior footage in conjunction with the structural assessment will be used to prioritize decommissioning initiatives as well as determine the remaining lifespan of the facility structure, so that the remaining liability can be monitored, minimized and addressed based upon the engineering assessment.

Former Reactor Bay Deionization System [redacted]

Routine monitoring, maintenance and surveillance activities continued for the Former Reactor Bay Deionization System [redacted] in accordance with the approved BRP.

During 2025, the following decommissioning activities were also performed:

- Legacy ventilation ducts in the basement of [redacted] were sealed. The completion of these activities reduces the potential for rogue emissions and has resulted in the reduction of legacy liabilities associated with the facility.

NRX Fuel Storage Bays [redacted]

Routine monitoring, maintenance and surveillance activities continued for the NRX Fuel Storage Bays [redacted] in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- Air gapping of the steam line which previously supplied [redacted] was completed, thereby fully isolating the facility from those which are not currently slated for decommissioning. Through the air gapping of this system, conventional safety hazards associated with the facility have been further reduced.
- Scoping and characterization activities were completed in the J- and X-Bay areas, achieving the demolition-ready milestone. The completion of these activities has provided further information for the radiological fingerprint associated with the facility and will be used to inform the determination of the facility and project end-state.

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Plutonium Recovery Laboratory [redacted]

Routine monitoring, maintenance and surveillance activities continued for the Plutonium Recovery Laboratory [redacted] in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- New entry points were core-drilled to create additional entry points into the Cascade Rooms. These rooms are radiologically contaminated and pose fall hazards due to their layout. The planning, engineering, and technical teams developed a work plan that included hazard mitigation measures to create new door openings into these confined spaces. These new openings now alleviate the need for confined space access requirements and will facilitate the removal of systems, services, and components prior to concrete remediation of the surfaces within the rooms, in preparation for the building's eventual demolition.
- Confined space entry was made into Room [redacted] to remove structures, systems, and components. These removals provided the necessary clearance to core an entry way into the Dissolver Room to enable upcoming project activities which will focus on the remediation and removal of the dissolver tank and Tank [redacted]

Waste Water Evaporator [redacted]

Routine surveillance activities continued for the remaining foundation of the Waste Water Evaporator [redacted] in accordance with the approved DDP. No other major decommissioning activities were performed in 2025.

Active Waste Disposal System [redacted]

Routine monitoring, maintenance and surveillance activities continued for the Active Waste Disposal System [redacted] in accordance with the approved DDP. No other major decommissioning activities were performed in 2025.

Building [redacted] including former Tritium Facility and Radioisotope Labs [redacted]

Routine monitoring, maintenance and surveillance activities continued for Building [redacted] including the former Tritium Facility and Radioisotope Labs in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- Obtained permission from the CNSC [41] to proceed with the demolition of Room [redacted] marking the beginning of the physical structure dismantlement and demolition activities for the facility. Demolition was successfully completed in Summer 2025.
- Perchlorate remediation of all ductwork associated with Exhaust Fans [redacted] was completed, along with the physical removal of said ductwork and permanent shutdown of Exhaust Fans [redacted] This marks a large reduction in legacy liability within the facility and has drastically reduced the perchlorate inventory.

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- Approximately twelve tons of lead shielding blocks were removed from the former Hot Cells and successfully packaged for waste. This reduction in hazardous substance marks a reduction in conventional safety hazards, as well as marks significant progress with the decommissioning of the hot cells remaining within the facility. Furthermore, the hot cell ante room was also dismantled and removed.
- Fume hood removals continued in the north tower of the facility, with fifteen of twenty fume hood removals completed by the end of the calendar year. Perchlorate contaminated fume hood removal was also completed, further reducing the perchlorate inventory within the facility.

Nuclear Fuel Fabrication Facility [redacted]

Routine monitoring, maintenance and surveillance activities continued for the Nuclear Fuel Fabrication Facility [redacted] in accordance with the approved DDP.

During 2025, the following decommissioning activities were also performed:

- Multiple remediation efforts were undertaken and completed in Room [redacted] Equipment removals progressed and resulted in the removal of all ventilation equipment within the room, along with the remaining fume hood and oven. Concrete scabbling was completed to remove residual radiological contaminants from the building structure, along with the abatement of ACM to entirely remediate the space. The completion of these tasks has resulted in the overall reduction of traditional occupational hazards in conjunction with the removal of radiological hazards, thereby reducing the liability associated with the CRL site.

U.2 Facility Changes

All facility changes were performed as per the *Engineering Change Control* procedure [16].

Table 85: Facility Changes

Building	Description	Category	Permanent / Temporary	Status
[redacted]	Building [redacted] Decommissioning	2	Permanent	Construction
[redacted]	Building [redacted] Decommissioning	2	Permanent	Construction
[redacted]	Building [redacted] Decommissioning	2	Permanent	Construction
[redacted]	Building [redacted] Decommissioning	2	Permanent	Construction

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The only significant changes to the nuclear facilities undergoing decommissioning activities in 2025 were those involved with decommissioning of the facilities. Details of these changes are provided in Section U.1.

U.3 Equipment Performance, Planned Maintenance Testing and Inspections

As per the requirements of the DDP's and BRP's, all routine and preventative maintenance, equipment testing, surveillance activities, and inspections of safety-related systems and equipment were completed as planned, with no significant deficiencies found.

All fire extinguishers and fire protection equipment in the facilities were verified by the CRL Fire Prevention team, with no significant deficiencies found.

Some of the significant activities performed to support equipment performance in 2025 included:

- Building [redacted]
  - Steam and condensate system leaks and deficiencies were repaired throughout the year. Repairs have also eliminated the accumulation of potentially hazardous ice buildup on the exterior face of the building.
  - Class IV electrical system maintenance was completed.
  - Repairs to reactor hall unit heaters were initiated and are underway.
- Building [redacted]
  - Steam and condensate system leaks and deficiencies were repaired throughout the year. The final out of service condensate pump was returned to service to increase efficiency of the steam and condensate system.
  - Supply Fan [redacted] was returned to service and Supply Fan [redacted] return to service activities are ongoing to eliminate reliance on supplementary heating sources.
  - Class IV electrical system maintenance completed.
- Building [redacted]
  - The interior lighting was replaced.
  - Temporary Mobile ventilation with environmental monitoring (tritium oxide and elemental tritium) was installed, to support the dismantling work. These activities were completed to ensure that the facilities remain in a safe state during decommissioning activities.

U.4 Wastes Generated

As part of the Nuclear Facilities Undergoing Decommissioning Activities routine operations, the following wastes and effluents were generated:

- Solid radioactive and hazardous waste; refer to Section 11.1 Waste Management Program for summaries of waste generated in 2025.

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- Liquid radioactive and hazardous waste; this was primarily in the form of rain and groundwater that accumulates in building sumps and is pumped into temporary storage before being sent to the Waste Treatment Centre for processing. Additionally, as a result of [redacted] remediation in [redacted] liquid wastes were transferred to the Waste Treatment Centre for processing. These liquids were cleaned via charcoal cells and mixed bed resins prior to transfer.
- Gaseous radioactive effluents were discharged from the NRX Active Exhaust, NRX Fuel Storage Bays, and the building [redacted] North End Labs. The active exhaust ventilations for the NRX Fuel Storage Bays is HEPA filtered and monitored for gross alpha and gross beta emissions. The building [redacted] North End labs are HEPA filtered and continuously monitored for gross alpha and gross beta emissions. The Building [redacted] MDES are HEPA filtered and continuously monitored for gross alpha and gross beta emissions.

There were no liquid radioactive or hazardous effluents discharged.

Releases from the facility are provided and discussed in a separate report, *Effluent Verification Monitoring at Chalk River Laboratories in 2025* [5].

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Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Designated Representatives of the Licensee, Sites Licenses, Certificates & Permits

900-514300-LST-001

Revision 14.1

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Approved by: Sarah Brewer — 2026/06/29

Senior Director, Compliance — Date

Effective Date: 2026/07/02

Mandatory Review by Date: 2029/07/02

Refer to ATOM for current version. Printed copies should not be considered current without first consulting ATOM.

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Revision History

Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
14.1	2026/06/24	Issued for "Approval".	B. Scott	S. Brewer	S. Brewer
14.1D1	2026/06/15	Issued for "Review and Comment" Minor changes to reflect changes to: • Executives and DROLs • Facilities • Licences and Certificates	B. Scott	S. Brewer C. Gallagher R. Swartz J. Unrau K. Shorter K. Leroux C. O'Neill A. Coulas	
14	2025/07/23	Issued as "Approved for Use"	B. Scott	S. Brewer	S. Brewer
14D1	2025/05/15	Issued for "Review and Comment" Major changes Document has been renamed. 1 Scope and Applicability have been updated to reflect inclusion of other regulators and removal of Licensing Basis Documents 3.2 DROLs – responsibilities further identified for other regulators 3.4 – responsibility for maintaining this document moved from 3.3 to 3.4 4.1.6 Facilities Under Construction section added 4.2 Buildings, Facility and Other Contacts was removed 4.1.6 Facilities Under Construction has been added Section 5 Renamed to Facilities & Laboratories, Licensing Basis documents removed to site-specific Licensing Basis Document LSTs Appendix A now provides the list DROLs for other regulators	B. Scott	C. Gallagher R. Swartz K. Leroux S. Morris A. Dash	

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
13.1	2025/01/10	Cancelled at approver stage to make major changes. Some updates made as part of 13.1D1 were carried into Rev 14D1.			
13.1D1	2024/06/21	Issued for "Review and Comment" Minor changes The following sections were updated: 1 Scope and Applicability wording corrected 3.4 Clarified role of Manager, Regulatory Affairs 4.1 Update DROL list for DROLs who have left, are newly appointed or changed facilities 4.3 Removed expired Licences & Certificates 5 Updated Facility & Laboratory Documentation to latest revisions	B. Scott	A. Coulas R. Dufour C. Gallagher S. Faught K. Leroux B. Phillips K. Schruder R. Swartz J. Therrien	
13	2023/06/16	Issued as "Approved for Use"	B. Scott	S. Brewer	S. Brewer
13D1	2023/04/14	Issued for "Review and Comment" Major revision The following Sections were updated: 1. Scope and Applicability 2. Purpose 3.1 Added Site Licence Holder to Roles & Responsibilities 3.3 Changed Compliance FSA to Chief Regulatory Officer 3.4 Removed 4.1 Updated DROL list as per DROL Reduction Briefing Note, 61137373 4.2 Moved Primary & Secondary Contacts List to Appendix A	B. Scott	R. Corby A. Dash R. Dufour S. Faught C. Gallagher W. Graydon K. Leroux K. Lundie S. Morris B. Phillips P. Pottelberg R. Rao D. Ryland K. Schruder G. Snell R. Swartz J. Therrien T. Wieclawek	

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
		5.1 Condensed sections 5.1.1 to 5.1.8 into 1 table 5.2 Condensed sections 5.2.1 to 5.2.5 into 1 table 5.4 Renamed to Port Hope Area Initiatives Updated template			
12	2022/06/29	Issued as "Approved for Use" Minor comments to update new DROL assignments. Updated template.	B. Scott	K. Leroux	C. Gallagher for S. Brewer
12D1	2022/06/13	Issued for "Review and Comment" Minor comments to update new DROL assignments. Updated template. DROLs/Contacts in the following sections in 4. LISTS were updated: 4.1, 4.2.1 (added CSO), 4.2.2, 4.2.3 (added Dir. Ind. Relations), 4.2.4, 4.2.6, 4.2.8, 4.2.13 to 4.2.16 (updated names and removed FM Designate column), 4.3.1, 4.5.3, 4.5.5. Dates and Revision numbers for Documents in the following sections in 5. FACILITY AND LABORATORY DOCUMENTATION were updated: 5.1.2 (GDIs removed) 5.5.3, 5.4 (date column removed)	B. Scott	L. Adams K. Barks M. Boileau M. Crowe D. Delano M. Deloughery J. deRuiter R. Dufour C. Gallagher D. Garrick M. Hammell K. Leroux D. Meldrum S. Morris B. Phillips R. Rao A. Rehman T. Scott J. Slade G. Snell P. Stirbys R. Swartz J. Therrien D. Woods	
11	2021/12/24	Issued as "Approved for Use"	B. Scott	S. Cotnam	S. Cotnam
11D1	2021/12/10	Issued for "Review and Comment" Updated template. Updated DROL names, document revisions, licences, and certificate.	B. Scott	R. Swartz T. Scott S. Brewer K. Lundie S. Morris S. Cotnam K. Barks D. Delano A. Coulas	

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
		Added Director, Indigenous Engagement to 4.2.2.		M. Hammell W. Graydon R. Dufour P. Pottelberg J. Therrien K. Leroux D. Ryland D. Woods M. Crowe R. Corby C. Gallagher	
10	2021/03/01	Issued as “Approved for Use”	K. McGee	S. Karivelil	S. Cotnam
10D1	2021/02/05	Issued for “Review and Comment” Updated template. Updated DROL names, document revisions, licences, and certificates. Removed first initials with name in brackets format from document. Moved NRX from 4.2.15 to 4.2.15 Moved NRU from 4.2.6 to 4.2.15 Revised CRL labs to match ACMR submission. Formatted table 4.7 to match table in 4.6.	K. McGee	S. Karivelil R. Swartz S. Brewer T. Scott S. Morris K. Lundie S. Cotnam L. Nel D. Delano K. Barks M. Hammell A. Coulas R. Dufour W. Gaydon J. Therrien K. Leroux B. Phillips P. Pottelberg M. Crowe D. Woods A. Bilton	
9	2020/07/24	Issued as “Approved for Use”	K. McGee	S. Karivelil	S. Cotnam
9D1	2020/05/15	Issued for “Review and Comment” Updated DROL names, document revisions, licences, and certificates. Removed designated role column from facility tables and separated Facility Manager and Designates into separate columns.	K. McGee	S. Karivelil R. Swartz S. Brewer T. Scott S. Morris K. Lundie S. Cotnam G. Hamilton D. Delano K. Barks M. Hammell A. Coulas R. Dufour	S. Cotnam

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
				W. Graydon N. MacDonald M. Patterson B. Phillips P. Pottelberg	
8	2019/06/13	Issued as “Approved for Use”	K. McGee	S. Karivelil	S. Cotnam
8D1	2019/05/11	Issued for “Review and Comment” Updated DROL names, document revisions, licences, and certificates	K. McGee	S. Karivelil D. Delano S. Brewer M. Hammell S. Morris R. Dufour A. Coulas R. Swartz K. Leroux K. Barks D. Garrick N. Wang J. Turcotte T. Gorman M. Burke-Legge T. Scott W. Graydon S. Cotnam Y. Dube P. Pottelberg G. Hamilton	S. Cotnam
7	2019/01/31	Issued as “Approved for Use”	S. Karivelil	S. Cotnam	S. Cotnam
7D1	2018/01/12	Issued for “Review and Comment” Updated DROL names, document revisions, licences, and certificates	K. McGee	S. Karivelil D. Pilgrim N. Mantifel I. Castillo P. Pottelberg J.D. Garrick J. Gibb S. Faught A. Drom R. Swartz K. Leroux J. Chilton K. Barks A. Coulas G. Hamilton S. Brewer	S. Cotnam
6	2018/10/31	Issued as “Approved for Use”	K. McGee	S. Karivelil	S. Cotnam

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6D1	2018/10/26	Issued for "Review and Comment" Updated DROL names, document revisions, licences, and certificates	K. McGee	S. Karivelil N. Yazdani N. Mantifel I. Castillo P. Pottelberg S. Needham J. Gibb S. Faught A. Drom R. Swartz K. Leroux J. Chilton K. Barks A. Coulas G. Hamilton S. Brewer	S. Cotnam
5	2018/07/27	Issued as "Approved for Use"	K. McGee	S. Karivelil	S. Cotnam
5D1	2018/07/06	Issued for "Review and Comment" Updated documents, licences and certificates throughout section 5 and included staff changes throughout section 4. Added sections that were missed during the combination in Revision 4. Updated formatting. Changed the location of a few sections for better flow.	K. McGee	S. Karivelil N. Yazdani N. Mantifel I. Castillo P. Pottelberg S. Needham J. Gibb S. Faught A. Drom R. Swartz K. Leroux J. Chilton	S. Cotnam
4	2018/03/21	Issued as "Approved for Use"	K. McGee	S. Karivelil	S. Cotnam
4D1	2018/03/06	Issued for "Review and Comment" Combined 900-508200-LST-001 into this LST.	K. McGee	S. Karivelil R. Swartz S. Cotnam R. McNamara K. Leroux B. Sanderson A. Coulas M. Scheer A. Bakewell K. Daniels J. West S. Needham S. Faught D. Cox T. Gorman S. Suppiah	

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Rev. No.	Date	Details of Revision	Authored By	Reviewed By	Approved By
				N. Mantifel K. Lundie D. Murphy M. Hammell N. Yazdani J. D. Garrick S. Brewer N. Wang I. Bainbridge A. McIvor P. Heeney A. Drom M. Vickerd	
3	2017/09/29	Issued as "Approved for Use" No R&C required. Quarterly update.	J. Hunt	S. Karivelil	S. Cotnam
2	2017/05/31	Issued as "Approved for Use" No R&C required. Quarterly update.	J. Hunt	S. Karivelil	S. Cotnam
1	2017/01/24	Issued as "Approved for Use" No R&C required Update DROL listing and licences	J. Hunt	S. Cotnam	S. Cotnam
0	2017/01/06	Issued as "Approved for Use"	J. Hunt	S. Cotnam	S. Cotnam
D1	2016/12/12	Prepare D1 for review	J. Hunt	S. Karivelil K. Leroux R. Swartz B. Sanderson J. West A. Coulas	

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1. Scope and Applicability

Information contained in this list is applicable to all licensed activities managed by Canadian Nuclear Laboratories (CNL) Ltd. and those who perform them.

This document captures the current listing of Site Licence Holders, appointments to Designated Representatives of the Licensee (DROL) as defined in the *General Nuclear Safety and Control Regulations* (GNSCR) [1] (Clauses 15 (a) and (b)), and the current status of appointments to Facility Authorities. These lists identify CNL staff who are designated and authorized to communicate with and make commitments to Canadian Nuclear Safety Commission (CNSC) staff and other regulators on behalf of CNL.

This document also provides a listing of licences, certifications, and permits required for various CNL facilities and laboratories for activities conducted therein, and issued by other regulators, certification bodies, or other governmental organizations.

Note: Licensing Basis documentation has been removed from this document and can now be found in the associated Licensing Basis Lists for each site ([2][3],[4] and [5]).

2. Purpose

The purpose is to capture in one document:

- the list of CNL staff who are designated and authorized to communicate with and make commitments, on behalf of CNL, to CNSC staff and other regulators, and
- the listing of all licences, certifications, and permits issued to CNL by other governmental organization, certification bodies or regulators.

This document is not used to assign an individual to a role. Appointments are covered by other Management System processes.

3. Roles and Responsibilities

3.1 Site Licence Holder

The Site Licence Holder is the designated Executive and/or Senior Management responsible for their respective site, with overall responsibility for the management and control of licensed activities at that site. The Site Licence Holder has the necessary functional authority to discharge responsibility for assuring the safe conduct of all licensed activities at their respective site, including authority for operating or shutting down nuclear facilities and radioisotope laboratories on the site. Further responsibilities are defined in the *Canadian Nuclear Laboratories Management System Manual* [6].

3.2 Designated Representatives of the Licensee (DROL)

A DROL is a person who is designated and authorized to communicate with, and make commitments to, CNSC staff and other regulators, as identified in Appendix A, on behalf of CNL

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for their Functional Support Area (FSA) (and associated Safety and Control Area (SCA)) organizational unit, facility, project, or program within their financial authority to do so.

The DROL is responsible for ensuring that all submissions to CNSC staff and other regulators are coordinated, complete, and factual.

The DROL is also designated and authorized to make and submit unplanned situation or event reports to CNSC staff or other regulators, as required by the act or regulations in Appendix A. The DROL is responsible for ensuring that CNSC staff have been copied on all scheduled and unplanned event reports to other regulators, per *CNL Reporting to Regulatory Agencies* [7].

DROLs may only temporarily delegate their authority to other DROLs listed in this document. DROLs are responsible for ensuring that a completed, signed *Delegation of Authority* [8] has been provided to Regulatory Affairs, within 5 calendar days, when a permanent or acting change (longer than 6 months) has been made.

The overall responsibilities of the DROL are identified in the *Compliance* Program Description Document [9].

3.3 Chief Regulatory Officer

Responsibilities of the Chief Regulatory Officer are defined in *Management System Manual* [6].

3.4 Manager, Regulatory Affairs

The Manager, Regulatory Affairs is responsible for maintaining the controlled list of DROLs and Facility Authorities for CNL-Managed Facilities and Sites and for ensuring that CNSC staff have been updated, within 15 days, of all changes to DROLs listed in section 4.1. This includes sending appropriate correspondence to CNSC staff, as per *Managing Regulatory Communications and Commitments* [10].

4. List

4.1 Designated Representative of the Licensee (DROL)

The following table identifies CNL staff who are designated and authorized to communicate with and make commitments to CNSC staff on behalf of CNL, as defined in 3.2.

4.1.1 Executive/Senior Team

Name	Designated Role/ Title	Area of Representation
Dennis Carr	President and Chief Executive Officer	Canadian Nuclear Laboratories
Len Clewett	Chief Operating Officer	Chief Operating Officer
John Osborne	Vice President, Central Technical Authority and Chief Nuclear Officer	Canadian Nuclear Laboratories
Kathy Leroux	Deputy Vice President, Central Technical Authority	Central Technical Authority

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Name	Designated Role/ Title	Area of Representation
Monica Regalbuto	Vice President, Science and Technology	Science & Technology (S&T)
James Miller	Vice-President, Decommissioning and Waste Management	Decommissioning and Waste Management
Andrew Beckwith	Vice President, WL Restoration Project	WL Restoration Project
Megan Proctor	Vice President, Health, Safety, Security, Environment and Quality	Health, Safety, Security, Environment, and Quality (HSSE&Q)
Gabrielle Kauffmann	Vice President, Legal & Insurance	Legal and Insurance Import Export
Eric McGoey	Vice President, Corporate Affairs	Corporate Affairs
Jennifer Tidmarsh	Vice President, Indigenous Relations & Reconciliation	Indigenous Relations & Reconciliation

4.1.2 Licence Holders

Name	Title	Site and Licence
[redacted]	Vice President, Central Technical Authority and Chief Nuclear Officer	Chalk River Laboratories Licence NRTEOL-01.00/2028
[redacted]	Director, End State Strategy	Whiteshell Laboratories Licence NRTEDL-W5-8.00/2027
[redacted]	Deputy Vice President, Site Infrastructure & Asset Management	Gentilly-1 Waste Facility Licence WFDL-W4-331.00/2034 Douglas Point Waste Facility Licence WFDL-W4-332.03/2030 Nuclear Power Demonstration (NPD) Waste Facility Licence WFDL-W4-342.00/2034
[redacted]	Director, Programs & Compliance	Port Hope Area Initiative Licence WNSL-W1-2310.00/2032 Low Level Radioactive Waste Management Office (Historic Waste) WNSL-W2-2202.0/2026
[redacted]	Director, S&T Facilities Operations	La Prade Site Licence 15193-4-26.1
[redacted]	Manager, CRL Dosimetry Services	Dosimetry Services Licence 15193-1-36.0
[redacted]	Vice President, Legal & Insurance	Export & Import Compliance (see section 4.3.1 for Licences)

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4.1.3 Licensing & Regulatory Programs

Name	Title	Area of Representation
[redacted]	Senior Director, Compliance Chief Regulatory Officer	Canadian Nuclear Laboratories
[redacted]	Director, Security Chief Security Officer	Canadian Nuclear Laboratories
[redacted]	Manager, Regulatory Affairs Chalk River Laboratories Site Licensing Manager	Chalk River Laboratories
[redacted]	Manager, DWM Licensing Manager	Decommissioning and Waste Management
[redacted]	Manager, WL Licensing Whiteshell Site Licensing Manager	Whiteshell Laboratories
[redacted]	Regulatory Integration Lead Port Hope Area Initiative Site Licensing Manager	Port Hope Area Initiative (PHAI)

4.1.4 Safety and Control Areas

Name	Title	Area of Representation
[redacted]	Director, Governance Systems & Controls	1.1 Management System 2.1 Human Performance Management 2.2 Training Program 2.3 Staffing and Certification 13.1 Safeguards and non-Proliferation
[redacted]	Deputy Vice President, Central Technical Authority	3.1 Operating Performance
[redacted]	Manager, Regulatory Affairs	3.2 Reporting Requirements
[redacted]	General Manager, Engineering	4.1 Safety Analysis 4.2 Nuclear Criticality Safety 5.1 Physical Design 5.2 Pressure Boundary and Authorized Inspection Agency 6.1 Fitness for Service
[redacted]	Senior Manager, RP Operations	7.1 Radiation Protection
[redacted]	Senior Manager, RP Operations	8.1 Conventional Health and Safety
[redacted]	Director, Environmental Protection	9.1 Environmental Protection
[redacted]	Senior Manager, RP Operations	10.1 Emergency Management 10.2 Fire Protection

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Name	Title	Area of Representation
[redacted]	Director, Security	12.1 Security
[redacted]	Chief Information Officer	12.1 Nuclear Cyber Security
[redacted]	Director, Waste Support & Oversight Services	11.1 Waste Management 11.2 Decommissioning 14.1 Packaging and Transport
[redacted]	Director, Corporate Communications Director, Indigenous Relations	G.6: Public Information and Disclosure Program (Including Indigenous Engagement)
[redacted]	Acting Deputy Vice President, Legal & Insurance	Import/ Export Compliance

4.1.5 Projects

Name	Title	Area of Representation
[redacted]	Director, Fuel Program Division	Fuel Programme & Projects
[redacted]	Director, End State Strategy	WR-1 Reactor Decommissioning
[redacted]	Deputy Vice President, Site Infrastructure & Asset Management	NPD Closure Project
[redacted]	Project Director, Facility & Compliance Management	Affected Lands

4.1.6 Chalk River Laboratories Nuclear Facilities

Name	Title	Area of Representation
[redacted]	EOC Commanders[1]	Emergency Operations Centre (EOC) – Chalk River Laboratories
Class I Facilities		
[redacted]	Facility Authority	Recycle Fuel Fabrication Laboratories (RFFL) Tritium Laboratory [redacted]
[redacted]	Facility Authority	ZED-2 Reactor Fuels and Materials Cells

[1] Employees listed are only considered DROLs when they are acting in the position of EOC Commander

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Name	Title	Area of Representation
		Nuclear Fuel Fabrication Facility (NFFF), [redacted]
[redacted]	Facility Authority	Universal Cells Molybdenum-99 Production Facility
[redacted]	Facility Authority Advisor	Waste Treatment Centre and Associated Facilities
[redacted]	Facility Authority	Waste Management Areas
Class II Facilities		
[redacted]	Facility Authority	Gamma Beam [redacted] Irradiation Facility Gamma Beam Irradiators Model GC60 Health Physics Neutron Generator
[redacted]	Facility Authority	Van de Graaff Accelerator
Nuclear Facilities Undergoing Decommissioning Activities		
[redacted]	Facility Authority	Waste Water Evaporator [redacted] Active Waste Disposal [redacted]
[redacted]	Facility Authority	NRX Reactor [redacted] NRX Reactor Ancillary Building [redacted] NRX Reactor Ancillary Buildings [redacted] Former Reactor Bay Deionization System [redacted] NRX Fuel Storage and Handling Bays [redacted] Plutonium Recovery Laboratory (B220)
[redacted]	Facility Authority	Maple 1 Reactor [redacted] Maple 2 Reactor [redacted] New Processing Facility [redacted]
[redacted]	Facility Authority	NRX Reactor Fan House & Exhaust System [redacted] Reactor Exhaust Stack [redacted] NRX Reactor Ancillary Building [redacted] Plutonium Tower [redacted] Chemical Engineering Lab/Offices [redacted] including former Tritium Laboratory and Radio Isotope labs) Nuclear Fuel Fabrication Facility (NFFF) [redacted]

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Name	Title	Area of Representation
[redacted]	Facility Authority	Combined Electrolysis Catalytic and Exchange Upgrade and Detritiation Test Facility (CECEUD)
Permanently Shut Down Facilities		
[redacted]	Facility Authority	NRU [redacted]
Facilities Under Construction		
[redacted]	Facility Authority	Near Surface Disposal Facility (NSDF)
[redacted]		Advanced Nuclear Materials Research Centre (ANMRC)
[redacted]		Modernized Combined Electrolysis Catalytic and Exchange (MCECE) Facility

4.1.7 Whiteshell Nuclear Facilities

Name	Title	Area of Representation
[redacted]	EOC Commanders[1]	Emergency Operations Centre (EOC) – Whiteshell Laboratories
Nuclear Facilities		
[redacted]	Facility Authority	Concrete Canister Storage Facility Waste Management Area
[redacted]	Facility Authority	Research and Development [redacted] Shielded Facilities
Permanently Shut Down Facilities		
[redacted]	Facility Authority	WR-1 Reactor

4.1.8 Waste Facilities (Prototype Reactors)

Name	Title	Area of Representation
[redacted]	G1 & DP, Facility Authority	Gentilly-1 Waste Facility Douglas Point Waste Facility

[2] TBD (to be determined) - Until a DROL has been identified, qualified, and appointed, all reporting will be done through the Manager, Regulatory Affairs.

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Name	Title	Area of Representation
[redacted]	Section Head, NPD Engineering & Decommissioning (Facility Authority)	NPD Waste Facility

4.1.9 Port Hope Area Initiative

Name	Title	Area of Representation
[redacted]	Regulatory Integration Lead	Long-Term Low-Level Radioactive Waste Management Facility – Port Hope

4.1.10 La Prade

Name	Title	Area of Representation
[redacted]	Director, S&T Facilities Operations	La Prade Site

4.2 Licences & Certificates

4.2.1 CNSC Licences and Certificates

Number	Title	Expiry	Comment
Chalk River Laboratories			
NRTEOL-01.01/2028	Nuclear Research and Test Establishment Operating Licence, Chalk River Laboratories	2028 Mar 31	
NRTEOL-LCH-01.01/2028	Licence Conditions Handbook for Chalk River Laboratories	N/A	Revision 5 Effective 2024 Oct 31
15193-1-36.0	Dosimetry Services Licence	2036 May 31	
EL-01.00/2031	Export Licence	2031 Jul 31	
EL-A4-28928.0/2027	Export Licence	2027 Apr 30	
EL-A4-29920.0/2028	Export Licence	2028 May 31	
EL-A1-A4-29984.0/2026	Export Licence	2026 Dec 31	
EL-A1-B1-31788.0/2028	Export Licence	2028 Feb 29	
EL-B3-29997.1/2026	Export Licence	2026 Dec 31	
IL-01.00/2031	Import Licence	2031 Jul 31	
IL-A4-28929.0/2027	Import Licence	2027 Apr 30	
IL-A4-29579.0/2028	Import Licence	2028 May 31	
C2-234-0002-4-2047	Class II Prescribed Equipment Certificate - Hopewell Designs GC60 Series Gamma Beam Irradiator	2047 Jan 31	

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Number	Title	Expiry	Comment
C2-041-0001-1-2036	Class II Prescribed Equipment Certificate - Texas Nuclear Neutron Generator 150-1H	2036 Jan 31	
C2-513-0001-0-2036	Class II Prescribed Equipment Certificate - Adelphi Technology DD-109 Neutron Generator	2036 Nov 30	
C2-513-0005-0-2045	Class II Prescribed Equipment Certificate - Adelphi Technology DT108API Neutron Generator	2045 May 31	
C2-005-0027-1-2036	Class II Prescribed Equipment Certificate - MDS Nordion Gammabeam 150C	2036 Nov 30	
C2-234-0006-0-2037	Class II Prescribed Equipment Certificate - Hopewell Designs GC60-1000	2037 Sep 30	
Van de Graaff Electron Accelerator	Class II Prescribed Equipment	N/A	As per 153-NOAC-12-0001-L no certification is required.
R-005-0016-3-2032	Radiation Device Certificate - MD Nordion Gammacell 220/220 Excel	2032 May 31	
R-005-0031-2-2032	Radiation Device Certificate - MDS Nordion Gammacell 200	2032 May 31	
R-061-2032-8-2041	Radiation Device Certificate - QSA Global Models 680B and 680E	2041 May 31	
Whiteshell Laboratories			
NRTEDL-W5-8.00/2027	Nuclear Research and Test Establishment Decommissioning Licence, Whiteshell Laboratories	2027 Dec 31	
NRTEDL-LCH-08.00/2027	Licence Conditions Handbook for Whiteshell Laboratories	N/A	Revision 0 Effective 2025 Jan 1
Prototype Reactors			
WFDL-W4-342.00/2034	Waste Facility Decommissioning Licence, Nuclear Power Demonstration (NPD) Waste Facility	2034 Dec 31	
WFDL-LCH-W4-342.00/2034	Licence Conditions Handbook for Nuclear Power Demonstration (NPD) Waste Facility	N/A	Revision 2 Effective 2023 Aug 15
WFDL-W4-332.03/2030	Waste Facility Decommissioning Licence, Douglas Point Waste Facility	2030 Dec 31	
WFDL-LCH-W4-332.03/2030	Licence Conditions Handbook for Douglas Point Waste Facility	N/A	Revision 2 Effective 2026 May 14

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Number	Title	Expiry	Comment
WFDL-W4-331.00/2034	Waste Facility Decommissioning Licence, Gentilly-1 Waste Facility	2034 Dec 31	
WFDL-LCH-W4-331.00/2034	Licence Conditions Handbook for Gentilly-1 Waste Facility	N/A	Revision 1 Effective 2019 Jul 15
Port Hope Area Initiative			
WNSL-W1-2310.00/2032	Waste Nuclear Substance Licence, Port Hope Area Initiative Waste Management Project	2032 Dec 31	
WNSL-W1-2310.00/2032	Licence Conditions Handbook for Port Hope Area Initiative	N/A	Revision 0 Effective 2023 Jan 01
WNSL-W2-2202.0/2026	Waste Nuclear Substance Licence, Low Level Radioactive Waste Management Office (Historic Waste)	2026 Nov 30	
La Prade			
15193-4-26.1	Nuclear Substance and Radiation Devices Licence, La Prade	2026 Sep 30	
Transport Packages and Licences			
Shipping Certificates	Various CNSC certificates for transport packages used by CNL for shipping off-site.		List is maintained by the Transportation of Dangerous Goods Functional Support Area
TL-S-15193-53-00-2026	CRL Onsite Licence to Transport	2026 Dec 31	
TL-S-15193-53-00-2026	Licence to Transport	2026 Dec 31	For transportation between WL and CRL

4.2.2 Other Licences, Certificates and Permits

Number	Title	Expiry	Comment
ISO Certifications and Accreditations			
Intertek CERT-0139267	ISO 9001:2015 Quality Management System Certification for Canadian Nuclear Laboratories	2027 April 20	Scope of activities and CNL sites is defined on certificate.
Intertek CERT-0121355	ISO 14001:2015 Environmental Management System Certification for Canadian Nuclear Laboratories	2027 Jul 17	Scope of activities and CNL sites is defined on certificate.
Intertek-SAI Global CERT-0172186 (file no. 2023-137137)	CNL – Chalk River Laboratories Conformance to Drinking Water Quality Management Standard Version 2 -2017	2027 Apr 11	Effective 2024 Apr 11

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Number	Title	Expiry	Comment
Canadian Association for Laboratory Accreditation Inc. (CALA) Cert: 1002677	ISO/IEC 17025:2017 for CNL, CRL Analytical Chemistry Branch	2027 May 05	Accreditation is limited to those tests in the laboratory's scope of testing.
TSSA & Pressure Boundary Certifications			
QA 84	Manufacture of pressure vessels at CRL only in accordance with ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 and CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code	2028 Mar 20	CRL
QA 230	Repair of ASME Section VIII, Div.1, pressure relief valves using original equipment manufactured parts at CRL only in accordance with CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code. Special Processes are limited to Machining. Test Media shall include Air/Gas and Liquid.	2028 Mar 20	CRL
QA 379	Construction and Shop Assembly of Class 1, 1C, 2, 2-C, 3, and 3-C Piping Systems at CRL only in accordance with CSA Standard N285.0, General Requirements for Pressure Retaining Systems and Components in CANDU Nuclear Power Plants.	2028 Mar 20	CRL
QA 00547	Repair and alteration of boilers, pressure vessels, piping and Category A, B, D, E and H type fittings at CRL only in accordance with CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code.	2028 Mar 20	CRL
QA 00548	Fabrication, assembly and erection of power piping at CRL only in accordance with CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code and ASME B31.1 Power Piping	2028 Mar 20	CRL
QA 00549	Fabrication, assembly and erection of process piping at CRL only in accordance with CSA Standards B51, Boiler, Pressure Vessel and Pressure Piping Code and ASME B31.3 Process Piping.	2028 Mar 20	CRL
QA 02107	Fabrication of Class 1, 2, 3, and 4 Welded and Non-welded Supports; with and	2028 Mar 20	CRL

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Number	Title	Expiry	Comment
	without Design Responsibility; At CRL only in accordance with CSA Standard N285.0, General Requirements for Pressure Retaining Systems and Components in CANDU Nuclear Power Plants.		
QA 05178	Fabrication of Class 1, 1C, 2, 2C, 3, 3C and 4 Welded and Non-welded Category A, B, D, E, and H type Fittings, with and without Design Responsibility at CRL only in accordance with CSA Standard N285.0, Requirements for Pressure Retaining Systems and Components in CANDU Nuclear Power Plants.	2028 Mar 20	CRL
QA 02716	Fabrication of welded and non-welded Category A, B, D, E & H type Fittings at CRL only in accordance with CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code.	2028 Mar 20	CRL
QA 03880	Fabrication, assembly and erection of refrigeration piping at CRL only in accordance with CSA Standard B52, Mechanical Refrigeration Code and ASME B31.5 Refrigeration Piping.	2028 Mar 20	CRL
QA 02108	Repairs, Modifications or Replacements of Class 1, 1C, 2, 2C, 3, 3C and 4 Nuclear Items; At CRL only in accordance with CSA Standard N285.0, General Requirements for Pressure Retaining Systems and Components in CANDU Nuclear Power Plants.	2028 Mar 20	CRL
TSSA	Various certificates of inspection (C of I) for pressure vessels issued by TSSA		CRL
TSSA R-1415	Certificate of Registration of a Plant (CRL, Building [redacted] (Powerhouse))		CRL Effective 2024 May 13
TSSA	Various Licences for Elevators and Lifting Devices – Issued by TSSA, posted on the applicable equipment	N/A	CRL
MB-24-062	Certificate of Authorization Issued in Accordance with Manitoba Steam and Pressure Plants Act S210 and CSA B51	2027 Nov 25	WL
Environment			

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Number	Title	Expiry	Comment
ENVP-ECCN-18-001-L	Letter of Advice issued by ECCC to ensure that the four Barn Swallow condos are available to the species at least until 2027.	2027 Dec 31	A letter resulting from the Barn Swallow monitoring activities under prior permit application (EnvP-18-004).
SARA-OR-2022-0692	Injured SAR Transport, Turtle Egg Shell Collection, and Dead SAR Possession	2027 Oct 01	CRL - The permit authorizes CNL to capture, collect and handle injured, or orphaned species at risk listed on the permit (14 species).
FHR-PER-23001 through FHR-PER-23016	Federal Halocarbon Regulations Permits to Charge a Fire-Extinguishing System; issued by Environment and Climate Change Canada (ECCC)	2027 May 10	A total of 16 permits to charge fire-extinguishing systems at CRL's Recycled Fuel Fabrication Laboratories; permits are good for three years
A 413105	Ontario Ministry of the Environment, Provisional Certificate of Approval – Waste Disposal Site	N/A	CRL
Permit No. WB26588	Wildlife Scientific Permit - Issued by Fisheries Branch of Manitoba Conservation and Water Stewardship	2028	WL
Permit No. 0537-D6YQLZ	Alexander Street Ravine Permit to Take Water, Issued by Ontario Ministry of the Environment, Conservation and Parks	2029 Dec 31	PHAI
Permit No. 23-HCAA-00407	Waterworks West/West Beach Outlet Letter of Authorization – Issued by Department of Fisheries and Oceans Canada for the Permanent Alteration to Alexander Creek	2032 Jan 31	PHAI
Permit No. 6418-CGQPPF	Waterworks West/West Beach Outlet Permit to Take Water, Issued by Ontario Ministry of the Environment, Conservation and Parks	2032 Aug 04	PHAI
Permit No. 2018-400192	Port Hope Harbour Navigable Waters Permit (Dredging) – Issued by Transport Canada	N/A	PHAI

REDACTED

Number	Title	Expiry	Comment
File No. 4.05.02 e-Doc: 5583191	Port Hope Harbour Request for Review – PHAI – Dredging of Port Hope Inner Harbour – Letter of Advice Issued by the Canadian Nuclear Safety Commission under Department of Fisheries and Oceans Memorandum of Understanding	N/A	PHAI
File No. 23-HCAA-02412	Port Hope Harbour (Outer Harbour) Authorization to Proceed, Issued by the Department of Fisheries and Oceans (Letter of Authorization Not Required)	N/A	PHAI
Permit No. 2514-B37PM6	Port Hope Harbour Permit to Take Water for Hydraulic Dredging, Issued by the Ministry of the Environment, Conservation and Parks	2028 Nov 16	PHAI
Permit No. 6732-BGJNDE	Port Hope Harbour Permit to Take Water for Centre Pier Remediation, Issued by the Ministry of the Environment, Conservation and Parks	2029 Sep 30	PHAI
File No. 23-HCAA-01852	Highland Drive South Ravine Authorization to Proceed, Issued by the Department of Fisheries and Oceans (Letter of Authorization Not Required)	N/A	PHAI
Permit No. 1046-BUYJXF	Highland Drive South Ravine Environmental Compliance Approval – Air and Noise (PRB Installation and Maintenance), Issued by the Ministry of the Environment, Conservation and Parks	N/A	PHAI
1130-D7GRL2	Highland Drive South Ravine Permit to Take Water, Issued by Ontario Ministry of the Environment, Conservation and Parks	2034 Aug 13	PHAI
Permit No. 5073-CGQPWV	Chemetron Lagoon Permit to Take Water, Issued by the Ministry of the Environment, Conservation and Parks	2032 Aug 03	PHAI
Permit No. 2550-CGXRPG	Former Coal Gasification Plant Permit to Take Water, Issued by the Ministry of the Environment, Conservation and Parks	2032 Aug 22	PHAI
Transportation			

REDACTED

Number	Title	Expiry	Comment
181-307-638117	Ontario Ministry of Transportation - Commercial Vehicle Operator Registration (CVOR) Certificate		CRL
MVIS 41-55210	Ontario Ministry of Transportation - Motor Vehicle Inspection Station Licence		CRL
0076522978-C	Propane Conversion Licence		CRL
Engineering			
100216258	Professional Engineers of Ontario Certificate of Authorization	N/A	
5993	Engineers Geoscientists Manitoba Certificate of Authorization	N/A	
F1402	Association of Professional Engineers and Geoscientists of New Brunswick Certificate of Authorization	N/A	
Various Certificates	Stationary Engineer Certificates for the Power Plant Chief Operating Engineer, Shift Engineers and Operators		CRL
Canadian Border Services Agency			
12060	Canadian Border Services Agency (CBSA) Partners in Protection (PIP) Program	N/A	A Signed Memorandum of Understanding (MoU) 2013 Dec
47302992	U.S. Customs and Border Protection (CBP) Customs – Trade Partnership Against Terrorism (C-TPAT) Program	N/A	Accepted to program 2012 Mar
Radiobiology & Health			
Canadian Council on Animal Care	Good Animal Practices (GAP)	2030 Dec	
L-R2-55355-23-YL-00	Public Health Agency of Canada Risk Group 2 Pathogen and Toxin Licence Risk Group 2 Terrestrial Animal Pathogen Permit	2028 Feb 07	
SCC File No: 151230	Good Laboratory Practices (GLP) Recognition	2029 Feb 19	Test Facility Test Site
Various Other Licences			
EW-2022-0316	Electricity Wholesaler Licence issued by Ontario Energy Board for CRL	2027 Dec 14	
AECLR1	Canadian Welding Bureau CSA W47.1 Certification of Companies for Fusion Welding of Steel	2027 Feb 05	

REDACTED

Number	Title	Expiry	Comment
CA-00296	Canadian Wood Packaging Certification Program Participation – issued by Canadian Food Inspection Agency	N/A	CRL
Company Code 80002690	Site Radio Licences (various) issued by Industry Canada		CRL and WL
010041105-001	UHF Radio Licence		Gentilly-1
010321051-001	CB Radio Licence		La Prade
010469485-001	CB Radio Repeater Licence		La Prade

5. Facilities & Laboratories

This section identifies the Facilities at CRL, WL, the Prototype Reactors as well as other off-site locations listed from Section 4.1.6 to Section 4.1.10, along with Radioisotope Laboratories.

The information below is organized based on the organization (S&T or ERM) responsible for the safe operation or decommissioning of the facility or laboratory.

5.1 CRL Nuclear Facilities

Operating Class I Nuclear Facilities
Nuclear Fuel Fabrication Facility (NFFF), [redacted]
Recycle Fuel Fabrication Laboratories (RFFL)
ZED-2 Reactor
Universal Cells (UC)
Fuels and Materials Cells (FMC)
Molybdenum-99 Production Facility (MPF)
Tritium Laboratory
Waste Treatment Centre and Associated Facilities
Waste Management Areas
Operating Class II Nuclear Facilities
Health Physics Neutron Generator (HPNG)
Gamma Beam 150C Irradiation Facility (GC-150)
Gamma Beam Irradiator Model GC60 (GC60)
Van de Graaff Accelerator (VdG)
Nuclear Facilities Undergoing Decommissioning Activities
NRX Reactor
NRX Ancillary Buildings

REDACTED

NRX Reactor Fan House & Exhaust System
Reactor Exhaust Stack
NRX Fuel Storage and Handling Bays
Former Reactor Bay Deionization System
Plutonium Recovery Laboratory
Plutonium Tower
Waste Water Evaporator
Active Waste Disposal
Chemical Engineering Lab/Offices [redacted] including former Tritium Laboratory and Radio Isotope labs)
Nuclear Fuel Fabrication Facility (NFFF) [redacted]
Permanently Shutdown Facilities
NRU Reactor
Facilities Under Construction
Advanced Nuclear Materials Research Centre (ANMRC)
Modernized Combined Electrolysis Catalytic and Exchange (MCECE) Facility
Near Surface Disposal Facility (NSDF)
Radioisotope Laboratories
Class A
Tritium Laboratory
Class B
Active Wet Chemistry Laboratory – Environmental/Organic Analysis
Chalk River Advanced CANDU Fuel Development Laboratories
Chalk River Advanced Fuel Technology (CRAFT) - Ceramics Laboratories
Chromatography Laboratory
Containment Chemistry & Gammacell Laboratories
Coulometric Titration Laboratory
Environmental & Organics Analysis
Focused Ion Beam Facility
Hydrogen and Deuterium (H&D) Analysis Laboratories
ICP-MS Laboratory
Imaging-XPS Laboratory
Material Sciences Radioactive Specimen Preparation Laboratories
Molten Material Laboratory

REDACTED

Neutron Activation Analysis and Radiochemistry Laboratory
ACB Satellite Laboratories in NRU [redacted]
Radiochemical Analysis Laboratory [redacted]
Radiochemical Analysis Laboratory [redacted]
Radiochemistry Applications Laboratory
Research Reactor Fuel Development Laboratories
SIMS, SEM and Radioactive Specimen Preparation Laboratories
TIMS Sample Preparation Laboratory
Waste Characterization Services (WCS) [redacted]
Waste Processing Technology (WPT) Laboratory
Class C
Biological Research Facility Laboratory
Decontamination Test Loops and Support Laboratories
Environmental Analysis Laboratory
Fission Gas Laboratory
Fission Product Release Group Laboratory
Fuel Assembly Science and Technologies Laboratory
Metallographic Services Laboratory
Nuclear Forensic Laboratory
Radiochemistry Applications Laboratory
Radiochemistry Research Laboratory
Small Scale Mechanical Testing Laboratory
Medium Activity Material Testing Laboratory
Surface Science Laboratory
Toxicity Laboratory
Bioassay Laboratories
Environmental Radiochemistry Laboratory
Tritium Instrument Calibration Laboratory

REDACTED

5.2 Whiteshell Nuclear Facilities

Whiteshell Nuclear Facilities
Concrete Canister Storage Facility (CCSF)
Shielded Facilities (SF, IFTF, HCF)

Waste Management Area (WMA)
Building [redacted] (Research and Development)
Permanently Shutdown Facilities
WR-1 Reactor
Radioisotope Laboratories
Class B
Radioisotope Laboratory Room [redacted]
Class C
Radioisotope Laboratory Room [redacted]
Other Facilities and Laboratories
Radiation and Industrial Safety Instrumentation Shop
WL Laundry and Decontamination
Waste Transshipment Area
Environmental Management Radiochemical Counting Lab [redacted]
Sample Management Office Sample Receiving Office [redacted]

5.3 Waste Facilities (Prototype Reactors)

Waste Facilities
Nuclear Power Demonstrator (NPD) Waste Facility Located: Rolphton Ontario
Douglas Point Waste Facility Located: Bruce Nuclear Power Development, Tiverton Ontario
Gentilly-1 Waste Facility Located: Ville de Bécancour, Québec

5.4 Port Hope Area Initiative

Port Hope Area Initiative
Port Hope Area Initiative Waste Management Project Located: Port Hope, Ontario
Historic Waste Program Management Office Located: Port Hope, Ontario
Historic Waste Program Environmental Laboratory Located: Port Hope, Ontario

REDACTED

5.5 La Prade

La Prade
La Prade Site Located: Ville de Bécancour, Québec

6. References

[1] *General Nuclear Safety and Control Regulations*, SOR/2000-202.

[2] *Licensing Basis List for Chalk River Laboratories*, 900-514300-LST-006300, 68568956.

[3] *Licensing Basis List for Gentilly-1, Douglas Point and Nuclear Power Demonstration Waste Facilities*, 900-514300-LST-006805, 68597117.

[4] *Licensing Basis List for Port Hope Area Initiative*, 900-514300-LST-006823, 68597159.

[5] *Licensing Basis List for Whiteshell Laboratories*, 900-514300-LST-006931, 68597204.

[6] *Canadian Nuclear Laboratories Management System Manual*, 900-514100-MAN-001, 12489834.

[7] CNL Reporting to Regulatory Agencies, 900-514300-MCP-006, 41554361.

[8] *Delegation of Authority,* 900-514100-FM-004*,* 40793303.

[9] *Compliance,* 900-514300-PDD-001, 51425535.

[10] *Managing Regulatory Communications and Commitments*, 900-514300-MCP-005, 50978336.

[11] *Codes, Regulations, Standards, and Other Documents*, 900-514100-LST-002, 49883204.

REDACTED

Appendix A DROLs for Other Regulators

The following table is a list of DROLs for Acts and Regulations as they apply to sites and activities at CNL. They are derived from sections 4.2 and 4.3 of the *Codes, Regulations, Standards, and Other Documents* [11]

Document Number	Title /Description	Act or Regulation	Associated DROL
C.C.S.M. c. E111	The Endangered Species and Ecosystems Act (Manitoba)	Act	[redacted]
C.C.S.M. c. E125	The Environment Act (Manitoba)	Act	[redacted]
C.C.S.M. c. S210	The Steam and Pressure Plants Act (Manitoba)	Act	[redacted]
R.S.C., 1985, c. 1 (2nd Supp.)	Customs Act	Act	[redacted]
R.S.C., 1985, c. 15 (4th Supp.)	Non-smokers' Health Act	Act	[redacted]
R.S.C., 1985, c. A-1	Access to Information Act	Act	[redacted]
R.S.C., 1985, c. C-11	Canada Water Act	Act	[redacted]
R.S.C., 1985, c. C-34	Competition Act	Act	[redacted]
R.S.C., 1985, c. C-42	Copyright Act	Act	[redacted]
SOR/99-325	Exception for Education Institutions, Libraries, Archives and Museums Regulations	Regulation	[redacted]
R.S.C., 1985, c. C-44	Canada Business Corporations Act	Act	[redacted]
R.S.C., 1985, c. E-19	Export and Imports Permits Act	Act	[redacted]
C.R.C., c. 604	Import Control List	Regulation	[redacted]
SOR/89-202	Export Control List	Regulation	[redacted]
R.S.C., 1985, c. F-14	Fisheries Act	Act	[redacted]
SOR/2012-139	Wastewater Systems Effluent Regulations	Regulation	[redacted]

[3] Until a DROL has been identified, qualified, and appointed, all reporting will be done through the Manager, Regulatory Affairs.

REDACTED

Document Number	Title /Description	Act or Regulation	Associated DROL
R.S.C., 1985, c. H-6	Canadian Human Rights Act	Act	[redacted]
R.S.C., 1985, c. L-2	Canada Labour Code	Act	[redacted]
C.R.C., c. 986	Canada Labour Standards Regulations	Regulation	[redacted]
SOR/86-304	Canada Occupational Health and Safety Regulations	Regulation	[redacted]
SOR/2015-164	Policy Committees, Work Place Committees and Health and Safety Representatives Regulations	Regulation	[redacted]
SOR/2020-130	Work Place Harassment and Violence Prevention Regulations	Regulation	[redacted]
R.S.C., 1985, c. N-22	Canadian Navigable Waters Act	Act	[redacted]
R.S.C., 1985, c. O-5	Security of Information Act	Act	[redacted]
R.S.C., 1985, c. R-1	Radiation Emitting Devices Act	Act	[redacted]
C.R.C., c. 296	Health of Animals Regulations	Regulation	[redacted]
S.C. 1990, c. 22	Plant Protection Act	Act	[redacted]
SOR/95-212	Plant Protection Regulations	Regulation	[redacted]
S.C. 1992, c. 34	Transportation of Dangerous Goods Act	Act	[redacted]
SOR/2001-286	Transportation of Dangerous Goods Regulations	Regulation	[redacted]
S.C. 1994, c. 22	Migratory Birds Convention Act	Act	[redacted]
SOR/2022-105	Migratory Birds Regulations, 2022	Regulation	[redacted]
S.C. 1995, c. 39	Firearms Act	Act	[redacted]
SOR/98-210	Storage, Display and Transportation of Firearms and Other Weapons by Businesses Regulation	Regulation	[redacted]
SOR/98-212	Shooting Clubs and Shooting Ranges Regulations	Regulation	[redacted]
S.C. 1995, c. 44	Employment Equity Act	Act	[redacted]

REDACTED

Document Number	Title /Description	Act or Regulation	Associated DROL
S.C. 1997, c. 9	Nuclear Safety and Control Act	Act	[redacted]
SOR/2000-202	General Nuclear Safety and Control Regulations	Regulation	[redacted]
SOR/2000-203	Radiation Protection Regulations	Regulation	[redacted]
SOR/2000-204	Class I Nuclear Facilities Regulations	Regulation	[redacted]
SOR/2000-205	Class II Nuclear Facilities and Prescribed Equipment Regulations	Regulation	[redacted]
SOR/2000-207	Nuclear Substances and Radiation Devices Regulations	Regulation	[redacted]
SOR/2000-209	Nuclear Security Regulations	Regulation	[redacted]
SOR/2000-210	Nuclear Non-proliferation Import and Export Control Regulations	Regulation	[redacted]
SOR/2013-139	Administrative Monetary Penalties Regulations	Regulation	[redacted]
SOR/2015-145	Packaging and Transport of Nuclear Substances Regulations, 2015	Regulation	[redacted]
S.C. 1998, c. 34	Corruption of Public Foreign Officials Act	Act	[redacted]
S.C. 1999, c. 33	Canadian Environmental Protection Act, 1999	Act	[redacted]
SOR/2003-289	Federal Halocarbon Regulations	Regulation	[redacted]
SOR/2006-124	Pest Control Products Regulations	Regulation	[redacted]
SOR/2008-197	Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations	Regulation	[redacted]
SOR/2008-273	PCB Regulations	Regulation	[redacted]
SOR/2012-285	Prohibition of Certain Toxic Substances Regulations, 2012	Regulation	[redacted]
SOR/2016-137	Ozone-depleting Substances and Halocarbon Alternatives Regulations	Regulation	[redacted]
SOR/2019-51	Environmental Emergency Regulations	Regulation	[redacted]
S.C. 2000, c. 5	Personal Information Protection and Electronic Documents Act	Act	[redacted]
S.C. 2002, c. 28	Pest Control Products Act	Act	[redacted]

REDACTED

Document Number	Title /Description	Act or Regulation	Associated DROL
S.C. 2002, c. 29	Species at Risk Act	Act	[redacted]
S.C. 2007, c. 15	Emergency Management Act	Act	[redacted]
SOR/2015-44	Human Pathogens and Toxins Regulations	Regulation	[redacted]
SOR/2012-147	Regulations Designating Physical Activities	Regulation	[redacted]
S.C. 2015, c. 4, s. 120	Nuclear Liability and Compensation Act	Act	[redacted]
S.C. 2018, c.27, s.416	Pay Equity Act	Act	[redacted]
S.C. 2019, c.28, S.1	Impact Assessment Act	Act	[redacted]
SOR/2019-285	Physical Activities Regulations	Regulation	[redacted]
SOR/2019-323	Designated Classes of Projects Order	Regulation	[redacted]
NR24-28/2015E	National Building Code of Canada 2015	Code	[redacted]
NR24-28/2020E	National Building Code of Canada 2020	Code	[redacted]
NR24-28/2025E	National Building Code of Canada 2025	Code	[redacted]
NRCC-56192	National Fire Code of Canada 2015	Code	[redacted]
NR24-27/2020E	National Fire Code of Canada 2020	Code	[redacted]
NR24-27/2025E	National Fire Code of Canada 2025	Code	[redacted]

REDACTED

Minister of Natural Resources | Ministre des Ressources naturelles

Ottawa, Canada K1A 0E4

JUL 31 2015

Dr. Michael Binder
President and Chief Executive Officer
Canadian Nuclear Safety Commission
P.O. Box 1046, Station B
Ottawa, Ontario K1P 5S9

Dear Dr. Binder:

I am writing in response to your letter of July 15, 2015, with respect to the Canadian Nuclear Safety Commission's (CNSC) requirement for all of its licensees to establish sufficient funds for the decommissioning of their nuclear facilities, i.e. financial guarantees under paragraph 3(1)(l) of the *General Nuclear Safety and Control Regulations* made pursuant to the *Nuclear Safety and Control Act*.

Atomic Energy of Canada Limited (AECL) is a Schedule III, Part I Crown corporation under the *Financial Administration Act* and an agent of Her Majesty in Right of Canada. As an agent of Her Majesty in Right of Canada, AECL's liabilities are ultimately liabilities of Her Majesty in Right of Canada.

While the restructuring of AECL will see the ownership of Canadian Nuclear Laboratories Limited (CNL) transferred to a private-sector contractor, AECL will retain ownership of the lands, assets and liabilities associated with CNL's licences. Specifically, this letter addresses the licences held by CNL for the Chalk River Laboratories, the Whiteshell Laboratories, the Port Hope project, the Port Granby project, and the following three prototype power reactors: Nuclear Power Demonstration, Douglas Point and Gentilly-1.

Consistent with the policy of the Government of Canada that Her Majesty need not restate her commitment in the form of a guarantee, I trust that this letter will serve to address the requirement of the Commission.

Sincerely,

The Honourable Greg Rickford, P.C., M.P.
Minister of Natural Resources and Minister for the
Federal Economic Development Initiative for Northern Ontario

c.c.: Mr. Jon Lundy, Chief Transition Officer, Atomic Energy of Canada Limited
Mr. Ramzi Jammal, Executive Vice-President and Chief Regulatory Operations Officer,
Canadian Nuclear Safety Commission

Canada

AECL Atomic Energy of Canada Limited EACL Énergie atomique du Canada limitée

NLPC-CNLA

145-AECLCNL-26-001-L

2026 April 29

AECL-619022806-19479

Dennis J. Carr
Chief Executive Officer
CNL Representative under the CNLA
Canadian Nuclear Laboratories
286 Plant Rd
Chalk River, ON K0J 1J0

Re: CURRENT CNL APPLICATIONS FOR NUCLEAR FACILITY LICENCE RENEWALS FOR CHALK RIVER LABORATORIES AND WHITESHELL LABORATORIES - EVIDENCE THAT CNL HAS AUTHORITY FROM AECL TO CARRY ON THE LICENSED ACTIVITIES

References:

[1] E-mail from S. Brooks to S. Lemay "URGENT: Site License Application Due to CNSC 2026 April 30" dated 2026 April 23

Dear Mr. Carr,

I am writing in response to your request[1] to provide evidence that Canadian Nuclear Laboratories Ltd. (CNL), as the Canadian Nuclear Safety Commission (CNSC) licensee carrying on the nuclear facility licensed activities at the Chalk River Laboratories and Whiteshell Laboratories sites (together, the Sites), continues to be authorized by Atomic Energy of Canada Limited (AECL), as the owner of the Sites, to carry on the activities to be licensed under the current applications for licence renewals at the Sites.

AECL is a Crown corporation and an agent of His Majesty in right of Canada. AECL is the owner of the lands, assets and liabilities associated with CNL's CNSC licences, including those pertaining to the Sites.

In support of the requirements set forth in Section 3(c) of the Class I Nuclear Facilities Regulations SOR/2000-204 and Sections 3(b) and 4(d) of the Class II Nuclear Facilities and Prescribed Equipment Regulations SOR/2000-205, AECL continues to engage CNL to manage and operate AECL's sites, assets and liabilities under a Government-owned, Contractor-operated contract. I confirm that this contractual arrangement provides CNL with the authority to conduct the activities to be licensed under the current applications for licence renewals at the Sites.

We trust the foregoing is satisfactory.

Atomic Energy of Canada Limited
286 Plant Rd
Chalk River, Ontario
Canada K0J 1J0
Telephone: 613-589-2085

Énergie atomique du Canada limitée
286 rue Plant
Chalk River (Ontario)
Canada K0J 1J0
Téléphone: 613-589-2085

AECL EACL

Yours Truly,

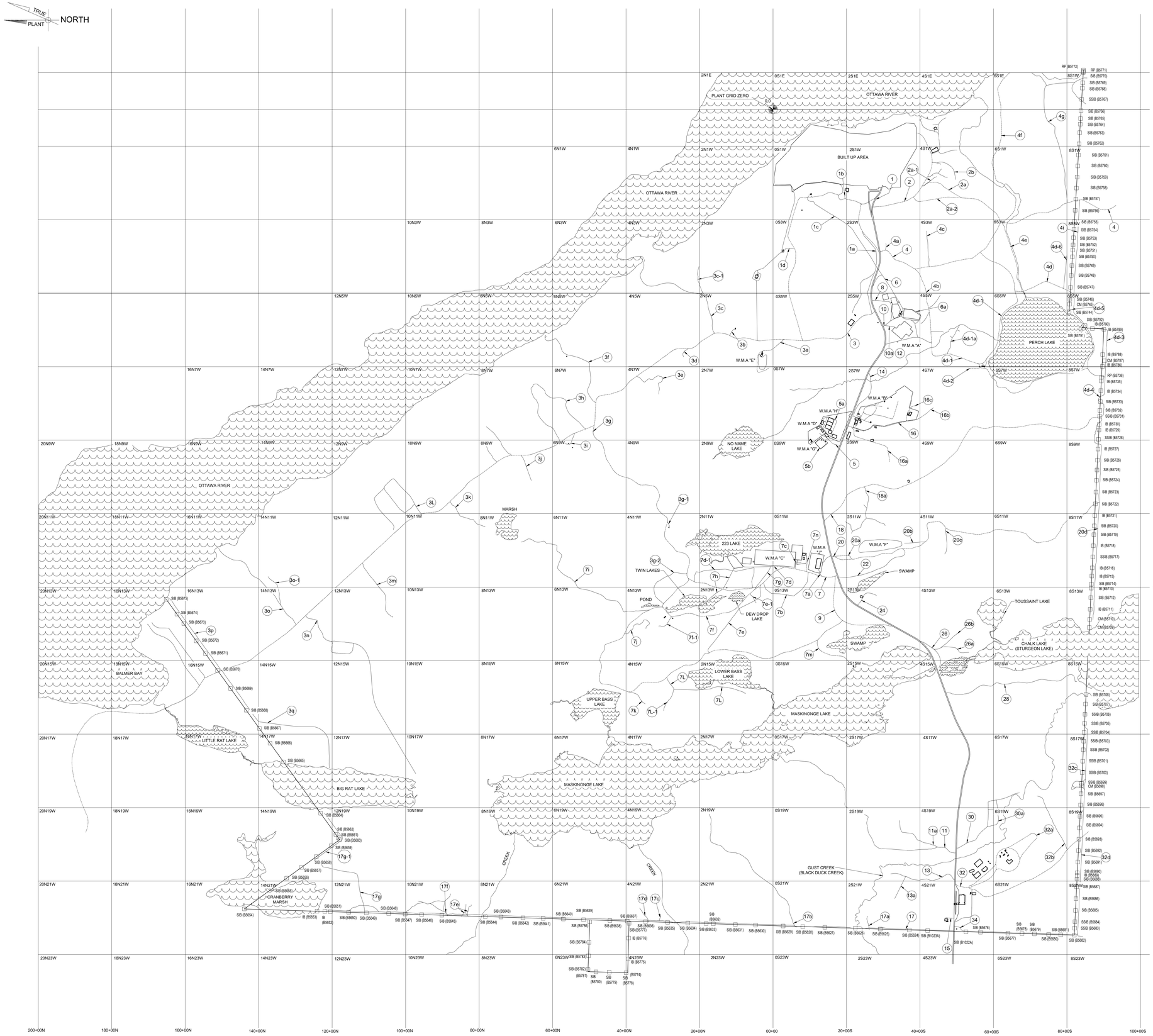
Recoverable Signature

X

Graeme Williamson
Lead Contracting Officer
Signed by: Graeme Williamson

Cc:

E. Bizier, AECL
A. Gottschling, AECL
S. Lemay, AECL
J. Michelson, AECL
G. Williamson, AECL
S. Brooks, CNL
E. Daigle, AECL
K. Heppell-Masys, AECL
A. MacDonald, AECL
E. Miller, AECL
L. Bauer, CNL
D. Carr, CNL
F. Dermarkar, AECL
D. Kryschuk, AECL
R. Mason, AECL
A. O'Haire, AECL
J. Bittner, CNL
G. Kaufmann, CNL
G. Gardner, AECL
R. Laubouet, AECL
J. McLeod, AECL
M. Pagé, AECL
S. Bovingdon, CNL



1.0 GENERAL NOTES:

1.1 DOCUMENT ACCURACY BACKGROUND:

1.1.1 THIS DRAWING COMBINES LEGAL SURVEY PLANS DEFINING SITE BOUNDARY AND ARE CONVERTED TO THE PLANT GRID SYSTEM.
1.1.2 DRAWING GRID SHOWN IS THE "CRL PLANT GRID"
1.1.3 REFERENCE TRAVERSE POINTS ARE SHOWN FOR AECL REFERENCE ONLY. THESE POINTS ARE PART OF "SURVEY TRAVERSE PROGRAM" RESIDING WITH CRL SURVEY PERSONNEL.
1.1.4 REFERENCE TRAVERSE POINTS ARE SHOWN FOR EASY REFERENCE WITH CRL PERSONNEL.

1.2 SURVEY MONUMENTS SHOWN ARE DERIVED FROM LEGAL SURVEY PLANS BY SURY, ROWE, & KASPRZAK (MARCH 1993), BOURNE & SIMPSON (AUGUST 1971 - E-5067W) AND JOHN GOLTZ (OCTOBER 1997).
1.3 ALL CUTTING, CORING OR DRILLING SHALL CONFORM TO CNL PROCEDURE 900-519400-STD-012 DIGGING, DRILLING, CUTTING AND CORING SAFETY PROCEDURE.
1.4 THIS DRAWING IS FOR REFERENCE ONLY.

2.0 SURVEY MARKERS (BOUNDARY MONUMENTS)

2.1 MARKER IDENTIFICATION:

2.1.1 "SIB" DENOTES STANDARD IRON BAR - 1"x1"x4' SURVEY MARKER.
2.1.2 "SSIB" DENOTES SHORT STANDARD IRON BAR - 1"x1"x2' SURVEY MARKER.
2.1.3 "IB" DENOTES IRON BAR - ⅝"x⅝"x30" SURVEY MARKER.
2.1.4 "RP" DENOTES ROCK POST - 1"x1"x6" SURVEY MARKER.
2.1.5 "CM" DENOTES CONCRETE MONUMENT - SURVEY MARKER.
2.1.6 "CC" DENOTES CUT CROSS IN ROCK - SURVEY MARKER.

2.2 210+00W & 80+00S GRID LINES REFER TO LINES 21,000' WEST OF AND 8,000' SOUTH OF PLANT GRID ZERO (0,0).

SURVEY DATA ENTRY CHART

LEGAL BENCHMARK IDENTITY	FIELD SURVEY CO-ORDINATES NORTHING	EASTING	ELEVATIONS	DESCRIPTION	REFERENCE SURVEY TRAVERSE POINTS (SEE NOTE 1.1.4)
SIB	+16516.31	-13330.09		SIB NE COR PROPERTY	B5675
SIB	+16229.11	-13733.71		SIB	B5674
SIB	+16036.98	-13994.45		SIB	B5673
SIB	+15958.56	-14402.14		SIB	B5672
SIB	+15447.70	-14811.22		SIB	B5671
SIB	+15120.19	-15265.15		SIB - 26' EAST OF P & M ROAD	B5670
SIB	+14763.50	-15759.33		SIB	B5669
SIB	+14357.73	-16199.66		SIB	B5668
SIB	+13980.30	-16645.07		SIB	B5667
SIB	+13691.16	-17245.82		SIB	B5666
SIB	+13331.49	-17758.19		SIB - EAST OF CLEAR LAKE	B5665
SIB	+12314.54	-19153.85		SIB - WEST OF CLEAR LAKE	B5664
SIB	+11998.11	-19456.60		SIB	B5663
SIB	+11694.23	-19730.88		SIB	B5662
SIB	+11754.51	-19819.17		SIB - NW COR L 38, R-B	B5661
SIB	+11708.91	-19872.69		SIB	B5660
SIB	+11429.90	-20035.49		SIB	B5659
SIB	+12428.07	-20032.50		SIB	B5658
SIB	+12833.64	-20635.30		SIB	B5657
SIB	+13238.21	-20923.11		SIB	B5656
SIB	+13642.78	-21213.91		SIB	B5655
SIB	+14390.48	-21756.90		SIB - NORTH CORNER PROPERTY	B5654
IB	+12410.58	-21619.55		IB	B5653
IB	+12200.88	-21826.18		IB	B5652
SIB	+12048.61	-21831.00		SIB	B5651
SIB	+11548.86	-21846.81		SIB	B5650
SIB	+11068.10	-21861.99		SIB	B5649
SIB	+10462.20	-21881.19		SIB	B5648
SIB	+10012.43	-21895.43		SIB	B5647
SIB	+9062.65	-21909.86		SIB	B5646
SIB	+8612.93	-21927.05		SIB	B5645
SIB	+8162.60	-21942.99		SIB	B5644
SIB	+7656.07	-21957.89		SIB	B5643
SIB	+6806.58	-21996.86		SIB	B5642
SIB	+6256.86	-22014.25		SIB	B5641
SIB	+5707.13	-22031.65		SIB	B5640
SIB	+5157.41	-22049.04		SIB	B5639
SIB	+4437.77	-22071.81		SIB	B5638
SIB	+3968.00	-22086.67		SIB	B5637
SIB	+3468.25	-22102.49		SIB	B5636
SIB	+2868.55	-22121.46		SIB	B5635
SIB	+2318.83	-22138.85		SIB	B5634
SIB	+1818.82	-22154.67		SIB - SW COR LOT 6, CON 11	B5633
SIB	+1623.12	-22160.87		SIB	B5632
SIB	+1023.42	-22179.84		SIB	B5631
SIB	+473.69	-22197.23		SIB	B5630
SIB	-275.93	-22220.95		SIB	B5629
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SIB	-1409.96	-22256.83		SIB	B5627
SIB	-2238.39	-22283.05		SIB	B5626
SIB	-2920.73	-22304.63		SIB	B5625
SIB	-3708.66	-22329.56		SIB	B5624
SIB	-4208.41	-22343.38		SIB - BOUNDARY N PLANT ROAD	B1023A
SIB	-5253.62	-22378.45		SIB - BOUNDARY S PLANT ROAD	B1022A
SIB	-5445.97	-22392.86		SIB	B5676
SIB	-6392.62	-22434.50		SIB	B5677
SIB	-6792.88	-22447.31		SIB	B5678
SIB	-7114.45	-22457.33		SIB	B5679
SIB	-7501.45	-22449.57		SIB	B5680
SIB	-7930.53	-22459.56		SIB	B5681
SIB	-8200.42	-22471.69		SIB - SW COR LOT 6, CON 8	B5682
SSIB	-8205.72	-22276.96		SSIB	B5683
SSIB	-8218.11	-22104.96		SSIB	B5684
SIB	-8232.88	-21788.68		SIB	B5685
SIB	-8248.36	-21477.96		SIB	B5686
SIB	-8263.93	-21155.28		SIB - SW COR LOT 7, CON 8	B5687
SIB	-8274.14	-20943.77		SIB	B5688
IB	-8278.89	-20845.33		IB	B5689
SIB	-8282.37	-20773.07		SIB	B5690
SIB	-8296.57	-20478.76		SIB	B5691
SIB	-8311.52	-20168.88		SIB	B5692
SIB	-8326.49	-19858.75		SIB	B5693
SIB	-8341.37	-19550.21		SIB	B5694
SIB	-8356.34	-19240.01		SIB	B5695
SIB	-8371.29	-18930.11		SIB	B5696
SIB	-8386.18	-18621.50		SIB	B5697
CM	-8396.57	-18406.07		CONCRETE MONUMENT	B5698
SSIB	-8400.02	-18336.21		SSIB	B5699
SSIB	-8414.03	-18051.58		SSIB	B5700
SSIB	-8429.55	-17736.55		SSIB	B5701
SSIB	-8444.88	-17425.31		SSIB	B5702
SSIB	-8456.39	-17191.66		SSIB	B5703
SSIB	-8468.08	-16954.39		SSIB	B5704
SSIB	-8480.26	-16707.05		SSIB	B5705
SSIB	-8492.43	-16460.01		SSIB	B5706
SIB	-8506.25	-16179.26		SIB	B5707
SIB	-8518.96	-15921.50		SIB - WEST SIDE CHALK LAKE	B5708
CM	-8509.12	-14097.12		CM - EAST SIDE CHALK LAKE	B5709
CM	-8619.89	-13879.25		CONCRETE MONUMENT	B5710
IB	-8633.47	-13602.58		IB	B5711
SIB	-8649.04	-13285.18		SIB	B5712
IB	-8661.70	-13027.36		IB	B5713
SIB	-8667.04	-12918.59		SIB	B5714
IB	-8677.96	-12698.15		IB	B5715
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IB	-8703.47	-12176.35		IB	B5717
IB	-8718.32	-11873.70		IB	B5718
IB	-8733.19	-11570.82		IB	B5719
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IB	-8758.76	-11049.86		IB	B5721
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SIB	-8789.93	-10411.51		SIB	B5723
SIB	-8805.46	-10097.93		SIB	B5724
SIB	-8819.11	-9811.06		SIB	B5725
SIB	-8832.12	-9543.11		SIB	B5726
SSIB	-8846.69	-9243.26		SSIB - WEST EDGE OF SWAMP	B5727
SSIB	-8859.63	-8978.98		IB - EAST EDGE OF SWAMP	B5728
IB	-8871.88	-8724.78		IB - RD ALLOWANCE 15 & 16	B5729
IB	-8879.20	-8574.16		SSIB	B5730
SSIB	-8890.04	-8351.01		SIB	B5731
SIB	-8897.85	-8190.20		SIB	B5732
SIB	-8909.47	-7951.01		SIB	B5733
IB	-8923.94	-7650.37		IB	B5734
IB	-8936.46	-7390.30		IB	B5735
RP	-8941.39	-7287.80		ROCK POST - SW COR LOT 16, CON 8	B5736
SIB	-8059.41	-5509.82		SIB - EAST SIDE PERCH LAKE	B5744
CM	-8072.02	-5266.87		CONCRETE MONUMENT	B5745
SIB	-8079.63	-5169.26		SIB	B5746
SIB	-8086.87	-4843.47		SIB	B5747
SIB	-8118.10	-4518.81		SIB	B5748
SIB	-8134.15	-4247.74		SIB	B5749
SIB	-8148.28	-4009.25		SIB	B5750
SIB	-8159.18	-3826.48		SIB	B5751
SIB	-8167.49	-3684.88		SIB	B5752
SIB	-8179.02	-3490.24		SIB	B5753
SIB	-8192.57	-3261.84		SIB	B5754
SIB	-8205.39	-3045.78		SIB	B5755
SIB	-8223.31	-2743.75		SIB	B5756
SIB	-8240.12	-2442.57		SIB - EAST SIDE P & M ROAD	B5757
SIB	-8243.13	-2392.50		SIB	B5758
SIB	-8276.90	-1829.83		SIB	B5759
SIB	-8294.85	-1538.13		SIB	B5760
SIB	-8312.59	-1239.25		SIB	B5761
SIB	-8330.55	-936.63		SIB	B5762
SIB	-8348.74	-629.99		SIB	B5763
SIB	-8362.38	-400.14		SIB	B5764
SIB	-8371.36	-248.94		SIB	B5765
SIB	-8384.20	-31.56		SIB	B5766
SSIB	-8402.32	+274.73		SSIB	B5767
SIB	-8420.45	+580.91		SIB	B5768
SIB	-8428.94	+724.46		SIB	B5769
SIB	-8445.66	+1006.88		SIB	B5770
RP	-8447.45	+1037.20		ROCK POST	B5771
RP	-8449.59	+1073.29		ROCK POST - SE COR PROPERTY & OTT RIVER	B5772
	+3955.38	-2466.08		SW COR CRL PT LOTS, CON 11	B5774
IB	+3945.14	-23119.10		IB	B5775
IB	+3929.59	-23547.99		IB	B5776
SIB	+3918.73	-22148.79		SIB - SE COR CRL PT LOT 5, CON 11	B5777
SIB	+4099.89	-23403.76		SIB	B5778
SIB	+4459.04	-23480.12		SIB	B5779
SIB	+4817.41	-23465.48		SIB	B5780
SIB	+5036.86	-23462.96		SIB - NW COR LOT 5, CON 11	B5781
SIB	+5034.75	-23454.23		SIB	B5782
SIB	+5021.36	-23031.87		SIB	B5783
SIB	+5008.20	-22665.91		SIB	B5784
SIB	+4988.16	-22108.77		SIB - NE COR LOT 5, CON 11	B5785
IB	+9955.66	-4991.99		IB	B5786
CM	+8969.18	-6837.03		OLD CRL CONCRETE MONUMENT	B5787
IB	+9071.69	-6659.76		IB	B5788
IB	+9005.00	-5969.36		IB PROPERTY CORNER	B5789
IB	+8931.16	-5954.21		IB	B5790
SIB	+8897.85	-8190.24		SIB	B5791
SIB	+8448.01	-5923.93		SIB	B5792

LEGEND

RIVERS, CREEKS & LAKES
PRIMARY ROAD
SECONDARY ROAD
FIRE TRAIL / RESOURCE ROAD
W/MA & BUILT UP AREA OUTLINE

NOTE:

WARNING !
CNSC NOTIFICATION OF CHANGE REQUIRED UPON UPDATE OF THIS DRAWING E-4500-1101.

PURPOSE OF USE: REFERENCE ONLY

		PRODUCTION QUALITY CATEGORY
		N/A
E-5067-F	CHALK RIVER LABORATORIES PLANT LAYOUT BUILDINGS & ROADS	
E-4500-1100	CRL OUTER AREA PLANT MONUMENTS PROPERTY PLAN	PROCUREMENT QUALITY CATEGORY
E-4500-1000	CRL OUTER AREA LANDSCAPE PROPERTY PLAN	
REFERENCE NO	REFERENCE DESCRIPTION	N/A
GEN	SIMPLIFIED DRAWING FOR EASE OF MAINTENANCE WHILE STILL MEETING REGULATORY REQUIREMENTS.	TOTAL MASS: N/A
LOCATION	REVISION DESCRIPTION	

REVISION BLOCK | PREP heinb | CHKD kelleyn | DSGN kelleyn | APPD schefskc | DATE 2026/06/26 | REVISION 0 REA NO: 16807

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DATE 2000/07/05

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BLDG CRL | CODE N/A | CLASS O/S | TYPE GA

CRL OUTER AREA PLANT BOUNDARY MONUMENTS PROPERTY PLAN

DWG NO E-4500-1101 | REV 8
SIZE E | SCALE 1" = 1000' | REA NO. 220773-10 | SHT 1 OF 1

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